MID-TERM EVALUATION OF THE COMMUNITY-BASED AGRICULTURE AND RURAL DEVELOPMENT – WEST PROJECT (CBARD-W)

Mid-Term Evaluation Report

Prepared by Dr Steve Goss for UNDP Afghanistan and INL, February 2019
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List of abbreviations and units

Abbreviations have been kept to a minimum and are defined on first use; the following are commonly used in this project:

**CBARD structures and organisations**
- **CBARD-W**: Community-Based Agriculture and Rural Development – West project (the UNDP project being evaluated here)
- **CBARD-E**: Community-Based Agriculture and Rural Development – East project (sister UNDP project started the year after CBARD-W began)
- **UNDP**: United Nations Development Programme (partner)
- **INL**: Bureau of International Narcotics and Law Enforcement Affairs (donor)
- **MAIL**: Ministry of Agriculture, Irrigation & Livestock (main implementing partner)
- **MCN**: Ministry of Counter-Narcotics (supporting partner)
- **CDC**: Community Development Council (local elected structures established throughout Afghanistan under the government’s National Solidarity Programme; function as the main partner for local implementation of many CBARD activities)
- **CIG**: Common Interest Group (informal structures established by the project in beneficiary communities to bring together farmers producing similar crops, for training, extension and marketing; also used in other projects implemented by MAIL)

**Other projects and organisations**
- **USAID**: United States Agency for International Development
- **FAO**: United Nations Food and Agriculture Organisation
- **CCAP**: UNDP-MAIL Climate Change Adaptation Project
- **CDRRP**: UNDP-MAIL Climate-induced Disaster Risk Reduction Project
- **CHAMP**: USAID Commercial Horticulture and Agriculture Marketing Program, being implemented by Roots of Peace
- **NHLP**: National Horticulture and Livestock Project, funded by the World Bank and implemented by MAIL

**Measures and currencies**
- All measures use the SI (metric) system, other than the local area unit of a “jerib”, equal to 0.25 ha (2,500 m²)
- $: US dollars
- **AFN** or **Afs**: Afghanis ($ 1 = 75 Afs in late 2018)
Executive summary

This is a generally well-designed, well-run livelihoods project operating in very difficult conditions. Its initial interventions are welcomed by beneficiaries and promise a real increase in household income, but it is too soon to measure the actual impact and prove that high-value crops can lead to a significant long-term reduction in opium production.

The main design weakness was that the project duration is too short to measure the impact of orchards or to assess the impact of any high-value crop in a range of market conditions. The two key recommendations are to continue periodic monitoring until 2028 to measure results from mature orchards and across years of both high and low opium prices, and to focus future support on low-cost, high-return interventions such as orchards, so as to reach as many beneficiaries as possible and thus maximise the impact on opium production.

Objectives

With a stated purpose to prove the viability of high-value agricultural-based interventions in improving local economies in Farah and Badghis as a sustainable alternative to illicit crop cultivation, CBARD-West aims to reduce opium cultivation and directly benefit an estimated 33,240 households (232,680 beneficiaries).

This mid-term evaluation aims to provide a comprehensive and independent assessment of project performance to date, as well as provide substantive recommendations for the remainder of project implementation.

Choice of interventions

In terms of the objective of increasing household incomes, the interventions seem generally appropriate, well designed, and well implemented.

Orchards: A typical orchard beneficiary should eventually generate an income of around $2,000 per year but it is too soon to measure the results, since orchards and vineyards take several years to establish and reach full production. However, the reaction from beneficiaries seems very positive, and other community members and those from the neighbouring villages are now asking for similar assistance; experience of other projects has shown good results from similar interventions.

The high-density orchard variant, implemented initially as a trial demonstration, offers much higher returns per hectare but costs considerably more. It is recommended that the project should focus on conventional orchards to benefit as many people and cover as much area as possible.

Greenhouses: Commercial greenhouses of 300-400 m² should give beneficiaries an income of around $1,500 per year when they have production and marketing working well. Some have already shown results from the first one or two crops, generating income of around $1,000, and beneficiaries report them as very successful.

However, they are relatively expensive and it is recommended that the project should focus more on orchards, plus micro-greenhouses for female beneficiaries who have fewer economic options.

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1 Income effects of interventions are as estimated in section 3.2.1.
**Zero-energy cold stores**: Results are not yet available for this intervention and economic projections had not been developed by the time of this evaluation. Data from the USAID “CHAMP” project\(^2\) suggests that such cold stores can be profitable if costs are kept down and throughput is high. The CBARD cold stores seem relatively expensive for the volume of produce to be stored, and it is not yet known how effective they will be in extending the marketing season.

The project should look for cheaper ways of building cold stores, and only expand this intervention if data show that it offers a good return on investment.

**Raisin houses**: Again, neither measured results nor economic projections were available for the evaluation. This is a relatively simple design, producing a traditional produce that is easy to store, transport and market, but it is not yet clear whether the returns are sufficient to justify the investment. Data from the “CHAMP” project suggest that raisin houses can be profitable, again if costs are kept down and throughput kept up.

The project should check the economic viability of this intervention and also see if it can come up with a cheaper design or self-build variant.

**Compost units**: The demonstration units for conventional compost cost around $1,800 each, and it would take a lot of compost to return this value. The vermiculture compost units are even more expensive and it is not clear how much more beneficial they will be.

It is suggested that the team might look for a much cheaper self-build form of conventional compost bins so that these can be established on almost every farm. The vermiculture units should for now be treated as an experiment and only replicated if initial results are positive.

**Kitchen gardens**: These have been well received by female beneficiaries. Although no economic projections have been made, this is a tried-and-tested means of supporting household livelihoods that almost certainly offers good value for money.

The project should seek to gain some indication of the return on investment and, provided it is positive, aim to deliver this intervention on a wider scale.

**Beehives**: These have only been distributed recently so no results are yet available. They are normally a profitable investment, with the added advantage of providing pollinators for orchards.

As with beehives, the project should seek to gain some indication of the return on investment and, provided it is positive, aim to deliver this intervention on a wider scale.

**Irrigation**: This is the most complex intervention since the design is different in every case according to local needs and possibilities. It offers the potential to bring benefits to a large number of villagers and thereby encouraging a wide-scale switch from opium to licit high-value crops.

One issue here is the cost-effectiveness of canal lining, which in many other countries has been found not to be cost-effective. Also the works must be well designed and implemented, and the canal well maintained to avoid leakage.

The project should examine the costs and likely benefits of different irrigation investments and focus on those that offer the best returns.

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\(^2\) Commercial Horticulture and Agriculture Marketing Program
Selection of treatment and control communities

Project staff report that neighbouring communities not targeted for interventions are requesting similar assistance and asking why they were not included. There are also complaints that the project is only operating in government-controlled areas. It was obviously necessary for the project to have control communities. It was also essential to have access to the intervention communities, which implies operating in government-controlled areas. Another selection criterion was that communities should have reasonable access to markets. The selection approach used by the project therefore seems appropriate.

Selection of beneficiaries

Beneficiaries were selected by local leaders through the Community Development Councils, applying criteria set out in the Inception Report to exclude unsuitable candidates. This may have resulted in the better-connected members of the community capturing most of the benefits. Interestingly, the selection of beneficiaries does not seem to be a cause for complaint by other community members, who see it as a decision taken by the community rather than the project.

One of the targets of the project was improved economic livelihoods, especially for vulnerable populations and women. Whilst the project has delivered interventions to more than 130 women and exceeded its target for 20% women in training activities, the way in which other beneficiaries were selected has probably failed to reach the most vulnerable, such as the landless and those with limited wealth and power in the community. The exclusion of landless families follows directly from the project’s focus on farmers and land that might otherwise produce opium, which was required in order to address the second objective to reduce opium cultivation.

It is recommended that the next round of interventions should seek to broaden the range of beneficiaries and increase their number so that more people in the treatment communities receive a direct benefit.

Gender issues

The project has met its targets for at least 20% women amongst its lead farmers and trainees, and has established effective systems of extension to reach women. This approach seems to have been accepted by the communities and represents a significant step forwards. Recruiting female staff has proved more challenging, and women currently make up 8% of total project staff.

Timescale

The various orchard crops take 6-10 years to reach maturity, so none of these interventions will have reached full yields before the planned end of the project. It is strongly recommended that the project should be extended, or at least the monitoring element continued to measure the actual results at full productivity.

Also the opium market cycles between high and low prices every three years or so, and it will be important to see how beneficiary farmers respond at different points in the cycle.

Project management

This is a large and complex project operating in a very difficult environment. This report makes a number of recommendations so strengthen management of staff from Kabul to the
districts, to plan ahead to reduce the problem of delays in procurement and implementation, and to strengthen and streamline monitoring, analysis and reporting.

**Markets and finance**

Beneficiaries from Badghis province did not anticipate major problems in marketing their high-value crops. So far, vegetables from the greenhouses have largely been bought by local shops, for whom this is a more convenient source of supply than bringing in produce from outside the village. For fruit and nuts, farmers hope to be able to attract traders to come and buy from their village, and all expressed a wish to see more traders, rather than to become traders themselves.

The planned hierarchy of Common Interest Groups, Producer Marketing Organisations and National Federations does not seem necessary in a market that already has active traders and where marketing margins are comparatively small. It might be better for the project to concentrate on helping farmers become better farmers and traders become better traders, rather than to try to turn farmers into traders and to form organisations that, international experience suggests, may well fail once project support is withdrawn.

Access to input markets appears to be more of a constraint. After the initial year of project support, the beneficiaries of orchards and greenhouses will need to buy fertilisers and pesticides each year, as will any other community members who replicate these investments. Currently this requires travelling to the district or even province centre, and so the project might investigate whether there is scope to support the development of local input supply shops.

The planned “Access to finance” component was cancelled due to the lack of any suitable finance organisations in rural areas. Whilst that management decision was almost certainly correct, community leaders stressed that most farmers have no access to finance and so will not be able to replicate the activities demonstrated by the project.

It is possible that input supply shops could become a channel for short-term finance linked to inputs. The project might wish to investigate this area and consider launching some pilot activities.

**Scale and scope for expansion**

The Project Document and Inception Report set the unrealistic aim of benefitting every household in the treatment communities, but the project set a more modest goal of covering 30 households per community and has generally done so. However, across the total provinces of Badghis and Farah, this represents around 1 household in 600.

If alternative livelihoods from high-value crops are eventually to bring a substantial reduction in national opium production, then considerable scaling-up will be required, and so it must be asked how realistic it would be to establish orchards and greenhouses on a very large scale. This depends on several factors including land suitability, farmer capacity, physical access to markets and the capacity of those markets to absorb large volumes of fruits and vegetables. Increasing the number of beneficiaries and continuing monitoring as orchards mature will show whether these obstacles can be overcome in practice.

**Capital availability**

With investment of around $1,000/ha for orchards and $8-10,000 per greenhouse, including tools, fertiliser and seeds, scaling up high-value crops would require substantial capital that is
not currently available. If the project demonstrates that they are viable and bring a real reduction in opium cultivation, then donors and MAIL could develop finance mechanisms for scaling up over a number of years.

**Impact on opium production**

It is too early to discover whether the project has resulted in any sustainable reduction in opium production. The beneficiaries from Badghis all reported that their communities used to grow a lot of opium before but now produced none, though the accuracy of these claims cannot be tested until UNODC remote sensing data become available. Results from the April 2018 Opium Survey are still being processed, though preliminary indications are that the poppy area has fallen in both treatment and control communities. The long-term impact on reducing opium production is hard to predict at this early stage, though it is likely that high-value crops could make an important contribution to an overall counter-narcotics and development strategy. Even when high-value crops are not sufficiently profitable to out-bid poppies for land, labour or capital, they offer people an alternative way to earn a living and so give them, perhaps for the very first time, a choice as to whether or not to produce opium.

**The project in figures**

- Started in November 2016, ending in April 2020\(^3\).
- 70 treatment communities and 38 control communities in 6 districts of 2 provinces.
- 47 lead farmers, including 12 women.
- 1,717 unique beneficiaries, including 131 women and 45 local organisations\(^4\).
- 1,848 interventions:
  - 1,015 orchards covering 1,342 jeribs (335 ha)
  - 658 greenhouses
  - 64 irrigation projects
  - 52 compost units\(^5\)
  - 40 raisin houses
  - 10 cold stores
  - 5 beehive packages
- 72 project staff.
- Budget of $24.4 million, of which $5.9 million (24%) disbursed by September 2018.

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\(^3\) A no-cost extension until 2021 is under discussion.

\(^4\) The database shows some interventions as going to District offices of MAIL (“DAIL”), whilst others are labelled as “Canal” or “Public” and would be implemented by the Community Development Council (CDC). These are all classed in the database as organisations.

\(^5\) Updated figures from February 2019 show 87 compost units, 41 raisin houses and 80 beehive packages.
List of recommendations

* denotes strategic recommendations that will need to be addressed more widely by INL, UNDP, UNODC or other organisations.

**Recommendation 1** Convert the existing spreadsheet records into a structured relational database, and ensure that future data are properly checked and coded before import. 63

**Recommendation 2** Arrange procedures for regular transfer of relevant data from UNODC databases to the project database*. 63

**Recommendation 3** Consider how overall project impact will be calculated, ensure that the necessary indicators are collected, and give greater prominence to indicators that strongly influence household income. 63

**Recommendation 4** Review and synchronise the targets in the Results Framework, and create standard database reports to give regular status updates. 64

**Recommendation 5** Supplement the “APY” survey with sample-based collection of cost data to produce full gross margins for each high-value crop, including orchard inter-crops. 65

**Recommendation 6** Keep records for a representative sample of irrigation project and demonstration activities so that costs and benefits can be calculated. 65

**Recommendation 7** Consider analysing similar interventions under other projects, such as the World Bank-funded NHLP, to determine their long-term effect on opium growing*. 66

**Recommendation 8** Update and extend the analysis of high-value crop margins using data from project monitoring. 66

**Recommendation 9** Conduct standard financial and economic analysis of all project interventions before promoting them widely*. 67

**Recommendation 10** Combine the gross margin budgets into economic models to show the impact of the project on whole farms and villages, considering also their other crops. 67

**Recommendation 11** Focus Round Two on crops and structures that give a high return on project funds and can cover large areas of land or numbers of people. 68

**Recommendation 12** Check the economic profitability of female-focussed interventions as soon as possible, and implement the profitable ones on a considerably wider scale. 68

**Recommendation 13** Seek alternative designs for cold stores, raisin houses, compost units and irrigation structures than can be replicated by beneficiaries at minimal cost. 69

**Recommendation 14** Adjust the intervention mechanisms for Round Two so as to reach as many beneficiaries as possible, aiming for more than the original target of 2,100. 69

**Recommendation 15** Consider and possibly pilot local input supply shops as part of the project’s support to community-based input supply infrastructure, with these also serving as contact points for information and advice. 70

**Recommendation 16** Consider the possibility of extending trade credit through the new input-supply shops, if established*. 71

**Recommendation 17** Develop a toolkit of extension materials to increase the effectiveness of front-line extension workers and for direct dissemination to farmers. 71

**Recommendation 18** Share experience of demonstration plots and regular interventions as widely as possible, with a strong emphasis on the lessons learned. 72
Recommendation 19  Develop an extension strategy to guide the project’s work in this and integrate it more closely with the MAIL extension system. .................................................................72

Recommendation 20  Develop vertical teams to increase delegation, strengthen cooperation between staff working on similar issues, and improve management efficiency. Consider appointing a Deputy Project Manager. .................................................................................................72

Recommendation 21  Allow greater lead time for procurement and delivery when time is limited, and make greater use of multi-annual “draw down” contracts for supply of standard items. 73

Recommendation 22  Recruit a communications expert, prepare a communications strategy and put it into effect........................................................................................................73

Recommendation 23  Consider extending the project until the end of 2021, continuing regular monitoring until at least 2028, and ensuring advisory work continues after the project ends*. 74

Recommendation 24  Focus some resources on a limited area to discover whether and how large volumes of high-value crops can be marketed.................................................................74
1 Purpose of the evaluation

The stated objectives of the Mid-term Evaluation are to:

a) Assist the recipient Government, beneficiaries, UNDP and, as appropriate, the concerned partners and stakeholders, to improve the efficiency, effectiveness, relevance, sustainability and impact of the project;

b) Provide feedback to all parties to improve the policy, planning, appraisal and implementation phases; and

c) Ensure accountability for results to the project’s financial backers, stakeholders and beneficiaries.

Mid-Term Evaluation within the project cycle

This mid-term evaluation sits between the initial baseline study and needs assessment, and the final evaluation to come at the end of the project. Follow up monitoring may extend beyond the lifetime of the main project, to assess sustainability and track the progress of the orchards as they grow to maturity; the precise approach to follow-up monitoring has not yet been agreed but may result in one or more evaluation reports after the main end-of-project evaluation.

Three key reasons for conducting this mid-term evaluation are to:

- Identify any serious problems or new opportunities whilst there is still time to address them;
- Inform decisions about whether or not the project should be extended or expanded, so necessary arrangements can be made before the end of the original project period;
- Draw early lessons from the project to inform UNDP, INL, MAIL and other organisations who might be running or considering similar initiatives.

Whilst the project management already have these issues in mind, the mid-term evaluation offers an external and independent view.
2 Evaluation methodology

This mid-term evaluation was conducted from November 2018 to February 2019, including a mission to Kabul in December 2018. It involved:

➢ Thorough review of project documentation and relevant background documents (see Annex 10: References).
➢ Analysis and restructuring of the project database to see what was done, when, how much it cost and who benefited (see section 3.3: Project status).
➢ Analysis of data from UNODC (2018) on opium areas, production, yields and prices (see section 3.2.1: Reduced opium production and Annex 7.b: Opium production and market).
➢ Analysis of FAOSTAT data on high-value crops to investigate possible market impacts of project interventions (see section 3.1.1: Sustainability of high-value crops as an alternative to opium and Annex 7.a: Production, consumption & trade of high value crops).
➢ Analysis of the Gross Margin budgets prepared by the Chief Technical Advisor and local experts to examine whether high-value crops have the potential to offer a viable and sustainable alternative to opium production (see section 3.2.1: Viability of high-value crops and Annex 8: Gross margins of high-value crops and opium poppies).
➢ Preparation of a detailed description of the project interventions, including the number of interventions and estimates of their costs and benefits (see Annex 2: Description of project interventions).
➢ Travelling with the project team on a “virtual tour” of project sites via Google Earth and other satellite imagery, further informed by data from the project’s GIS systems; the situation in one project district is presented in section 3.3.2: A typical project area.
➢ Structured interviews with staff from UNDP, UNOCD and the CBARD-W project, and with beneficiaries from Badghis province, following the questions set out in the relevant sections of Annex 6: Templates of tools and questionnaires employed. Interviews with UNDP and project staff began before the mission and continued afterwards, through Skype.

It had been planned to meet a second group of beneficiaries from Farah province, but this could not take place because the two flights from Herat to Kabul that week were both cancelled due to bad weather. Practical reasons also prevented planned meetings with the Ministry of Counter-Narcotics and with the responsible Deputy Minister from MAIL, and the donor, INL, preferred not to meet the consultant during the evaluation mission but instead provided detailed comments on the draft report.

It was not possible to make a quantitative analysis of the impact of the first project year on opium production, as UNODC survey data on treatment and control communities in 2018 were not yet available. This important analysis should be carried out in due course, and will presumably be done by UNODC under their monitoring contract.

Annex 5 provides more detail on the evaluation methodology and timetable, and sets out the list of evaluation questions from the Terms of Reference that provide the structure for section 4: Evaluation.
3 Background

This chapter begins with a brief description of the country context, including some analysis of the markets for both high-value crops and opium. It then examines in some detail the project rationale to see whether it would be possible for the project to achieve all of its goals, even if it were perfectly managed. The final project looks at what the project has done so far, and when; who has benefitted; how much it has cost; and how the project is staffed and managed.

3.1 Country context

Larger than any country in Europe, Afghanistan is highly mountainous and its 30 million population is distributed across the capital, Kabul, 33 other province centres, 394 district centres and some 45,500 villages. The country has experienced almost continuous conflict and violence over the 40 years since the Soviet invasion of 1979, and armed groups are still present in many parts of the country, making it hard for government to exercise effective control or international organisations to operate in these areas.

The combination of geography, insecurity and the state of the roads makes travel slow and risky, and central government remote. Traditional tribal allegiances and community structures play a major role in the rural areas where over 70% of the population lives. The government’s policy, as expressed in the Afghanistan National Peace and Development Framework (ANPDF) and the Citizens’ Charter, is to work with this reality and promote Community Development Councils (CDCs) as a key level of government and the one with which citizens most often interact.

However, the challenge of building good governance is a daunting one. Considering a number of global indicators with countries ranked into ten groups from best to worst, Afghanistan currently falls into the ninth group according to the Economist’s Democracy Index – which correlates strongly with many indicators of human development – and in the tenth or bottom group for the World Bank’s Ease of Doing Business Index and Transparency International’s Corruption Perceptions Index. In terms of UNDP human development indicators, the country performs somewhat better than its business and administrative environment would suggest, rising into the ninth group for both the Human Development Index and the Inequality-adjusted Human Development Index. However, in terms of the Gender Inequality Index, Afghanistan slips back into the bottom group.

Agriculture plays a major role in rural areas, providing employment to some 53% of the rural population and generating 18% of licit GDP, rising to 25% if the output of opium poppies is included.

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6 As recorded in the UNODC database in 2018.
It is in this climate, and in two of the most inaccessible, impoverished and poppy-dependent provinces, that this project strives to make a difference.

Some of the practical challenges, and the ways in which the country is changing, were brought home through the meetings with beneficiaries: The group from Badghis province had travelled for four days to reach Kabul and faced an equally long journey back. Those from Farah had to travel to Herat airport in the adjacent province to catch the twice-weekly flight to Kabul, but due to bad weather, two flights in succession were cancelled and they were unable to come at all.

The beneficiaries from Badghis numbered ten men, who sat round the big table and explained quite openly that almost everyone in their villages grew opium before the project, and three women who sat in a row of chairs against the wall, one of them initially in full burqa. As the meeting progressed, she folded back her head covering and told her story as the participants each spoke in turn. The translator expressed surprise, not that the women were relegated to the second row, but that they were there at all, explaining that just twenty years earlier it would have been unthinkable to see women at such a meeting, least of all with their faces uncovered.

**Contribution of agriculture and opium poppies to the national economy**

The following chart shows the development of Gross Domestic Product (GDP) over the last five years:

![Sectoral contribution to GDP at 2002-3 constant prices](chart.png)

*Source: Afghanistan National Statistics and Information Authority, Statistical Yearbook 2017-2018*

Excluding the illicit poppy sector, services now account for over half of GDP (54 %), with the main segments being transport, storage & communication (27 %), government services (12 %), and wholesale & retail trade (8 %). Industry generates 24 % of total GDP, mostly due to construction (13 %) and manufacturing (10 %). Agriculture comes in third place, with 18 %
of licit GDP, but contributes to the income of a large share of the entire population. In most villages, agriculture will be the main source of income and employment, but looking at a larger scale to include district and province centres, the service sector is probably more important. When opium poppies are included in agriculture the situation changes markedly, with agriculture moving into second place at 25% of total GDP, of which 8% comes from poppies and 17% from other crops and livestock. The contribution of poppies is also quite variable due to the cyclical nature of the opium market. Non-poppy agricultural output has been reasonably stable and exhibited annual growth of 4% over this period, but when poppy output is included, agricultural GDP appears more volatile.

3.1.1 Sustainability of high-value crops as an alternative to opium

The viability of high-value crops as a sustainable alternative to poppy cultivation is highly dependent on the market for high-value crops and the market for opium. Two questions are particularly relevant to sustainability:

Q 1. Can markets absorb the extra high-value produce generated by project interventions?
Q 2. Will high-value crops still be competitive if opium prices return to their former high level?

Annex 7 examines the two product markets to help answer these questions.

Market for high-value crops

Each of the orchard crops being promoted under the project has a different market situation, as reported by FAOSTAT:

- **Apples**: Afghanistan is a small net exporter of apples. Projected output from both CBARD projects will increase national production by around 7%. Nationally, this quantity can be absorbed, but it could cause disruption to local markets until traders adjust to the new situation.

- **Citrus**: Almost 95% of citrus supplies are imported. Projected output from both CBARD projects will represent a very significant 65% increase in national production but less than 3% of consumption, so markets should easily absorb this quantity.

- **Grapes**: Grapes account for the large majority of Afghanistan’s fruit production by volume, with over 20% exported as grapes or raisins. Projected output from the CBARD projects will represent an increase in national production of just 0.9%, which markets will be able to absorb.

- **Pistachios**: FAOSTAT data cover nuts of all kind and show that around 12% of total production is exported; the majority of this will be pistachios. Projected output from the CBARD projects will represent a 0.5% increase in total national production, which markets should easily.

In conclusion, the main marketing concern for the project should be to ensure is sold not just at local district markets but also at province centres and to traders who can ship to other parts of the country when the demand is there. If the project interventions were later replicated on a much larger scale, which would be necessary in order to have a significant impact on national opium production, then the market issues would become a lot bigger and require more attention.
Opium production and market

Data collected by UNODC show that the opium poppy sector in Afghanistan behaves like many other agricultural markets: a high opium price induces farmers to use more land for poppies, the resultant increase in opium production then drives down the price, leading farmers to reduce their production two or three years later in a classic commodity cycle. Poppy area and production hit their highest ever level in 2017, leading to a sharp fall in the opium price from around $200/kg to its current level of less than $100.

At this low price, it is not difficult for high-value crops to offer a more profitable alternative to opium poppies, but there is every reason to assume that the opium price will soon return to at least $200/kg and could even reach its former level of $3-400/kg, at which point most high-value crops will seem a lot less attractive. The main conclusion for the project is that it will be important to continue monitoring the impact of the project interventions through at least one full poppy cycle, in order to establish whether high-value crops really offer a sustainable alternative to opium production.

3.2 Project rationale

The Project Document states in its Brief Description:

With a stated purpose to prove the viability of high-value agricultural-based interventions in improving local economies in Farah and Badghis as a sustainable alternative to illicit crop cultivation, CBARD-West aims to reduce opium cultivation and directly benefit an estimated 17,500 households (122,500 beneficiaries).

This sentence is repeated in the Executive Summary of the Inception Report, though with the estimated number of beneficiaries increased to 33,240 households (232,680 beneficiaries) in line with the revised and expanded project design.

In order to fully meet its purpose, the project must achieve three things:

- It must demonstrate that high-value crops are viable in these areas and offer a sustainable alternative to illicit crop production;
- It must reduce opium cultivation;
- It must directly benefit around 33,240 households (232,680 beneficiaries).

This section examines the underlying rationale and how realistic it is that the project can achieve these three goals.
3.2.1 Viability of high-value crops

In order to test the “viability of high-value agricultural-based interventions in improving local economies in Farah and Badghis” it is necessary to have some measure of their economic effect. The most appropriate measure is the “Gross Margin”: the income from a crop minus the direct costs of seed, saplings, fertiliser etc.

At this early stage in the project, none of the new orchards is yet bearing fruit and there is only one year of data for the first greenhouses. It is thus too early to measure the viability of the high-value crops, but the project has worked with local experts to produce typical budgets for the lifetime of each investment and thereby to estimate the gross margin that the farmer will receive. These budgets are presented in Annex 8 and summarised here; they consider the full cost of the investment to see how attractive the different crops would be to “replicators” who establish high-value crops with their own money, rather than to beneficiaries who received a grant-in-kind from the project.

The following chart shows the income from one greenhouse or one jerib (¼ hectare) of open-field crops, averaged over 15 years to include both the initial cost of building a greenhouse or planting an orchard, and the revenue when the greenhouse is in function or as the orchard develops to maturity. It covers all the main high-value crops included in the project, plus opium poppies at four different levels of price and yield (see Annex 7.b), together with irrigated wheat as a comparison low-value crop:

At the current low opium price of around $100/kg, poppies appear to be loss-making and are out-performed by all other crops, including wheat.

At an opium price of $200/kg, the average for the current decade, all of the orchard crops except pistachios offer a better return than poppies. However, a jerib of poppies still brings a higher return than a greenhouse bought by the farmer; the only exception is where the...
greenhouse grower can get two crops per year, in which case the return is more than double that of a jerib of poppies.

Once the opium price gets to $ 300/kg, poppies appear more attractive than all of the high-value crops except for high-density orchards.

This suggests that orchard crops can offer a sustainable alternative to opium poppies, averaged across the years of both high and low opium prices.

However, a significant share of the total cost of opium production is the hired labour needed for harvesting, with most of this money going to landless and migrant workers, one of the most vulnerable groups in rural Afghanistan. If the cost of labour is excluded to reflect the situation when a family uses its own labour, poppies appear more attractive and most orchard crops can equal but not exceed the income from poppies at an opium price of around $ 200/kg.

The comparison between greenhouses and poppies is more complex because it depends on the size of the greenhouse and the area of poppies: project calculations shows that a 400 m² greenhouse will generate a net income before labour of around $ 750 from one crop per year, equivalent to that from just over half a jerib of poppies; for a family currently dependent on opium production, that would probably not be sufficient income to let them give up poppies entirely.

**Sustainability and scalability**

All of the high-value crops appear profitable from the very first year for beneficiaries who are given the greenhouse or saplings, together with the first year’s inputs. However, to be truly sustainable on a large scale, high-value crops must also work when the farmer has to replace the greenhouse without project support, and for replicators who want to establish orchards or greenhouses using their own funds or borrowed money. The project found that very few farmers have access to affordable credit, so their ability to switch to high-value crops will largely depend on what they can finance from their own resources.

Conventional fruit orchards and vineyards have a relatively low establishment cost and bring a fairly quick income, provided farmers can find a good market for vegetables grown between the young trees, so this system might well be replicated by ordinary farmers. Pistachio plantations do not usually include inter-crops and so give no return on investment for several years; it is unlikely that many farmers would invest their own money in this crop, particularly when it grows wild on the hills around the village. Greenhouses and high-density orchards have a significant capital cost that few farmers could afford, so it is unlikely that these models will be replicated on a large scale without project support or some kind of credit scheme.

**Return on investment**

The project has implemented a diverse range of investments, ranging in cost from under $ 200 for a jerib of pomegranates to over $ 10,000 for a commercial greenhouse. Which of these offers the best return on limited project funds and which would give the best return on the farmer’s own investment? One measure of this is the “Internal Rate of Return” (IRR) – the maximum interest rate that an investor could pay to borrow money and still make a profit.
Considering each type of intervention:

- **Commercial greenhouses producing one crop per year** offer returns of 14-18%. They would not be worthwhile for a farmer who had to borrow from a micro-finance organisation at 2% per month (24-27% per year) but would represent an acceptable return on a loan from an international finance institution such as the World Bank – if such were available.

- **Micro-greenhouses and commercial greenhouses cropping twice per year** offer returns of 35-43%. In theory these would be worthwhile even at the high interest rates charged by micro-finance organisations, but the profit margin is probably not high enough to justify the substantial risk.

- **High-density apple orchards** offer returns of 63%; if finance were available, larger farmers might well be interested in borrowing to establish such orchards.

- But by far the best returns come from **conventional orchards**, with returns of up to 350%. Cash requirements are low and most of the real investment comes from the farmer’s own labour. The returns on investment appear so high that both donors and government should prioritise conventional orchards over the other high-value crops so far considered. This conclusion could be applied directly in the next round of interventions by CBARD-W.

**Results in practice**

All of the data in this section are based on Gross Margin budgets compiled by the Chief Technical Advisor and local experts, rather than on actual results from CBARD-W. Over time they should be updated to reflect actual project costs, returns to beneficiaries measured by the APY survey\(^\text{13}\), and production costs for which a new survey instrument will be required. The only APY survey data available so far cover the first year’s results for 138 greenhouses, showing average revenue of $915 for the majority that had produced just one crop and $1,330 for those who harvested a second crop within the period. These values are lower than the projected annual revenue of around $2,400 per greenhouse, but they cover the very first steps of a new venture when farmers must learn a whole range of new technical skills and find the best way to market their crop. Returns will probably rise in future years and can then be used to refine the Gross Margin budgets.

**Effect of wage rates**

One of the main effects of economic development is to create employment and raise wage rates. This increases the income of working families, encourages a substitution of capital for labour, and changes the relative profitability of different activities.

Because poppy cultivation is very labour intensive, it becomes considerably less attractive as wage rates rise, and this may well hold the key to a long-term move out of opium production.

What could drive up the price of rural labour? Orchards would not be sufficient, as their annual labour requirement is less than that of opium poppies, but greenhouses absorb a lot of labour, as can food processing. In most countries the rise in rural wage rates is driven not by agriculture at all, but by non-farm employment and, most crucially, by commuting or migration to better-paid urban jobs.

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\(^\text{13}\) Annual records of Area, Price and Yield from all relevant project beneficiaries.
Storage and processing

Two interventions being demonstrated by the project are zero-energy cold stores for apples, and raisin houses for drying grapes. Estimates of their economics have not yet been made, but preliminary calculations suggest that they could be profitable if storing the apples or drying the grapes led to a price increase of at least 50%. The project should monitor market prices and results from the first round of cold stores and raisin houses to see whether this can be achieved in practice.

3.2.2 Reduced opium production

The project has a clearly-stated purpose of reducing opium cultivation in the treatment communities, which raises two key questions:

➢ How would high-value crops lead to a reduction in the poppy area?
➢ How will the project tell whether changes in the poppy area are due to project interventions or other factors?

Annex 9 looks at these two questions in detail, with the main issues summarised here.

Mechanisms for high-value crops to reduce poppy area

The Theory of Change set out in the Project Document shows how improved production and marketing of high-value crops, supported by improvements in agri-business infrastructure, should lead to “Improved household income with less dependency on illicit cultivation”. An important question is whether increased income from high-value crops will lead to farmers reducing their area of opium poppies, or whether they will simply grow high-value crops as well as opium poppies.

Three ways in which an increase in high-value crops might lead to a decrease in poppy area are:

1) Resource diversion: Farmers are no longer able to grow opium poppies because their land, labour or capital are tied up by high-value crops; the analysis of section 3.1.1 and Annex 8 looks at whether orchards and greenhouses are sufficiently profitable to divert resources away from poppy production14.

2) Dependency reduction: Farmers could still grow opium poppies, and it might be profitable for them to do so, but they do not need to grow opium to survive because they get an adequate income from high-value crops; this seems to be the central idea in the project objective, with its reference to “less dependency on illicit cultivation”.

3) Conditionality: Farmers must stop growing opium poppies in order to receive benefits from the project; the beneficiaries from Badghis said that the main reason they had stopped growing poppies was because they had to sign a commitment in order to participate in the project.

Rand Corporation (2015) concluded that “higher rural incomes … appear to be a necessary, if insufficient, condition for substantially curtailing the cultivation of illegal crops”, supporting the idea of dependency reduction coupled with wider socio-economic change. The same

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14 Resource diversion corresponds to some extent with the idea of “Crop substitution” as discussed in the alternative development literature. However, the term “crop substitution” suggests an emphasis on the land resource, whilst in this project some of the interventions, particularly greenhouses, are more likely to divert the household’s labour.
report reviewed the experience of conditionality and concluded that is not an effective means of reducing narcotics production; in terms of this project, it is quite possible that the treatment villages will resume poppy production once they stop receiving new benefits from the project.

**Measuring and interpreting changes in poppy area**

As a central part of its monitoring strategy, the project will utilise remote sensing through the services of UNODC’s GLOU34: Illicit Crop Monitoring Project as a means to measure CBARD-West’s impact on cultivation of opium poppy on a yearly basis. Community-level results are not yet available from the satellite images collected in spring 2018, the first since project interventions began, but Annex 9 discusses how the results of this and subsequent remote-sensing surveys should be analysed and interpreted.

The key point is that the highly cyclical opium market would result in year-to-year changes in the poppy area even without the project. Given that CBARD-W began when opium prices were at their lowest, it is quite likely that the poppy area in control communities will fall for a year or two and then start to increase when prices rise again. When decision-makers come to review the future results of UNODC surveys, the question they should ask is not whether or not the poppy area in treatment villages fell compared to its level before the project, but whether it fell relative to what would have happened without the project, as indicated by the treatment communities. Annex 9 shows a simple graphical way to present the project impact in a way that stakeholders can understand.

Deeper understanding of the processes in treatment and control communities will be gained through repeating the baseline socio-economic survey at the end of the project.

**3.2.3 Beneficiary households and individuals**

The Inception Report states the revised aim of the project as to “directly benefit an estimated 33,240 households (232,680 beneficiaries)”. The figure of 33,240 households is the estimate from the UNODC baseline survey for the total number of households in the treatment communities, and the estimate of 232,680 beneficiaries applies the assumption of an average 7 members per household. The survey also indicates that these communities have in total around 100,000 jeribs (20,000 ha) of land, of which about 40,000 jeribs is irrigated.

This figure of 33,240 households is not a realistic target, as it would require directly benefiting every single household in the treatment communities, whereas the selection criteria for most interventions require beneficiaries to have a at least a specified minimum area of land, access to irrigation, and willingness to participate and to make the requisite contribution in cash or in kind. Given that some households have no significant area of land at all, either keeping livestock, working outside agriculture or serving as day labourers for farmers with land, it is clear that a project on high-value crops could never directly benefit every household in the community.

The second issue is one of project scale and budget: the project has so far delivered interventions to just over 1,700 unique beneficiary households (see section 3.3.3 below),

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15 Project Document page 19: VI. MONITORING AND EVALUATION; Opium Production Monitoring Agent.
16 Rand Corporation (2015) quotes an average of 11 people per rural farm household, saying this is in line with other studies. This would increase the population estimate for the 70 treatment communities to 365,000.
representing around 5% of the quoted target\textsuperscript{17}. It would need to take a very different approach over the remaining two years of the project in order to reach a substantial share of this target.

The latest report showed $18.5 million of project funds remaining at the end of the third quarter of 2018; assuming that around 30% of this will be needed for management, monitoring, extension, training and marketing support, then $13 million would be available for direct interventions. If spent on commercial greenhouses at $7,300 each, or on equally-expensive cold stores and raisin houses, then it could reach a further 1,800 beneficiaries, doubling the coverage to 10% of households in the treatment communities.

However, if the money were instead used to give each beneficiary a jerib of new orchard, costing an average of $230 for the saplings, fertiliser, pesticide and inter-crop seed, plus $360 for the tool package, then that $13 million could cover 22,000 beneficiaries. That would represent two-thirds of all households in the treatment communities and an even higher share of those with land. It would also use just over half of these communities’ irrigated land and so, coupled with most farmers’ desire to grow sufficient wheat to meet their household needs\textsuperscript{18}, would divert so much of the irrigated land resource away from poppies as to have a dramatic effect on community opium production.

However, there are many practical questions to be considered: Could the project cope logistically with a more than tenfold increase in beneficiaries and trainees? Could it source the necessary amount of high-quality planting material? Would communities be willing – or wise – to devote so much of their scarce irrigated land to as-yet untested orchard crops? And if they did, could each community market 2,000 tonnes of fruit every year once the orchards reached maturity, with the overall project representing a more than 20% increase in national production?

The right answer might be a little more nuanced than orchards, orchards, orchards but the project should consider carefully how it could take a dramatic step up in scale and so come a lot closer to the optimistic target set in the project documents.

\textbf{Targets in the project Results Framework and Performance Monitoring Plan}

In the Project Document, neither the Results Framework nor the Performance Monitoring Plan repeats the original numbers of 17,500 households and 122,500 beneficiaries. Instead, the monitoring plan gives specific and much lower targets for activities such as different kinds of training, with no overall target for the number of households to receive interventions such as orchards and greenhouses.

One oft-repeated and frequently (mis-) quoted figure is 2100, used variously in the Performance Monitoring Plan to describe the number of women and men trained in gender sensitive agro-business development in each of 70 communities (1.2.2.1); the number of horticulture-tools package provided to participants (1.2.3); the number of households which directly benefit by hosting the Farmer Field Schools on their land in each of 70 communities (1.3.2.1); the number of people in the Farmer Field Schools programme in each of 70 communities, applied separately to 1. Making of compost exhibitions, 2. Integrated Pest

\textsuperscript{17} Some of the interventions, such as irrigation projects and support for marketing, may benefit other households that did not receive direct project support, but this impact has not yet been quantified.

\textsuperscript{18} See the section on “Landholdings, Household Size, and Observed Land Allocations” in Rand Corporation (2015).
Management (Organic control), 3. Mulching and 4. Intercropping (1.3.2.2); the number of local agricultural production monitoring systems (APY survey) rehabilitated or established in 70 communities (1.4); the number of persons trained in each of 70 communities under the CDC training (2.2.2.1), and again for the number of CDCs/DDAs members trained in each of 70 communities (2.3.3). Given the diverse nature of these activities, it is clear that different groups of beneficiaries would often be involved, taking the total number of unique beneficiaries well over 2,100. In no sense should the figure of 2,100 be treated as a ceiling or maximum to be reached by any kind of intervention, and there is nothing in the Performance Monitoring Plan to rule out a substantial increase in the number of beneficiaries supported to produce high-value crops.

The only figures in the Performance Monitoring Plan that go higher than 2,100 relate to the Counter-Narcotics Campaign, where a target of 7,500 is set for the number of households in Farah and Badghis provinces reached by the Counter Narcotics campaign per quarter, and a target of 175,000 for the number of households targeted by mobile based messages in 70 communities. This final figure is perhaps a little over-optimistic, since it is more than 5 times the estimated total number of households across all 70 treatment communities.

Leaving aside numerical errors and returning to the question of project rationale, the project does indeed have the potential to reach a large share of households in its treatment communities, but only if it makes a substantial shift towards high-volume, low-cost interventions for its remaining two years.

### 3.3 Project status

This part of the report begins with a short overview of the project activities so far, followed by a snapshot of a typical project area. This is followed by a detailed analysis of the different kinds of interventions and the beneficiaries who received them, followed by sections on timing and expenditure. The final section presents and analyses the organisational structure of the project.

A detailed description of each kind of physical intervention is given in Annex 2, together with photographs, numbers and costs.

#### 3.3.1 Project activities so far

The project commenced in November 2016, had staff in place by January 2017, submitted its Inception Report in September 2017, and then began providing training and supplies to beneficiaries.

So far the project has:

1. ** Studied** the availability of finance$^{19}$, the value chains for various high-value crops$^{20}$, and the security situation in prospective project areas.

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Value chain reports on Apples (Badghis), Grapes (Farah), Greenhouse crops (Farah) & Pistachios (Badghis).
2. **Selected** 70 treatment communities and 38 control communities, in 6 districts of 2 provinces\(^\text{21}\), and **selected** 35 male and 12 female lead farmers from the treatment communities.

3. **Identified** 4 perennial crops and 2 greenhouse vegetable crops as being of high value and sufficiently well established in the selected districts\(^\text{22}\), and **selected** 122 input suppliers, 118 cooperatives\(^\text{23}\) and 57 SMEs as potential partners (CABRD-W + BBARD-E).

4. **Developed** 13 support packages for individual farmers\(^\text{24}\) and 2 for communities\(^\text{25}\).

5. **Distributed** tools, saplings, seeds and fertilisers though the farmer support packages.

6. **Built** greenhouses, raisin drying houses, cold stores and irrigation structures through the farmer and community support packages.

7. **Formed** 114 farmer groups and used them as the basis for extension via field schools.

8. **Trained** farmers in various topics related to the support packages.

9. **Abandoned** initial plans for a microfinance component, based on the findings of the finance studies.

10. **Considered** options for AgriBusiness Centres, without yet taking a final decision.

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\(^{21}\) **Farah** province: Khak-e-Safid & Posht-e-Rod districts.

**Badghis** province: Qadis, Bala Murghab, Ghormach & Jawand districts.

\(^{22}\) **Farah** province: Grapes & pomegranates; greenhouse tomatoes & cucumbers.

**Badghis** province: Pistachios & apples; greenhouse tomatoes & cucumbers.

\(^{23}\) The 4\(^{th}\) Quarterly Report of 2018 stated that all of these cooperatives had stopped functioning, so the project was no longer working with them.

\(^{24}\) (1) Rehabilitation of existing orchards; (2) Establishment of new orchards; (3) Trellising of existing grapes (4) Construction of large & small greenhouses; (5) Supply of tools & equipment to farmers; (6) Dry land pistachio cultivation (7) Demonstration orchards at medium & high density; (8) Vegetables seeds for intercropping; (9) Supply of tools & equipment (10) Supplies for Integrated Pest Management; (11) Demonstration initiatives of organic farming; (12) Re-planting & gap filling of new orchards & pistachio plantations; (13) Construction of raisin drying houses.

\(^{25}\) (1) Irrigation improvements; (2) Cold stores.
3.3.2  A typical project area

The following satellite image shows the district of Bala Morgab in Badghis province. The light shaded areas are irrigated land and the darker shading rainfed; the district stretches for 22 km along a river and is served by the A76 road:

![Google Earth image with irrigated & rainfed areas mapped by UNODC.](image)

This district comprises 20 communities, each with its own Community Development Council (CDC). A typical community comprises one of the areas of irrigated land, on either the right or the left bank of the river, together with the rainfed land behind it.

Irrigated land extends a kilometre or so from the river. Water is diverted from the river upstream and flows by gravity along mainly earth canals, which feed flood or furrow irrigation
of field or tree crops respectively. The rainfed land is both further from the river and higher up, making it hard to irrigate by gravity alone. The more distant land is typically wild pistachio forests, to which all community members may go and harvest pistachio nuts from the day the season is officially opened.

The overall district comprises 6,240 ha, of which 40% is irrigated and 60% rainfed. The UNODC baseline survey recorded 6,920 households in the 14 treatment communities, giving just under 500 households per community. Therefore a typical community consists of 300 ha of land, of which 120 ha is irrigated and 180 ha rainfed, and 500 households containing at least 3,500 people. An average household would have 3 jeribs (0.6 ha) of land, of which 1.2 jeribs are irrigated and 1.8 ha rainfed, though in practice the land is not so evenly distributed.

In this particular project district, 14 villages were selected as treatment communities and 6 as controls. Given that most communities are immediately adjacent to others and must interact often, it is easy to see why members of the treatment communities are complaining that they have not received benefits like the greenhouses, orchards or irrigation works that they can see on their neighbours’ land.

3.3.3 Interventions and beneficiaries

This section is based on a preliminary version of a new project database developed by the consultant and the project team in MAIL; further checking is required and may result in some revision of these figures.

The project data so far record 1,848 interventions delivered to 1,717 unique beneficiaries:

- 1,417 individual household heads (each representing several family members)
- 45 organisations (CDC and District MAIL offices)
- 255 entries for which beneficiary information is not yet available

Profile of beneficiaries

Of the individual beneficiaries in the main project database 1,417 are male and 131 (8.5%) female. Participation in supplementary activities such as training is discussed later in this section, where there is evidence of a higher level of female participation.

The project database does not record other information such as age, education or family size, but a good overall profile of the treatment communities is given in the Baseline Report.

In terms of intervention per beneficiary:

- 1,301 people received one intervention;
- 101 people received two interventions, usually an orchard and a greenhouse, or two orchard plots;
- 45 people received three interventions, usually an orchard, a greenhouse, and either a second orchard plot or a compost unit, raisin house or cold store;
- no woman received more than one intervention.

Several of the interventions were intended mainly as demonstrations, and it would seem logical to provide these to Lead Farmers in addition to any mainstream interventions. Excluding the demonstration activities (walnut, almond, peach and plum orchards; compost units; raisin houses; cold stores) results in 90 individuals who received two interventions and 6 who received three.
Breakdown of interventions

The following table shows the numbers of interventions\(^\text{26}\) by type and province, ranked in decreasing order of frequency:

<table>
<thead>
<tr>
<th>Intervention</th>
<th>Badghis</th>
<th>Farah</th>
<th>Grand Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Orchard</td>
<td>727</td>
<td>288</td>
<td>1,015</td>
</tr>
<tr>
<td>Grape</td>
<td>232</td>
<td>147</td>
<td>379</td>
</tr>
<tr>
<td>Apple</td>
<td>236</td>
<td></td>
<td>236</td>
</tr>
<tr>
<td>Pistachio</td>
<td>211</td>
<td>1</td>
<td>212</td>
</tr>
<tr>
<td>Pomegranate</td>
<td></td>
<td>123</td>
<td>123</td>
</tr>
<tr>
<td>Walnut</td>
<td>48</td>
<td></td>
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<tr>
<td>Almond</td>
<td></td>
<td>14</td>
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<tr>
<td>Plum</td>
<td>2</td>
<td></td>
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</tr>
<tr>
<td>Peach</td>
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<td></td>
<td>1</td>
</tr>
<tr>
<td>Greenhouse</td>
<td>434</td>
<td>224</td>
<td>658</td>
</tr>
<tr>
<td>Greenhouse, Micro 60 sq.m</td>
<td>170</td>
<td>103</td>
<td>273</td>
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<tr>
<td>Greenhouse, 404 sq.m</td>
<td>163</td>
<td>110</td>
<td>273</td>
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<td>5</td>
<td>11</td>
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<tr>
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</tr>
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</table>

Grand Total: 1,234 | 614 | 1,848

*Source: Project database as at 3rd January 2019*

---

\(^{26}\) The data for orchards are the numbers of individual orchards, not their total area.
The following table presents the same data broken down by organisations and individual beneficiaries by gender; the 255 entries marked as “Missing” so far lack the information to tell whether they are individuals or organisations:

<table>
<thead>
<tr>
<th>Intervention</th>
<th>Missing</th>
<th>Organisation</th>
<th>Person</th>
<th>Grand</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>M</td>
<td>F</td>
<td>Total</td>
<td>Total</td>
</tr>
<tr>
<td>Orchard</td>
<td>1,015</td>
<td>1,015</td>
<td>1,015</td>
<td></td>
</tr>
<tr>
<td>Grape</td>
<td>379</td>
<td>379</td>
<td>379</td>
<td></td>
</tr>
<tr>
<td>Apple</td>
<td>236</td>
<td>236</td>
<td>236</td>
<td></td>
</tr>
<tr>
<td>Pistachio</td>
<td>212</td>
<td>212</td>
<td>212</td>
<td></td>
</tr>
<tr>
<td>Pomegranate</td>
<td>123</td>
<td>123</td>
<td>123</td>
<td></td>
</tr>
<tr>
<td>Walnut</td>
<td>48</td>
<td>48</td>
<td>48</td>
<td></td>
</tr>
<tr>
<td>Almond</td>
<td>14</td>
<td>14</td>
<td>14</td>
<td></td>
</tr>
<tr>
<td>Plum</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>Peach</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Greenhouse</td>
<td>244</td>
<td>293</td>
<td>121</td>
<td>414</td>
</tr>
<tr>
<td>Greenhouse, Micro 60 sq.m</td>
<td>170</td>
<td>1</td>
<td>102</td>
<td>103</td>
</tr>
<tr>
<td>Greenhouse, 404 sq.m</td>
<td>3</td>
<td>269</td>
<td>1</td>
<td>270</td>
</tr>
<tr>
<td>Greenhouse, 301 sq.m, Aloe Vera</td>
<td>71</td>
<td>23</td>
<td>18</td>
<td>41</td>
</tr>
<tr>
<td>Irrigation</td>
<td>10</td>
<td>38</td>
<td>16</td>
<td>16</td>
</tr>
<tr>
<td>Irrigation, Water Divider</td>
<td>1</td>
<td>32</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Irrigation, Protection Wall</td>
<td>5</td>
<td>2</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>Irrigation, To be defined</td>
<td>8</td>
<td>8</td>
<td>8</td>
<td></td>
</tr>
<tr>
<td>Irrigation, Intake</td>
<td>1</td>
<td>4</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>Irrigation, Canal</td>
<td>2</td>
<td>2</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>Irrigation, Flume</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>Irrigation, Syphon</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Compost</td>
<td>1</td>
<td>7</td>
<td>39</td>
<td>44</td>
</tr>
<tr>
<td>Compost, conventional, 40 sq.m</td>
<td>1</td>
<td>1</td>
<td>39</td>
<td></td>
</tr>
<tr>
<td>Compost, worm, 40 sq.m</td>
<td>1</td>
<td>6</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>Raisin House</td>
<td>44</td>
<td>44</td>
<td>44</td>
<td></td>
</tr>
<tr>
<td>Raisin House, 65 sq.m</td>
<td>39</td>
<td>39</td>
<td>39</td>
<td></td>
</tr>
<tr>
<td>Raisin House, 50 sq.m</td>
<td>5</td>
<td>5</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>Cold Storage</td>
<td>10</td>
<td>10</td>
<td>10</td>
<td></td>
</tr>
<tr>
<td>Beehive</td>
<td>5</td>
<td>5</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>Grand Total</td>
<td>255</td>
<td>45</td>
<td>1,417</td>
<td></td>
</tr>
</tbody>
</table>

*Source: Project database as at 3rd January 2019*
➢ **Orchards** are the most common intervention, with 1,015 orchards on 1,342 jeribs (335 ha) established so far. Grapes are most popular (379 vineyards) and found in both provinces, followed by apples (236, Badghis) and pistachios (212, Badghis), with pomegranates (123, Farah) in fourth place. A total of 65 demonstration orchards of walnuts, almonds, plums and peaches were also established. All orchards were provided to individual beneficiaries rather than organisations, and all these beneficiaries were male.

➢ **Greenhouses** come in second place, with 658 supplied so far. Of these, 41% were micro-greenhouses aimed at female beneficiaries, 41% were commercial greenhouses for vegetables such as tomatoes and cucumbers, and 17% were commercial greenhouses for the perennial crop Aloe Vera; total covered area is now 52 jeribs (13 ha). Available data indicate that all greenhouses went to individual beneficiaries; the records also show that 19 women received commercial greenhouses, all but one for Aloe Vera, and that one man received a micro-greenhouse.

➢ **Irrigation** projects number 64, mostly delivered to organisations and none to women.

➢ **Compost units** comprised 46 conventional units, almost all provided to individuals including 5 women, plus 6 worm compost units supplied to organisations.

➢ **Raisin houses** are recorded in two different sizes, with all 44 supplied to individual male beneficiaries.

➢ **Cold stores** consist of 10 units, all supplied to male individuals.

➢ **Beehives** constitute 5 packages, each of two beehives plus tools, given to 5 female beneficiaries.

**Supplementary activities**

The database currently focuses on the main expenditure items, but the quarterly reports also record the distribution of hand tools and individual’s participation in training and Farmer Field Schools. Data from the 4th Quarterly Report of 2018 are as follows:

<table>
<thead>
<tr>
<th>Intervention</th>
<th>Female</th>
<th>Male</th>
<th>Grand</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Badghis</td>
<td>Farah</td>
<td>Total</td>
</tr>
<tr>
<td>Tools</td>
<td>185</td>
<td>169</td>
<td>354</td>
</tr>
<tr>
<td>Tools, Post-harvest</td>
<td>40</td>
<td>40</td>
<td>80</td>
</tr>
<tr>
<td>Tools, Vegetable</td>
<td>145</td>
<td>129</td>
<td>274</td>
</tr>
<tr>
<td>Training</td>
<td>225</td>
<td>193</td>
<td>418</td>
</tr>
<tr>
<td>Training, Agro-business</td>
<td>0</td>
<td>18</td>
<td>18</td>
</tr>
<tr>
<td>Infrastructure</td>
<td>69</td>
<td>48</td>
<td>117</td>
</tr>
<tr>
<td>Training, Agro-business</td>
<td>156</td>
<td>127</td>
<td>283</td>
</tr>
<tr>
<td>Skills</td>
<td>31</td>
<td>87</td>
<td>118</td>
</tr>
<tr>
<td>Training, Value-added</td>
<td>31</td>
<td>87</td>
<td>118</td>
</tr>
<tr>
<td>Farmer Field Schools</td>
<td>441</td>
<td>449</td>
<td>890</td>
</tr>
<tr>
<td>Farmer Field Schools, Hosting</td>
<td>441</td>
<td>449</td>
<td>890</td>
</tr>
<tr>
<td>Grand Total</td>
<td>441</td>
<td>449</td>
<td>890</td>
</tr>
</tbody>
</table>

27 The project also rehabilitated some orchards in Badghis; it is not yet clear whether these are additional to or included in the numbers in the table.

28 These are usually shown in the database as “public” and are almost always implemented by the CDC.
Many of the people receiving tools or training will also have received other interventions, so it is not possible from this to tell the total number of unique beneficiaries, but it is clear that these other activities have reached a greater share of women, averaging around 30%.

3.3.4 Implementation over time

The project database shows for each contract its start date, planned duration and expected completion date, together with the dates on which each instalment was paid and the contract status towards the end of 2018.

Based on this information, the following chart shows how many contracts should have been in progress for each kind of intervention, in each month:

![CBARD-W active contracts over time: Planned](source)

This shows that the first round of contracts started being let in September 2017 and built up to a peak at the end of that year, with the intention that most of them should be concluded by March 2018 so that the greenhouses (the main intervention) could be used that year.

A second round of contracting began in late summer and peaked in October 2018, with all of these projects due for completion by the end of the year or in January 2019.

This graph therefore reflects appropriate phasing of the contracting process for seasonal activities – assuming that procurement can be completed within the planned timeframe (see below).
The following chart uses the reported status of the contracts (“Ongoing” or “Completed”) and the date of the last instalment to show how many contracts of each type were actually open at any given time:

Source: Project database with contract information from 10th December 2018

An organisation would normally make the final payment within 30 days of confirmation that the project had been successfully concluded, so contracts would typically stay open for around a month beyond their actual completion date. However, this graph shows that implementation has been rather more protracted, with many of the first round contracts remained open well into the summer of 2018, typically being finalised in late summer as the next round of contracting began. At the beginning of December 2018 there were 113 open contracts, but 46 of these were finalised by the 10th of the month, so the year will have ended with fewer than 70 open contracts.

A number of reasons often led to the process of procurement and delivery taking longer than anticipated:

- a very limited number of competent suppliers in many cases, sometimes requiring repeated calls for tenders until sufficient competitive quotes could be obtained;
- a shortage of skilled workers, requiring contractors to bring in workers from elsewhere;
- security difficulties which, for example, required greenhouse parts to be smuggled in at night to avoid interdiction by armed groups;
- a complex and time-consuming process in MAIL, which must follow strict government rules on public procurement to minimise scope for abuse. For example, if someone unfamiliar with the system makes a minor error that is then picked up at province or Kabul level, all of the documents have to be re-submitted once the error is corrected or the missing information supplied. Delays can also occur when the responsible
person is on leave or sick leave, as there is often nobody else authorised to sign on their place.

The project has now developed checklists for each procurement process, which help to reduce problems and delays but cannot eliminate them entirely. Given that the underlying problems are unlikely to change, the project may need to allow more lead time for procurement and delivery or completion of works, in order to ensure that the interventions are completed ahead of the growing season.

### 3.3.5 Project expenditure

The following table presents a summary of each of the project interventions recorded in the project database, in decreasing order of total cost:

<table>
<thead>
<tr>
<th>Intervention</th>
<th>No. contracts</th>
<th>No. units</th>
<th>Total, AFN</th>
<th>Total, USD</th>
<th>Share of total</th>
<th>Unit cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Greenhouse</td>
<td>113</td>
<td>685</td>
<td>278.9 m Afs</td>
<td>$3,719,000</td>
<td>64.2%</td>
<td>$ 5,429</td>
</tr>
<tr>
<td>Greenhouse, 404 sq.m</td>
<td>54</td>
<td>273</td>
<td>194.3 m Afs</td>
<td>$2,591,000</td>
<td>44.7%</td>
<td>$ 9,492</td>
</tr>
<tr>
<td>Greenhouse, 301 sq.m</td>
<td>16</td>
<td>69</td>
<td>38.0 m Afs</td>
<td>$ 507,000</td>
<td>8.7%</td>
<td>$ 7,341</td>
</tr>
<tr>
<td>Greenhouse, 301 sq.m, Aloe Vera</td>
<td>21</td>
<td>55</td>
<td>30.3 m Afs</td>
<td>$ 404,000</td>
<td>7.0%</td>
<td>$ 7,343</td>
</tr>
<tr>
<td>Greenhouse, Micro 60 sq.m</td>
<td>22</td>
<td>288</td>
<td>16.3 m Afs</td>
<td>$ 217,000</td>
<td>3.7%</td>
<td>$ 754</td>
</tr>
<tr>
<td>Irrigation</td>
<td>22</td>
<td>40</td>
<td>75.1 m Afs</td>
<td>$1,001,000</td>
<td>17.3%</td>
<td>$25,028</td>
</tr>
<tr>
<td>Irrigation, Mixed</td>
<td>8</td>
<td>8</td>
<td>38.3 m Afs</td>
<td>$ 510,000</td>
<td>8.8%</td>
<td>$ 63,773</td>
</tr>
<tr>
<td>Irrigation, Protection Wall</td>
<td>5</td>
<td>5</td>
<td>20.6 m Afs</td>
<td>$ 274,000</td>
<td>4.7%</td>
<td>$ 54,872</td>
</tr>
<tr>
<td>Irrigation, Syphon</td>
<td>1</td>
<td>1</td>
<td>7.3 m Afs</td>
<td>$  97,000</td>
<td>1.7%</td>
<td>$  97,327</td>
</tr>
<tr>
<td>Irrigation, Water Divider</td>
<td>5</td>
<td>15</td>
<td>5.3 m Afs</td>
<td>$  70,000</td>
<td>1.2%</td>
<td>$  4,691</td>
</tr>
<tr>
<td>Irrigation, To be defined</td>
<td>2</td>
<td>10</td>
<td>2.7 m Afs</td>
<td>$  36,000</td>
<td>0.6%</td>
<td>$  3,567</td>
</tr>
<tr>
<td>Irrigation, Canal</td>
<td>1</td>
<td>1</td>
<td>1.0 m Afs</td>
<td>$  13,000</td>
<td>0.2%</td>
<td>$  13,230</td>
</tr>
<tr>
<td>Saplings</td>
<td>2</td>
<td>2</td>
<td>21.3 m Afs</td>
<td>$ 284,000</td>
<td>4.9%</td>
<td>$142,156</td>
</tr>
<tr>
<td>Saplings, Mixed</td>
<td>2</td>
<td>2</td>
<td>21.3 m Afs</td>
<td>$ 284,000</td>
<td>4.9%</td>
<td>$142,156</td>
</tr>
<tr>
<td>Raisin House</td>
<td>9</td>
<td>41</td>
<td>20.9 m Afs</td>
<td>$ 279,000</td>
<td>4.8%</td>
<td>$  6,796</td>
</tr>
<tr>
<td>Raisin House, 50 sq.m</td>
<td>9</td>
<td>41</td>
<td>20.9 m Afs</td>
<td>$ 279,000</td>
<td>4.8%</td>
<td>$  6,796</td>
</tr>
<tr>
<td>Fertiliser</td>
<td>1</td>
<td>1</td>
<td>12.3 m Afs</td>
<td>$ 164,000</td>
<td>2.8%</td>
<td>$164,250</td>
</tr>
<tr>
<td>Fertiliser, Mixed</td>
<td>1</td>
<td>1</td>
<td>12.3 m Afs</td>
<td>$ 164,000</td>
<td>2.8%</td>
<td>$164,250</td>
</tr>
<tr>
<td>Compost</td>
<td>2</td>
<td>51</td>
<td>11.0 m Afs</td>
<td>$147,000</td>
<td>2.5%</td>
<td>$  2,873</td>
</tr>
<tr>
<td>Compost, conventional, 40 sq.m</td>
<td>1</td>
<td>45</td>
<td>6.3 m Afs</td>
<td>$ 84,000</td>
<td>1.5%</td>
<td>$  1,867</td>
</tr>
<tr>
<td>Compost, worm, 40 sq.m</td>
<td>1</td>
<td>6</td>
<td>4.7 m Afs</td>
<td>$  63,000</td>
<td>1.1%</td>
<td>$10,425</td>
</tr>
<tr>
<td>Cold Storage</td>
<td>4</td>
<td>10</td>
<td>7.6 m Afs</td>
<td>$ 101,000</td>
<td>1.7%</td>
<td>$ 10,075</td>
</tr>
<tr>
<td>Cold Storage, 28 sq.m</td>
<td>4</td>
<td>10</td>
<td>7.6 m Afs</td>
<td>$ 101,000</td>
<td>1.7%</td>
<td>$ 10,075</td>
</tr>
<tr>
<td>Study</td>
<td>1</td>
<td>3</td>
<td>7.3 m Afs</td>
<td>$  98,000</td>
<td>1.7%</td>
<td>$ 32,536</td>
</tr>
<tr>
<td>Study, Value Chain</td>
<td>1</td>
<td>3</td>
<td>7.3 m Afs</td>
<td>$  98,000</td>
<td>1.7%</td>
<td>$ 32,536</td>
</tr>
<tr>
<td>Grand Total</td>
<td>154</td>
<td>-</td>
<td>434.4 m Afs</td>
<td>$5,792,000</td>
<td>100.0%</td>
<td>-</td>
</tr>
</tbody>
</table>

*Source: Project database as at 3rd January 2019*

The number of units and unit cost is clear for individual structures such as greenhouses and compost units. For irrigation projects, each contract covered different kinds of works, so the
units and unit cost are not very meaningful. The entries for Saplings and Fertiliser are for purchase contracts of large mixed lots, so again the units and unit costs are not meaningful.

**Relative costs in Badghis and Farah**

The project team commented that many interventions cost more to implement in Badghis province, due to its remoteness, poor roads and security risk. The following table compares the unit costs in the two provinces, for those items where a direct comparison is meaningful:

<table>
<thead>
<tr>
<th>Intervention</th>
<th>Badghis</th>
<th>Farah</th>
<th>Badghis:Farah</th>
</tr>
</thead>
<tbody>
<tr>
<td>Greenhouse, 301 sq.m</td>
<td>$7,482</td>
<td>$6,835</td>
<td>109%</td>
</tr>
<tr>
<td>Greenhouse, 301 sq.m, Aloe Vera</td>
<td>$7,417</td>
<td>$7,047</td>
<td>105%</td>
</tr>
<tr>
<td>Greenhouse, 404 sq.m</td>
<td>$10,485</td>
<td>$8,021</td>
<td>131%</td>
</tr>
<tr>
<td>Greenhouse, Micro 60 sq.m</td>
<td>$877</td>
<td>$577</td>
<td>152%</td>
</tr>
<tr>
<td>Raisin House, 50 sq.m</td>
<td>$9,034</td>
<td>$6,485</td>
<td>139%</td>
</tr>
</tbody>
</table>

*Source: Project database as at 3rd January 2019*

This shows that greenhouses cost from 5-50% more to erect in Badghis, whilst Raisin Houses cost 40% more. Other structures were either procured in one province only, or through contracts covering both provinces.

**Expenditure over time**

Annex 1 to the latest quarterly report (2018, Q4) shows disbursement so far of the $24.4 million committed to the project by INL:

<table>
<thead>
<tr>
<th>Year</th>
<th>Disbursed</th>
<th>Remaining</th>
</tr>
</thead>
<tbody>
<tr>
<td>2017</td>
<td>$2.7 m</td>
<td>$21.7 m</td>
</tr>
<tr>
<td>2018, to end of Q3</td>
<td>$3.2 m</td>
<td>$18.5 m</td>
</tr>
<tr>
<td><strong>Total to 2018, end of Q3</strong></td>
<td><strong>$5.9 m</strong></td>
<td><strong>$18.5 m</strong></td>
</tr>
</tbody>
</table>

*Source: Project Quarterly Report for July-September 2018; Annex I*

Precise numbers, including outstanding commitments, can be found in the original project reports and budgets.

Considering the project start date of November 2016 and its revised end date of April 2021, 43% of the project duration had elapsed at the time of this quarterly report, with 24% of total funds disbursed. In order to achieve full use of the committed funds, the disbursement rate will have to more than double from the average of $260,000/month achieved so far, to $600,000/month for the remainder of the project.

**3.3.6 Project organisational structure**

The organigram at the end of this section shows the staffing and management structure of the team employed within MAIL to implement the CBARD project, as of December 2018 when the Mid-Term Evaluation mission was carried out. It is understood that a number of revisions are now under discussion and will be reflected in a revised Human Resources plan.
**Central team in Kabul**

The team of 22 people in Kabul serves both this project and its sister project CBARD-East, bringing a significant economy of scale. It consists of the:

- **Project Manager,** reporting formally to the Minister for Agriculture, Irrigation and Livestock, and in everyday contact with the UNDP team that exercises oversight of CBARD.

- **Management support team** (4 people):
  - Senior Monitoring & Evaluation Specialist and the Specialist for Management Information Systems (MIS) and Geographic Information Systems (GIS), who together have responsibility for the project’s technical and management data, working with the Monitoring & Evaluation Officer in each province office.
  - Communications Specialist, assisted by the Communications and Advocacy Officer, responsible for supporting the Project Manager in external presentation of the project.

- **Technical team** (6 people):
  - Senior Agricultural Economics Specialist (acting).
  - Senior Horticulture Specialist, Female Agronomy Specialist and Senior Extension Specialist, together responsible for ensuring that the project both makes the right agronomic decisions in the design and implementation of interventions, and that it delivers the right messages to beneficiary farmers. They should also support and direct the team of two horticulture and extension staff in each province office.
  - Design Engineer and Senior Civil Engineer, exercising similar responsibility for the project’s work in irrigation and in the construction of structures such as cold stores and raisin houses. They should also support and direct the team of 1-2 field engineers in each province.

- **Operations team** (11 people):
  - Administration is managed by the Senior Administration Officer, Senior Human Resources Officer and Internal Control Officer.
  - The specific issues of contracts and procurement are handled by the Contract Management Specialist together with the Procurement Officer and Procurement Associate; this includes reviewing all documents for local procurement by CDCs.

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29 The project is currently considering strengthening the Management Support Unit to have a Head of Unit and ten staff: (1) Senior Monitoring and Evaluation Specialist, cost-shared between CBARD East and West; (2) M&E Officer (East + West); (3) MIS/GIS Specialist (East+West); (4) Communications Specialist (East + West); (5) Communications and Advocacy Officer (East+West); (6) National Alternative Development Specialist (East and West); (7) National Reporting Specialist; (8) Chief Technical Advisor (International); (9) PMRS (International); (10) Public Affairs Specialist (International).

30 The project is considering adding two new posts: (1) Marketing and Business Development Specialist; (2) Monitoring and Inspection Engineer. There should also be an Integrated Pest Management (IPM) Officer.

31 Currently the operations team is cost-shared with two other projects that it helps to implement, CCAP (20 %) and CDRRP (10 %), though this arrangement may end.
Finance is managed by the Finance Officer, supported by the Administration & Finance Office in each province.

Practical support is given by the Project Associate, two Drivers and one Cleaner.

Province and district teams
Each of the three provinces (Badghis and Farah for CBARD-W; Nangahar for CBARD-E) has a largely similar structure consisting of:

- **Provincial Field Coordinator**, with overall management responsibility for the 14-17 staff in the province and district offices.

- **Technical team** (6-8 people):
  - Business Development Service Officer (two in Badghis);
  - Access to Finance Officer;
  - Senior Horticulture & Extension Officer and Female Extension Officer;
  - Field Design Engineer and (in Badghis and Farah) Field or Site Engineer;
  - Monitoring & Evaluation Officer.

- **Operations team** (4-5 people):
  - Administration & Finance Officer;
  - up to 2 Drivers;
  - up to 3 Guards;
  - one Cleaner.

- **Monitoring & Extension Officers** or Associates (2-6 people), usually one per district, with three in one large district of Badghis province.

Vertical structure
Comparing the central, provincial and district structures shows that there are effectively five vertical teams, the:

- **Administration & finance team** (10 people), extending down to province level;
- **Engineering team** (7 people), also extending down to province level;
- **Agronomy and extension team** (14 people), extending down to district level through the dual role of the district Monitoring & Extension Officers;
- **Monitoring & evaluation team** (11 dedicated people + 2 Extension & Monitoring Officers also shown in the “Agronomy and Extension” team), again extending down to district level through the district Monitoring & Evaluation Officers;

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32 Changes under consideration here would result in province teams comprising: (1) Provincial Coordinator; (2) Design Engineer, Field/Design Engineer and District Engineers for each district; (3) Business Development Services Officer and Access To Finance Officer, both contributing to the project’s business and marketing approach; (4) Senior Extension and Horticulture Officer, with District Extension and Monitoring Associates in each district; (5) Monitoring Officer; (6) Female Extension Officer; (7) Community Mobilisation Officer (new); (8) Greenhouse and Annual Crop Officer (new); (9) Contract Management Associate (new).
• **Economics, finance & marketing team** (8), extending from the Senior Agricultural Economics Specialist in Kabul to the Business Development Service Officers and Access to Finance Officers in each province.

**Assessment**

The range of posts and skills seems appropriate, and the division between central, province and district level seems both appropriate and compatible with the internal organisation of MAIL.

The initial observations of the consultant were that:

- The **Administration & finance team** appears to be well structured and organised, benefitting from UNDP’s established procedures and its ATLAS finance system.
- The **Monitoring & evaluation team** collects good and relevant data but so far lacks the database systems to operate efficiently and make best use of the data collected. Recommendations later in the report address this issue.
- The **Agronomy and extension team** is very active and plays a vital role on the ground but lacks strategy and coordination in its extension and training activities. Recommendations in this report include development of an extension and training strategy, which would help to give direction to this team.
- The **Economics, finance & marketing team** has so far been at a major disadvantage due to the lack of a permanent senior agricultural economist and the lack of a clear project strategy for marketing, business development and finance. Work being led now by the Chief Technical Advisor should address this area, and including Terms of Reference for an agricultural economist who will also work on marketing.
- The **Engineering team** comprises professionals working in their area of expertise, and the technical quality of their work appears to be fine. The main weak point is the lack of economics input at the design stage, together with the challenge for the senior design engineer to manage 7 staff as well as his own technical workload.

These five vertical teams cover most aspects of the central office other than the support staff and the two-man communications team; given that the donor reportedly identified communications as the project’s weakest area, the operation of this team should be reviewed.

Finally there is the role of the Project Manager himself, with 21 people to manage in Kabul and a further 50 in the three provinces. The main systemic weakness is the very flat management structure, with staff of all kinds reporting directly to the Project Manager. This could be addressed by strengthening the role of the five vertical teams, through designating a leader for each team and making them responsible for drawing up and implementing a workplan for their team in line with the overall project workplan. Each team leader would hold weekly management meetings with their team, using Skype to include province and district staff, and would then report to the Project Manager in a weekly meeting of team leaders. The Project Manager would be encouraged to delegate to the team leaders and make them responsible for day-to-day management of their teams, allowing the Project

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33 The project reported that it intends to hire a Public Affairs Specialist to address this need.
Manager to concentrate on strategic issues and managing the three Provincial Field Coordinators and the communications team.

The proposed strengthening of the Management Support team, noted in a footnote above, would assist the Project Manager to work on strategic issues but would not in itself strengthen the operation of the vertical teams, nor reduce the frequency with which their staff contact the Project Manager for guidance. Thus the two approaches of strengthening the Management Support team and strengthening the vertical teams are not mutually exclusive and could be complementary.

A third approach to be considered is creating a post of Deputy Project Manager to take some of the management workload and allow smooth operation of the project when the Project Manager is away or busy. This too could be complementary to the formation of vertical teams.

Vacant positions

The organigram identifies two vacant positions: a senior agricultural economist to support the whole project (currently filled by an acting staff member), and a female extension officer for CBARD-E in Nangahar. This represents a relatively normal level of vacancies for an organisation staffed mainly by young people who tend to change jobs relatively frequently for reasons of education, career or family. As noted above, it is the lack of permanent senior agricultural economist that poses the biggest challenge to the project.

UNDP management

UNDP’s oversight and project management role is exercised by a full-time Programme Analyst, reporting to the Head of the Livelihoods and Resilience Unit. UNDP also directly contracts two international part-time consultants – the Chief Technical Advisor and the Monitoring Officer – who form part of the project team. UNDP is responsible for quality assurance, with regular monitoring carried out by the project. For financial transactions, procurement and control are carried out by MAIL, with just the final payment step carried out by UNDP through its established IT and administrative systems.

It has not yet been possible to meet the Monitoring Officer, physically or virtually, but the consultant worked closely with the full-time Programme Officer and the part-time Chief Technical Advisor during the mission and throughout the subsequent analysis and reporting. Although their roles are very different, both appear critical to the successful implementation of the project, with the Programme Officer helping to keep the project team focussed on its overall objectives and the concerns of the donor, and the Chief Technical Advisor giving a much-needed outside view, bringing an analytical approach and experience from a wide range of projects in other countries.
4 Evaluation

This section addresses the ten issues of Relevance, Efficiency, Effectiveness, Perception, Impact, Sustainability, Coverage, Coordination, Coherence and Protection, as outlined in the TOR and using the 35 questions set out in the draft Evaluation Matrix. The only change to the matrix has been to separate “Perception and Impact” into two different criteria, since different approaches are required for each and impact can potentially be quantified in ways that perception generally cannot.

Results are presented as normal text rather than in tabular format, for readability. The initial statement of the evaluation questions is colour-coded following a traffic lights system to indicate how satisfactory the project is in each respect:

- **Green**: Project largely or fully satisfactory.
- **Amber**: Project partially satisfactory, or results not yet known.
- **Red**: Project not satisfactory.

Questions of information, where the project itself is not being judged, have been left in black.

4.1 Relevance

**Q 1)** *Is the project design appropriate to address the substantive problem that the project is intended to address? How useful are the project outputs to the needs of the target beneficiaries?*

**Q 1a)** *Is the project design appropriate to address the substantive problem that the project is intended to address?*

The project design is a relevant way to address the problem of low incomes for land-holding members of the treatment communities. Given that high-value crops can often generate higher margins than opium poppies, the design may also be appropriate for reducing opium production; whether high-value crops alone will be sufficient to achieve this remains to be seen, as the concept which this project seeks to prove.

**Q 1b)** *How useful are the project outputs to the needs of the target beneficiaries?*

Very useful. The interventions are clearly appreciated by beneficiaries and the project is now receiving requests from other villages for similar assistance. The main interventions help produce crops with which beneficiaries are familiar and for which there is local demand, at least at the current scale of the project.

**Q 2)** *What is the value of interventions in relation to the national and international partners’ policies and priorities (including SDG, UNDAF and UNDP Corporate Strategic Plan; ANPDF/NPPs, UNHCR regional strategy, etc.)?*

The project is designed in line with the government’s “Comprehensive Agriculture and Rural Development Priority Programme”.

It addresses the Key Results Area from the 2014-17 Strategic Plan for Outcome 1: *Growth and development are inclusive and sustainable, incorporating productive capacities that create employment and livelihoods for the poor and excluded.*
It also addresses UNDAF Outcome 1: *Economic growth is accelerated to reduce vulnerabilities and poverty, strengthen the resilience of the licit economy and reduce the illicit economy in its multiple dimensions*, which is also CPD Outcome 3.

The project also contributes to CPD Output 6: *Improved economic livelihoods, especially for vulnerable populations and women.*

In terms of the Sustainable Development Goals, the project contributes to:

- **SDG 1**: to *End poverty in all its forms everywhere*.
- **SDG 3**: to *Ensure healthy lives and promote well-being for all at all ages*, in particular
  - Target 3.4: to *Strengthen the prevention and treatment of substance abuse, including narcotic drug abuse and harmful use of alcohol*.
- **SDG 5**: to *Achieve gender equality and empower all women and girls*.

At this stage, the project interventions appear valuable to the goals of poverty reduction and development of livelihoods. They are clearly relevant to the questions of the narcotic drugs and the illicit economy, but it is too soon to say how valuable they will turn out to be.

**Q 3) Are the project objectives consistent with substantive needs and realistic in consideration of technical capacity, resources and time available?**

**Q 3a) Technical capacity**

The interventions implemented so far have been within the technical capacity of the project team and of the beneficiaries. As the new orchards approach their full yield potential, the marketing challenges will rise and the project team may find it more demanding to develop marketing skills than technical capacity. AgroBusiness Centres, if designed and implemented, could also be challenging, partly due to limited local capacity and partly because they might turn out to be a rather artificial response to the problems faced by businessmen and traders.

**Q 3b) Resources**

Arguably, the biggest issue facing the project is that of scale:

The treatment communities in Badghis and Farah cover just over 40,000 ha of which probably half is irrigated\(^{34}\). Only a proportion of this area will ever have been used for poppy production, but these communities still represent the equivalent of 12% of the peak poppy area of 328,000 ha grown in 2017, which is nationally significant.

However, within these communities, the area of land directly made unavailable for poppies by project interventions consists of 268 ha of orchards and 17 ha of greenhouses, i.e. less than 1% of these communities’ cultivable land and less than 0.1% of the national poppy area. Thus, if the concept being tested were *resource diversion*, i.e. to divert large areas of land from poppy production to high-value crops, it would need eventually to be implemented on a very much larger scale, moving the marketing challenge up to an entirely different level. If the concept instead is one of *reducing dependency*, which seems more in keeping with the Project Document; then it is more important to look at the number of households impacted. The treatment communities in Badghis and Farah contain 14,600 households, and so far the project has established 1,015 orchards and 789 individual structures (greenhouses, cold

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\(^{34}\) The UNODC baseline survey shows a total of 40,678 ha in the treatment communities. In Badghis province, 52% of the area is irrigated and 48% rainfed; in Farah, only the total area is currently available.
stores, raisin houses and demonstration compost units). The exact number of direct beneficiaries is not yet available, but cannot be more than the total number of orchards and structures, i.e. 1,804\(^{35}\) or 12% of all households in these communities. There will also be some households that benefit indirectly from community irrigation projects.

Reaching around 6% of households in the target communities is a significant achievement for a proof-of-concept project that is still in its early stages but again, if the ultimate policy goal is to cause a significant reduction in the national poppy area by reducing households’ dependency on opium sales, considerable scaling-up will eventually be required.

However, the need for major scaling-up in no way reduces the value of the project as a proof of concept. Rather it indicates two further questions that might be addressed in an extension or follow-up project: **How could high-value crops be made available to a lot more farmers?** and **What would be the marketing situation with a much higher level of production?**

**How could high-value crops be made available to a lot more farmers?**

Issues and options here include:

- Accessing substantial additional funds, from government, international donors or both.
- Increasing the beneficiary contribution so limited project funds can cover more area.
- Making credit available to farmers to help fund their contribution or even the whole investment.
- Investigating open-field vegetables as a low-investment alternative to greenhouses (the projected revenues from vegetable inter-crops in the early years of orchard establishment suggest that field vegetables might be quite profitable).
- Finding cheaper self-build options for some of the interventions (applies mainly to cold-stores, compost units and raisin houses, rather than to the mainstream interventions of orchards and greenhouses)

**What would be the marketing situation with a much higher level of production?**

So far, beneficiaries have been able to sell all their greenhouse vegetables in the local community, and expect to sell orchard produce locally or in the nearby District centre. A substantial increase in production might on one hand add transport costs and drive down local prices, but on the other hand might attract more traders or generate sufficient volume to support processing or packaging businesses.

A possible follow-on activity to investigate this could concentrate a lot of interventions in a few nearby villages, along with a strong marketing component, to test whether a large-scale switch to high-value crops is potentially viable. Given that Afghanistan is already a net exporter of most non-citrus fruit and nuts, this intervention should include working with farmers, processors and traders to build linkages and strengthen export marketing.

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\(^{35}\) It is understood that some beneficiaries received two or more interventions, so the total number of direct beneficiaries will be less than 1,804. The project team is currently cleaning the data to allow this to be analysed.
Q 3c) **Time available**

The original project timing, from November 2016 to April 2020, would allow just two or three cropping years, with the proposed extension till April 2021 taking this to a maximum of three full years for orchards and up to four years for greenhouses. This gives sufficient time to test the viability of the greenhouses but is far too short to gain a real impression of the orchards: high-density apple orchards are projected to reach full production from year 6, and 15% of peak yield by year 3; grapes also peak from year 6 but reach almost 50% of maximum yield by year 3; pomegranates do not reach full yield until year 8, and only achieve 30% yield by year 3; conventional apple orchards and pistachios take at least 10 years to reach full productivity and have no significant yield in year 3. Therefore it will be several years before the real impact of the orchards can be assessed, requiring the project to continue monitoring activities for some time after the planned project end date. Currently monitoring is closely linked to advice, and the project will wish to consider whether support and advice should be continued in this follow-up period, perhaps with some form of hand-over to MAIL extension services. In retrospect, the project should perhaps have been designed for a much longer period, or with greater emphasis on high-value crops that reach maturity quickly, such as greenhouses and field vegetables rather than orchards.

The second timing issue concerns the persistence of community members’ decisions not to cultivate poppies. In the first project year, beneficiaries and project staff suggest that entire treatment communities have ceased growing poppies, at least in Badghis, even though only less than one household in ten has received a direct benefit from the project. The decision by the other 90% may be partly in response to community pressure, and partly in expectation that they too will receive something from the project – with community leaders from Badghis province saying that everyone had been promised something from the project. Given that the current project budget is not sufficient to assist all households in the treatment communities, a degree of disillusionment seems inevitable. This, coupled with any future rise in the opium price, could result in a resumption of opium production in treatment villages. Here multiple factors are involved and the future is hard to predict, so it will be important for the project to continue monitoring cropping patterns for several years. This can potentially be done by remote sensing through the annual UNODC Opium Survey and so will not be as costly as the first recommendation, for detailed monitoring of orchard performance over several years.

The Project Document proposes a number of options for time-series evaluation, recommending that CBARD-W should be monitored until at least 2024, with optional follow-up studies in 2028, 2032 and 2036. Given the maturity period of the orchards, it is recommended that evaluation should continue until at least 2028, ten years after the first orchards were planted.

### 4.2 Efficiency

**Q 4) How well is the project managed, and how could it be managed better?**

The project seems to be generally well managed, with effective cooperation between the UNDP office and the project team in MAIL at its various geographical levels. There is some
indication that the “vertical teams”, e.g. the specialists on extension and agronomy at central, province and district level, do not cooperate as effectively as they might, and that the project could increase its efficiency in these areas. A recommendation is given on this below, together with one to improve procurement of time-sensitive supplies and works. There is also an identified need to recruit new staff for agricultural economics and communications.

As part of its quality-assurance role, UNDP has commissioned annual audits and spot-checks using local companies to visit areas where UNDP staff cannot go. The MAIL team has been receptive to the suggestions from these audits and spot-checks, for example in developing and implementing detailed check-lists to speed up the procurement process, which has reduced the proportion of payments that have to be referred back for completion or correction to 10 % or less. UNDP plans to implement quarterly spot checks and third-party monitoring visits from next year, which should bring further improvements.

**Q 5) What is the project status with respect to target outputs in terms of quality and timeliness?**

The project began with a budget of $ 15 million to cover 30 treatment and 15 control communities, and planned for an Inception Period of January-June 2017 followed immediately by the start of implementation. Other areas were then considered for inclusion, leading to the creation of the CBARD-E project to work in Nangahar. Thus the final budget for CBARD West and East together comprises $ 46 million for implementation by UNDP and $ 2 million for monitoring by UNODC. Specifically for CBARD-W, the budget is now CBARD-W $24.0 m for UNDP plus $1.2 m for UNODC.

This additional financing allowed the number of treatment communities in CBARD-W to be more than doubled to 70, but increased considerably the task of community selection and the scale of the baseline study, needs assessment and value-chain studies, each of which covered Nangahar province in parallel with Badghis and Farah. As a result, the Inception Period was extended by three months to September 2017, with the first greenhouses and irrigation works delivered late in that year to demonstrate commitment to the project communities. Consequently, the first orchards were planted in spring 2018 rather than autumn 2017.

There was rather more slippage in terms of the studies on value chains and access to finance, which were or will be delivered considerably behind schedule. The increase in the project scale and number of crops to be covered raised the size of the value chain contract above the original procurement threshold and so required a longer procurement process. The communications campaign on the advantages of licit over illicit crops was also delayed in procurement, and was finally contracted around the third quarter of 2018.

The quality of these studies has been variable, in part reflecting the lack of capacity in the country and in part due to procurement rules which, on this occasion, seem to have emphasised price over quality. The marketing, access-to-finance and agro-business activities were all dependent on these studies, and so these activities have also experienced delay.

In terms of quality, all physical interventions (orchards, greenhouses and other structures) seem to be of good quality. All goods and works are checked against the detailed Bills of Quantities and a monitoring report produced, which must be certified by MAIL before final payment is made. The recently-introduced programme of spot checks will provide a further level of quality control.
To monitor the quality of training, the project employs pre- and post-training tests. Data are currently only available in local language but the project team will prepare an English-language summary of the results. Further detail on the timing of each activity is given under Question 16 below.

**Q 6) What is the potential that the project will successfully achieve the desired outcomes?**

The project is highly likely to achieve its goals in terms of establishing high-value crops for at least the target number of beneficiaries. It is too early to assess how successful the project will be in its work on marketing and agribusiness, as these activities have not yet begun. In terms of prompting a long-term switch from opium poppies to high-value crops, it is also too soon to say, and farmers’ decisions will be influenced by a number of non-project factors, in particular the opium price.

The question of whether the project can deliver a successful “proof of concept” is addressed under Question 14 below.

**Q 7) To what extent were project start-up activities completed on schedule?**

As noted under Question 5 above, the project Inception Period was extended by three months and all implementation activities pushed back by this amount. The key activity of selecting the treatment and control communities was carried out in March-April 2017, as soon as the target provinces, high-value crops and community selection criteria had been agreed. The baseline study and needs assessment was commissioned in good time and conducted its survey work during April-July 2017, with data entry and processing continuing until September 2017. A first draft of the report was delivered in March 2018, and the final version is dated June 2018. It took some time to establish which community-level data could be shared without violating confidentiality, and how this should be done; once this issue was resolved, a Confidential Annex was delivered in late 2018. During this process, various forms of summary data were shared with UNDP, including at Technical Meetings in January and March, 2018.

The value-chain studies were delayed, as noted above.

**Q 8) If there were delays in project start-up, what were the causes of delay, and what was the effectiveness of corrective measures undertaken? Do start-up problems persist?**

One major reason for delay was the substantial increase in project scale. Adjustments have now been made and the project team expanded to meet the new requirements. Successive quarterly reports also highlight the problems of security, with seven staff resigning in the first year citing security concerns; it requires little imagination to comprehend the human implications of this. In the second year the reports continue to note security problems, but the response then was suspension of project activities rather than resignation of staff.

A continuing problem has been that of achieving adequate female representation, whether amongst the project team, its lead farmers, or beneficiaries and trainees. The project has
clearly worked hard on this, and the fact that it managed to meet its target of 20% women in a country that is fifth from the bottom of the global Gender Inequality Index is a testament to the team’s dedication and persistence.

The project has now managed to overcome these problems, in the sense that all activities are moving forwards, but the relatively low disbursement rate to date indicates that it is still behind target and will need to accelerate some activities in order to achieve full disbursement by the planned end of the project.

Do start-up problems persist?
The challenges of project expansion have not had implications beyond the three-month slippage noted above.

The challenges of insecurity and gender persist, and are likely to do so for the remainder of the project.

Q 9) To what extent were adequate resources secured prior to project implementation? Did the project use the resources in the most economical manner to achieve its objectives?

To what extent were adequate resources secured prior to project implementation?
Adequate resources were made available from the outset of the project, in the sense that the availability of resources was not a practical constraint. The Inception Phase budget was increased from $200,000 to $356,000 to support the expanded scale of CBARD-W and CBARD-E combined, which allowed for the initial studies to be carried out on a larger area.

Did the project use the resources in the most economical manner to achieve its objectives?
This may be divided into three sub-questions: Did the project select the most economical interventions to achieve its objectives? Did it procure and deliver those interventions in the most economical way? Were the project management and support systems implemented economically and efficiently?

Choice of interventions:
Preliminary calculations indicate that the main project interventions of greenhouses and orchards have used project resources in a highly cost-effective manner and also suggest that conventional orchards will give the best return on limited project funds, provided the technical and marketing challenges can be successfully overcome to generate margins in line with projections.

Expenditure to date has been 66% on greenhouses, 18% on irrigation works, 7% on orchards and 9% on demonstration activities (raisin houses 7%, compost units 2%, cold stores 2%):

- Greenhouses offer the highest gross margin per unit of land (typically $30-40,000/ha) but are relatively expensive; over 15 years their projected Net Present Value is 7-9 times the initial project cost.
- High-density orchards are productive but expensive; they offer a similar margin per hectare and return on investment to that of greenhouses.
- Conventional orchards offer gross margins of $7-12,000/ha but the direct costs of establishment are quite low so their Net Present Value can be 20-60 times the initial project cost.
No economic projections are yet available for the raisin houses, compost units or cold stores but the costs are relatively high and so the return on investment probably low.

No economic data or projections are yet available for irrigation investments, which seems a significant omission for the second-largest expenditure item in the project to date. Experience elsewhere shows that works that expand the command area typically give good returns as long as the operating costs are not too high, but that canal lining to reduce water losses is often not cost-effective. This area requires further analysis.

In addition to the high return on investment from conventional orchards, they also allow a hectare of potential poppy land to be converted to a long-term orchard for a cost of just $1,200, compared to around $50,000 to build a hectare of orchards.

**Economy in procurement:**

As noted under Question 20 below, there is considerable variation in the cost of contracts between provinces, making it very hard to judge whether they do in fact offer good value for money. The project has followed both UNDP and government procurement procedures, and so has taken all reasonable steps to achieve economy in procurement.

**Management overheads:**

The original project budget allocated 77% for operations and 23% for “Project management, reporting and monitoring” by MAIL and then added 8% for “General management support” by UNDP, giving an overall management overhead of 28.5% of the total budget. For such a complex project in an extremely challenging operating environment, this does not seem excessive, and the project has actually managed to reduce some of its overhead costs, for example by developing common mechanisms and cost-sharing its 22 central staff with CBARD-E, thereby reducing staff costs by around 22%.

**Q 10) Is there an appropriate mechanism for monitoring the progress of the project? If yes, is there adequate usage of results/data for programming and decision making?**

The system of “Common Interest Groups” involves monitoring and support visits by Lead Farmers on a roughly weekly basis, supported by regular visits from District and Provincial coordinators. This appears to allow effective monitoring of project progress, which is reflected in the Quarterly Reports – a useful monitoring tool in their own right.

The project has also instituted an “APY” survey of Area, Price and Yield amongst its greenhouse beneficiaries. This approach focuses very well on the three most important factors without consuming a lot of resources in data collection, and will be extended to the orchard beneficiaries as well.

In order to get a full picture of the economics of high-value crops, it will also be necessary to collect data on costs. Keeping full records of each income, outgoing and resource-using activity is time consuming and typically requires regular visits by project staff to transpose

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36 APY originally stands for “Area, Production, Yield”, but either production or yield can be derived from the other, and the survey usefully includes Price.
data from on-farm records and ask any necessary follow-up questions. This is therefore best done on a sample basis to get good-quality data from a moderate number of farms, rather than poor-quality data from every farm. An appropriate survey design should be drawn up but might include, for example, every Lead Farmer plus perhaps two non-lead farmers per intervention per village, aiming overall to monitor about 30 farmers for each high-value crop.

So far there has been neither economic modelling nor monitoring of the other interventions of cold stores, raisin houses, compost units, beehives and irrigation works. The first step should be to develop gross margins with local experts, as was done for high-value crops, and to use these to identify the main factors that should be monitored.

For cold stores and raisin houses, where there are only 10 and 41 units respectively, a suitable monitoring tool might be a “stock book” where the farmer records everything that comes in or goes out, together with its origin, destination and price where relevant.

A similar approach might be applied with the 51 compost demonstrations (or as a minimum, all 6 vermiculture units plus a similar number of conventional compost units), recording the main kinds of materials used, the approximate volumes of compost produced and the areas of land treated. Nutrient contents are highly variable but can be roughly estimated from standard tables to give an indication of how much urea and DAP has been saved by using the compost.

Irrigation is more diverse and difficult to assess. As a minimum, for each intervention there should be a record of the command area before and after the works. Then, for at least a subset of the irrigation projects, there should be records of the number of waterings and of the crops grown, matched to the APY records that are already being maintained.

If yes, is there adequate usage of results/data for programming and decision making?

So far the analysis and use of data lags behind the achievements in monitoring. One specific issue is the absence of a structured project database with coded entries and systematic error checking. The consultant has developed a database structure and is assisting the MAIL team to clean the data as much as possible. Further work will be needed on this activity, which might also be extended to CBARD-E.

A good range of data area stored in a spreadsheet database, but items, places and people are entered as free text rather than being selected from a list. A major cause of problems is the multiple ways in which Dari and Pashtu names are transliterated from Arabic to Latin script; for example, one district is variously recorded in the spreadsheet database as “Pusht Rod”, “Posht Rood”, “Pusht-e-Rod” and “Pusht-e-Rood”, thus appearing in automatic tables as four different districts. At community level there is not just the problem of transliteration, but some villages are known by more than one name even in local language; it is understood that this confusion resulted in Badghis ending up with 44 treatment communities rather than 45, as one community was recorded twice under different names or spellings.

The greatest difficulty arises when trying to identify unique beneficiaries, since 30% of beneficiaries do not have a national ID number and so have to be identified from their names and fathers’ names, where a whole range of abbreviations, variant spellings and optional titles preclude any simple match between different tables. At present, the project simply does not know how many unique beneficiaries it has supported, nor how many people have received one, two, three or more different interventions.
Q 11) What are the potential challenges/risks that may prevent the project from producing the intended results?

The three main risks identified during the evaluation relate to security, time-scale, and the future reaction of non-beneficiary households in treatment communities. The Risk Log and Security Assessment that form Annexes 6 and 7 to the Inception Report address the security issues comprehensively but do not include the other two factors.

Project communities were initially selected as being in government-controlled areas which were sufficiently secure to allow normal project operations. However, the security situation is fluid, and six of the treatment communities in Farah province had to be suspended at the beginning of 2017 when they became too dangerous. The situation had not improved by September and so these six communities were removed from the project treatment list; they will instead be used as control communities if security is adequate to carry out the second socio-economic survey at the end of the project. So far, these security problems have affected less than 10% of treatment communities and so do not endanger the overall project, but there remains a risk that other communities will be affected in future. The project has managed to work round many of the security problems through its use of local contractors, and its approach of withdrawing from communities that are simply too dangerous is an appropriate response to protect its staff.

As noted under Question 3 above, the original project duration is too short to allow effective testing of the concept of establishing high-value orchard crops in place of opium poppies. This risk can and should be addressed through extending monitoring for several more years. Perhaps the biggest risk arises from non-beneficiary households in treatment communities who believe that they have been promised project support in future. If this support is not forthcoming, then not only may these farmers switch back to opium production, but trust in MAIL and UNDP could decline sharply, making it harder to implement such projects in future.

It should also be noted that, in a country that almost tops the global ranking of the “Corruption Perceptions Index”, any project will face the risk of corruption. Part of the

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37 Considering in turn the eight risks included in the Risk Log:

1. Local producers forced or persuaded by anti-government elements to grow illicit crops – Not a reported problem; active involvement of communities and their leaders seems to have averted this risk.
2. Illicit products black market price increases, motivates farmer to grow illicit crops – The proposed mitigation measure of Government to identify and control black market is currently unrealistic, so the economic analysis in this evaluation looks at the potential effect of future price rises.
3. Targeted project locations will not be accessible due to security reasons to the project for a certain period or for the duration of the project – This has been an issue, leading to some communities being suspended and then withdrawn from the project.
4. Women’s participation in CBARD will not be possible given some social/cultural restrictions – This has been largely overcome through determined efforts by project staff.
5. The provided technology will not be locally maintainable – This has not been an issue, as the technologies employed are all simple to maintain.
6. Agro-business infrastructures are utilized for illicit high-value crop cultivation – No evidence of this yet, though it could become an issue for irrigation structures.
7. Communities and individuals within the community are not willing to contribute land and labour to support their economic development – So far this seems not to have been an issue at all, with beneficiaries eager to receive project interventions and willing to contribute the necessary land and labour.
rationale for the multiple and time-consuming checks in government procurement procedures is to minimise the risk of corruption.

4.3 Effectiveness

Q 12) Are the project’s objectives and outcomes clearly articulated, feasible, realistic?
The project’s target outcome is stated as Improved economic livelihoods, especially for vulnerable populations and women. This is to be attained through two outputs:

1. Local production of, and market for, high-value crops improved.
2. Community-based agro-business infrastructures (irrigation, transportation, agricultural facilities) are built, developed, and/or strengthened.

The target outcome is clear, feasible and realistic, as is the first output. It has not yet been fully determined how the second output will be achieved but it is realistic to assume that the project will succeed in building, developing or strengthening these capacities to some extent.

Q 13) To what extent is the project logic, concept and approach appropriate and relevant to achieving the objectives?
The logic, concept and approach are generally appropriate and relevant, apart from the limitation that three years will not be sufficient to measure the impact of the orchard interventions or to assess the long-term effect on poppy cultivation. This might be addressed through extending the project itself, or through follow-up monitoring as proposed in the Project Document. However, the fact that the original project duration is too short to measure the impact of orchards or to assess the impact of any high-value crop in a range of market conditions must be seen as a design weakness.

Q 14) Are the underlying assumptions on which the project intervention has been based valid? Is there a clear and relevant Theory of Change?
The Theory of Change is stated as follows:

If there is community-based intervention to introduce and strengthen local production and marketing of traditional high-value crops, off-farm employment and access to finance in tandem with the construction, rehabilitation and development of community-based agro-business related infrastructures in 70 opium producing communities in Farah and Badghis provinces, then there will be a marked increase in household incomes coinciding with a notable decrease in illicit crop cultivation and production.

Are the underlying assumptions on which the project intervention has been based valid?
The underlying assumptions are that (1) high-value crops offer a viable alternative to low-value licit crops such as wheat and illicit crops such as opium poppies, and that (2) a marked increase in household incomes will coincide with a notable decrease in illicit crop cultivation. The project is presented as a “Proof of Concept”, thus explicitly recognising that both of these assumptions are yet to be proved.

Experience of other projects, such as the World Bank-funded “National Horticulture and Livestock Project” indicates that high-value crops do indeed offer a viable alternative, at least on a limited scale.
Evidence for the second assumption is more limited, with the Rand Corporation report noting that “higher rural incomes ... appear to be a necessary, if insufficient, condition for substantially curtailing the cultivation of illegal crops”. Whether the expansion of high-value crops does actually coincide with a long-term reduction in illicit crops is likely to depend on a number of factors outside the project’s control, including the price of opium, the perceived legitimacy of the government and the overall security situation. One of the challenges for the final evaluation will be to judge how much of the observed changes in opium production may be attributed to project interventions, and how much to external factors.

Is there a clear and relevant Theory of Change?
The Theory of Change is clear and relevant, but might usefully acknowledge the role of external factors in determining the final outcome in terms of opium production.

Q 15) To what extent has the project managed to implement activities across the target project locations?
As noted under Question 11 above, the project has managed to implement activities in 63 of the 69 selected treatment communities, with 6 suspended due to deteriorating security. The baseline study was successfully implemented in all 69 treatment and 36 control communities.

Q 16) To what extent has the project implemented activities as envisaged? To what extent have those activities contributed to achieving the project objectives?

To what extent has the project implemented activities as envisaged?
In approximate chronological order, the project has implemented the following activities:

- **Baseline study and needs assessment** – conducted by UNODC from 2017 Q1; final report dated June 2018.
- **Value-chain studies** – took several months to procure as the capacity of the lowest bidder was questionable; began in 2017 Q2 and final reports dated August 2018.
- **Access to finance study** – was conducted internally, and has just been finalised and its results presented to the Board.
- **Identification of high-value crops** – the decision to focus on traditional high-value crops allowed them to be identified from desk study and local knowledge, without waiting for the outcome of the value-chain studies
- **Selection of treatment and control communities** – selected over the period November 2016 – September 2017, eventually covering the expanded target of 70 treatment communities.
- **Selection of beneficiaries** – an ongoing activity carried out by Community Development Councils as successive interventions are delivered; they apply the selection criteria developed by the project, and have achieved the target of 20% women beneficiaries.
- **Establishment of greenhouses** – started in autumn 2017 in both provinces and has so far continued up to October 2018. In 2019 greenhouses will be delivered to treatment communities that have not yet received them, but with no new greenhouses to communities that have already been supplied.
- **Establishment of new orchards** – so far carried out in spring 2018; in 2019 the project will concentrate on a major expansion of the orchard area.

- **Rehabilitation of existing orchards** – carried out in Badghis only in 2018, in parallel with the establishment of new orchards; Farah will follow in 2019 along with the new plantings.

- **Construction of demonstration compost and worm compost units** – carried out from 2017 Q4 and completed in 2018, with no further units planned.

- **Construction of demonstration low-energy cold stores** – constructed in Badghis in 2018 Q3; construction in Farah could not be carried out before the winter, so the contracts will be fulfilled early in 2019.

- **Construction of demonstration raisin-houses** – contracted in Farah in September-December 2017, and in Badghis in July-August 2018.

- **Irrigation projects** – begun in 2017 Q4 immediately after community selection, along with the first greenhouses; second round of works contracted in 2018 Q3 in both provinces.

- **Distribution of beehive packages** – delivered in 2018 Q3 in both provinces.

- **Distribution of kitchen garden packages** – delivered in 2018 Q2-3 in both provinces.

- **Distribution of horticulture tool packages** – implemented as a separate activity in 2018; from 2019 will be an integral part of the orchards package.

- **Training, support, advice and monitoring** – implemented continually since the first interventions in 2017 Q4.

- **Communications campaign on advantages of licit over illicit crops** – contracted in 2018 Q3 and still building up.

The following activities have not yet begun full implementation:

- **Trellising of existing vineyards** – planned for 2019 alongside trellising of new vineyards planted in 2018, once these vines are large enough to trellis.

- **Support for marketing** – detailed design still under development, though the project has already helped to connect producers of greenhouse vegetables and inter-crops to local markets. Marketing activities for orchard crops cannot begin at full scale until the new orchards start to produce.

- **Establishment of AgroBusiness Centres** – concept still under discussion. This was originally planned as a large-scale activity requiring a feasibility study. Procurement of a local firm to do this study began in 2017 but there were so few firms with the necessary capacity that it took more than a year to select a firm; in the end it was not contracted as the project was not convinced that it would be able to deliver a quality product. UNDP and the project are now discussing with partners whether this planned activity is still appropriate.

The following planned activities have been cancelled:

- **Access to finance component** – as the study on access to finance concluded that there were no suitable finance or micro-finance institutions operating in rural areas.
Apart from the decisions on the “access to finance” component and the AgroBusiness Centres, all activities were implemented as envisaged in the Project Document, with no new activities added.

To what extent have those activities contributed to achieving the project objectives?
The initial studies and selection processes were an essential precursor for implementation of further activities.
The greenhouses have already contributed to improved livelihoods for their beneficiaries, generating income of $700-1,300 in their first season (see under Question 22 below).
Initial reports from beneficiaries, project staff and UNODC indicate that project interventions at community level, coupled with the low opium price, have resulted in a significant reduction in poppy production in the first year.

Q 17) To what extent did the project start-up activities adhere to the agreed approach and methodology?
The start-up period followed the agreed approach, other than the increase in project scale and resultant extension of the Inception Period as noted under Question 5 above.

Q 18) To what extent have the project implementation modalities been appropriate to achieve the overall objectives?
The mechanisms of project implementation include the initial decision to implement through Ministry of Agriculture, Irrigation and Livestock (MAIL), the role given to the Community Development Councils (CDCs), the system of Lead Farmers and Common Interest Groups (CIGs), and the project structure.

Implementation by MAIL
The project adopted the modality of implementation by the Ministry of Agriculture, Irrigation and Livestock (MAIL), using local staff (“NTAs”) paid by the project. This approach of national implementation is the one normally applied by UNDP and helps to develop sustainable local capacity as well as ensuring coherence between donor project and national policies. It was particularly appropriate in this case, since UNDP would be unable to implement directly in areas where its staff cannot travel.
The decision was also made to emphasise the role of MAIL and thus of the government in this project, and to present it as an alternative livelihoods project rather than one of counter-narcotics, so as to avoid the risk of backlash that can be provoked by eradication or other counter-narcotics actions.
Two years on, that decision appears to be correct. It has allowed the project to work effectively in difficult areas and has given beneficiaries the impression that – finally – the government is doing something to help them. It also conveyed the message that the government was telling them to stop growing poppies, and in return would support them to develop alternative livelihoods.

Role of CDCs
The second key decision was to give a large role to Community Development Councils (CDCs), in beneficiary selection, procurement and implementation. These are a key element of the
government’s development strategy and an institution with which UNDP works regularly. Any kind of decentralised administration brings challenges in monitoring and control, but the project has worked very hard to ensure that proper procedures are followed, in line with government guidelines for working with CDCs, and has begun implementing a rigorous programme of audits and spot checks.

UNDP project management are satisfied that the involvement of CDCs has resulted in a strong sense of local ownership, and UNDP’s experience with this approach for over a decade shows that it contributes a lot to sustainability.

The question of elite capture is harder to judge at this stage. Development of a proper project database will allow analysis to see what share of the benefits have gone to Lead Farmers and to what extent interventions have been concentrated amongst a few people; what it will probably not disclose is whether interventions have been captured by a small number of related households.

In discussing this risk with the project team and field staff, the point has been made that the CDCs were carefully constructed to represent all the main groups in the community, and so for them to reach consensus on the selection of beneficiaries, a relatively broad distribution of benefits would be essential. It was also suggested that the way in which interventions were allocated within communities may in practice have targeted the larger and more influential opium producers, and so contributed directly to the community-wide move out of poppies.

More pragmatically, it might be inevitable that some households would do better than others in the initial distribution of benefits; with these needs satisfied, a second round of interventions might be able to reach a more typical cross-section of the community.

**Lead Farmers and CIGs**

The project adopted MAIL’s established *modus operandi* and previous donor practice of selecting Lead Farmers in the Communities, forming growers of each crop into Common Interest Groups (CIGs), and using the Lead Farmers to help support and monitor the CIGs. In implementing this, the project selected 12 female Lead Farmers as well as 35 males, thus ensuring that female beneficiaries could receive support and advice from another woman.

Effectively, these Lead Farmers function as front-line extension workers, albeit with regular support from the project’s District Monitoring & Extension Advisors. Much will depend on the Lead Farmers’ knowledge and extension skills, as well as on the resources made available to them. It has not yet been possible to form an objective view of these farmers’ competence nor the quality of the training they have received. There seems to be considerable scope to strengthen the project’s extension activities, including producing a national set of high-quality extension materials and develop the most effective way for Lead Farmers and others to use them. This should be done in close cooperation with the MAIL extension staff, so that the benefits can be shared more widely and continued after the CBARD project ends.

In conclusion, the use of local farmers for regular support and monitoring was probably the only way in which the project could maintain almost daily contact with beneficiaries in remote and often-insecure areas.

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38 FAO has previously worked with Lead Farmers, and other UNDP and World Bank projects have established Common Interest Groups.
Project structure

A final aspect of implementation modality worthy of comment is the project structure of national, provincial, district and local staff, down to Lead Farmers operating at community level. This structure is aligned with the regional structure of MAIL, with district- and province-level MAIL staff signing off on various project operations.

This approach helps to integrate the project into the MAIL organisation and offers a practical way of working round the significant travel challenges noted under Question 20 below; the management recommendations given below would further strengthen these vertical linkages.

Q 19) What factors have contributed to achieving/not achieving the intended results?

Every project faces challenges. In addition to the factors of security and remoteness discussed under Question 20 below, the main challenges for the project have been:

1) **Managing community expectations**, especially through the potentially divisive process of selecting one community but not its neighbour.

2) A **protracted procurement process** that must meet both UNDP and government requirements. Typically it takes three months to contract a company, and around half this to sign a contract with a CDC. Suggestions to address this are included in Error! Reference source not found..

3) **Time-consuming procedures** for recruiting international staff, which can take up to a year. In order to keep the project moving, it was decided to replace two staff positions with consultants, who could be recruited much more quickly.

4) **Attempted elite capture** of long-term project positions, with pressure brought to bear to favour a particular candidate. In the end, the MAIL management and project team were able to ensure that objective and transparent recruitment procedures were followed.

5) **Limited staff numbers** particularly for demanding technical positions in the project, such as engineers and extension specialists.

6) **Attitudes to the participation of women** required a lot of hard work at community level to achieve the 20 % target for beneficiaries and Lead Farmers, and to get them accepted by the community.

7) **Securing the community contribution** while working in some of the poorest communities in the country. This has generally been addressed by valuing the beneficiaries’ in-kind contribution but in some cases is still a constraint.

So far the project has managed to overcome each of these constraints and achieve its intended results, but they must inevitable have slowed down progress.

In terms of success factors, probably the two most important have been the successful collaboration with MAIL as implementing partners, and the use of CDCs to resolve a whole range of local problems that could otherwise have stopped the project in its tracks.

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39 Annex 4 to the Inception Report sets out the “Horticulture Implementation Methodology”, including the requirements for community contribution in each case. This is generally in the range 10-20 %, sometimes as labour or other in-kind contribution, and occasionally in cash.
Q 20) **To what extent do external factors, such as logistical or security constraints, have impacts on project implementation?**

As noted under Question 11 above, worsening security resulted in six treatment communities being suspended and then removed from the list. Security concerns have also affected the continuing communities, for example in determining when and where project staff can travel, and in preventing the Minister of Agriculture from visiting project communities during his visits to Farah province. When project provincial staff wish to travel to a treatment community, they request community leaders to come to the province centre, sign a written guarantee for their safe passage, and then escort them to the project area.

The time and costs of travel and transport also have a significant impact on project activities, and are due to a combination of poor roads, remoteness and security concerns. This effect can be seen in the procurement prices for greenhouses and other structures delivered and built in Badghis, which is very remote, compared to Farah where travel is rather easier: 400 m² greenhouses cost 43 % more in Badghis, 60 m² micro-greenhouses cost 52 % more and raisin houses cost 55 % more. Thus for the same budget, the project can only assist two-thirds the number of beneficiaries in Badghis as it could in Farah.

A second example was the planned meetings with beneficiaries during this mid-term evaluation: a group of 12 beneficiaries travelled from their communities in Badghis to meet the consultant in Kabul, but it took them four days to reach the capital, with another four days to get back. The group from Farah was unable to come at all, as the twice-weekly flight from the provincial capital was cancelled two times in succession due to bad weather.

Another external factor is gender inequality and attitudes to women which, as noted above, required considerable efforts by the project team to achieve even 20 % participation of women in training activities and as Lead Farmers.

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4.4 **Perception**

Q 21) **What is the wider perception of the project, its image, applicability and performance? Are project communications effective in positively promoting the project to a wider audience?**

Beneficiary representatives and project staff report that the project is well received in the treatment communities, regarded with some envy by neighbouring communities, but probably not well known outside these local circles and the main stakeholders of MAIL, MCN and UNODC. However, these groups that are aware of the project seem to regard it in a positive light.

The reaction of beneficiary communities has been particularly positive in the remote province of Badghis, which had received very little project support for more than a decade. The visible delivery of substantial support by a government ministry has brought a strong sense of local ownership and commitment. The feeling is not quite as strong in Farah, which has more regular contact with Kabul, but beneficiaries are still very aware that they are now receiving real assistance from their government through this project.
Are project communications effective in positively promoting the project to a wider audience? Communication with the donor and the wider public has been identified as one of the project’s weakest points up till now. In part, the project deliberately avoided a lot of publicity until it had some solid results to show, but now has a good story to tell. It is understood that the project will bring in some additional capacity to design and implement a proactive communications campaign.

4.5 Impact

Q 22) What are the results (or preliminary results) of the intervention in terms of changes in the lives of beneficiaries against set indicators?

It is widely reported by beneficiaries, project staff and UNODC that most treatment communities in Badghis have stopped growing opium poppies, though confirmation of this must await the results of UNODC’s 2018 survey.

The beneficiaries from Badghis reported a high degree of satisfaction with the interventions they had received, with several quoting good revenues from their new greenhouses.

The first year’s APY survey of 138 greenhouse beneficiaries recorded average revenue of $915 for the majority that had produced just one crop and $1,330 for those who harvested a second crop within the period. These values are lower than the projected annual revenue of around $2,400 per greenhouse but cover the very first steps of a new venture when farmers must learn a whole range of new technical skills as well as finding the best way to market their crop. Even at this lower level of output, the average project costs of $1,800 per greenhouse will be recouped in just two years.

The wider socio-economic impact of the increase in incomes and decrease in poppy production will become known once UNODC completes analysis of its 2018 monitoring survey.

4.6 Sustainability

Q 23) What are the Implementing Partner’s resources, motivation and ability to continue implementing activities until the end of the project?

MAIL are fully committed to the project and no reason is seen why they will not continue to implement it energetically until the end of the project and any extension.

It is planned to hand over to the MAIL province offices (“PAIL”) at the end of the project but it is not yet clear what resources will be made available for continued monitoring and support, or whether MAIL itself will go on to deliver further interventions.

Q 24) Is there adequate all-party commitment to the project objectives and chosen approach?

There appears to be strong commitment from INL, UNDP, UNODC, MAIL and MCN, with no significant issues reported.
Q 25) To what extent is there constructive cooperation among the project partners? What are the levels of satisfaction of government counterparts, donors and beneficiaries?

To what extent is there constructive cooperation among the project partners?
Cooperation generally works well. MCN has expressed some frustration about being kept in the background, but the project fears that community cooperation would drop dramatically if it became associated with a counter-narcotics operation, particularly if eradication were attempted in the vicinity of the project villages.

What are the levels of satisfaction of government counterparts, donors and beneficiaries?
At this stage in the project, there seems to be a high level of satisfaction amongst government counterparts and beneficiaries. Satisfaction of the donor could not be judged as INL chose not to meet the consultant during the evaluation mission but instead provided detailed comments on the draft report.

Q 26) What has been the quality of implementation of the implementing partner, and if applicable where are there specific areas for improvement?

What has been the quality of implementation of the implementing partner?
MAIL has proved an effective implementing partner, and the team that has been hired to manage and implement the project exhibits a high degree of technical competence and commitment.

If applicable where are there specific areas for improvement?
More attention might be given to robust economic analysis of the proposed interventions, with emphasis placed on those that offer the best returns. In practice, the project will focus strongly on orchards in 2019, which seem to be where the returns are greatest.

Probably the most important issue for the “Round Two” interventions is to try to extend the benefits to as many community members as possible, thus ensuring that the more needy households benefit and helping to maintain the credibility of the project. One specific recommendation is that Round Two should exclude any households who benefited from Round One, and it might also be best to limit the orchard size to 1 jerib rather than the larger areas sometimes planted in Farah, so that the maximum number of households can benefit. Irrigation works offer a way to bring benefits to several households in one go; subject to satisfactory economic analysis, irrigation might also be expanded as a way to benefit the community more widely.

Q 27) What is the likelihood that the project results will be sustainable in terms of systems, institutions, financing and anticipated impact?

The institution of MAIL is an established part of the government structure and budget, and thus the main implementing partner is clearly sustainable.

However, the specific project systems of Lead Farmers, District Monitoring & Extension Associates, technical specialists and managers at district, province and national level are dependent on the project budget and it is not yet clear how much of this structure MAIL might retain after project completion.
In terms of impact on livelihoods, the orchards and greenhouses quickly start to generate net revenue, so farmers should be able to continue them even without project assistance. Probably the biggest need for continued external assistance will be for technical support in pest and disease management, where farmers most commonly recognise the need for specialist advice. When it comes to considering post-project arrangements, MAIL might wish to prioritise this area.

Given that the project has not yet begun its marketing activities, it is too early to assess their likely sustainability. However, the world is littered with failed cooperatives that were established by projects and quickly ceased to function once project funds were withdrawn. If CBARD-W is able to find a better approach to marketing, it might have a higher chance of becoming sustainable.

The real question is whether farmers will continue not growing poppies once they realise that there will be no more interventions from the project. Will they go on to grow high-value crops instead of poppies, or to grow high-value crops as well as poppies? The answer to this is not yet known, and is part of the concept that this project set out to test.

Q 28) What is needed for the project intervention to be adapted/replicated further?
The main need is for money to build greenhouses, plant orchards and improve irrigation on a much larger area. If funds can be secured for a major scaling-up, then a lot more attention will need to be given to marketing, processing and in some cases, exporting.

4.7 Coverage

Q 29) Which groups have been reached and what is the different impact on those groups?
As a matter of principle, MAIL works with all groups in its project areas, neither discriminating nor setting targets or quotas. No information is available on the profile of beneficiaries, but there has been no suggestion of discrimination by ethnic or linguistic group or other characteristic.

However, there is one respect in which the project approach will exclude some people rather than others, which is the unavoidable requirement that they must have land on which to establish orchards, greenhouses etc. The project does not directly reach the landless though they might benefit indirectly from employment by producers of high-value crops, or suffer through the loss of employment in producing opium.

4.8 Coordination

Q 30) What are the effects of coordination or lack thereof at district/province/national level?
As discussed under Question 18 above, the hierarchical management model from Kabul to the communities appears to work well and fits with the overall structure of MAIL. There is active involvement throughout the chain, for example, in requiring a MAIL official at province level to sign off each of the monitoring reports.
4.9 Coherence

Q 31) What are areas and ways of cooperation with other UN and donor agencies in regard to set goals and objectives?

The main cooperation is with UNODC, who are implementing the monitoring component of this project. The two organisations work together closely and report to the same management board for the UNDP CBARD projects and the UNODC BADILL project. Until very recently, the exchange of village-level UNODC data with UNDP was hampered by the lack of any signed Memorandum of Understanding, but in December 2018 it was confirmed that data could be exchanged without such a document, and these data were immediately made available.

The project deliberately selected treatment and control communities that were not subject to other interventions, so interaction with other projects is generally low. FAO does have a USAID-funded agricultural project that started in 2018, operating in other parts of Badghis. The CBARD team keeps in contact with them, including an exchange of ideas and experience on Farmer Field Schools, but due to the different geographic areas there has been no occasion for joint activities.

Q 32) What is the existing national policy on agriculture and rural development?

The most recent statement of agricultural policy may be found in the July 2018 “Agrobusiness Charter: Comprehensive Strategy and Action Plan: 2018-2023”. It sets out a vision of an agricultural sector made up of “highly productive and profitable value chains that:

a) effectively link small and medium size agricultural producers to markets, inducing productivity gains and increasing prosperity through income diversification and value-addition processes;
b) supply higher-valued and differentiated food, fibre and feed to consumers at local, regional and global markets;
c) lead to retention of a higher proportion of returns to farmers;
d) act as an effective basis for industrialization, providing employment and entrepreneurial opportunities in both rural and urban areas”.

The project’s focus on high-value crops and their marketing is fully in line with this vision.

Q 33) Is there coherence across policies of different donor agencies and national stakeholders? (this criteria should be assessed to the extent possible)

MAIL supports a common approach on livelihood projects and extension – including in management structures, the formation of Common Interest Groups and the selection of Lead Farmers – which has been applied successfully for at least 10 years, for example with the World Bank-funded “National Horticulture and Livestock Project”. This has brought consistency across projects and contributed to the relatively rapid start-up of CBARD-W.

The only possible drawback might be a tendency to stick with established ways of doing things – such as with the idea of group marketing organisations at community, district, province and national level – when there might occasionally be value in questioning the underlying assumptions or trying something new.
4.10 Protection

Q 34) Is the response adequate in terms of protection of children of different groups? (this criterion should be assessed in regard to what measures/actions need to be taken to provide, for example, support systems for children with disabilities, as/where applicable.)

The project works at the community and household level, and does not collect data on individual household members other than the Lead Farmers and the name and contact details of the direct beneficiary. There were no specific actions on child protection, nor were specific project threats identified in the Project Document or Inception Report.

The most relevant issue is the common practice of involving children in harvesting opium from poppies, which is both a form of child labour and a direct risk to their health. If the project is successful in inducing a long-term shift away from opium, children will be amongst the first to benefit.
5 Conclusions and Recommendations

This chapter presents the most important conclusions from the 35 evaluation questions, and then gives 18 specific recommendations to improve implementation of the project and ensure effective follow-up and monitoring.

5.1 Conclusions

This is a well-designed, well-run livelihoods project that is very well received by beneficiaries and is already making a positive impact on their lives. Neighbouring communities are seeing these benefits and asking for similar support.

The choice of MAIL as implementing partner has helped the project to operate effectively, bolstered the legitimacy of government in the project areas, and created a basis for sustainability. The project management structure, integrated into the regional organisation of MAIL, works well and supports the cooperation.

The major role given to CDCs has allowed the project to operate in otherwise-unreachable areas and given a strong sense of local ownership. It may also have resulted in the initial benefits being concentrated amongst a local elite, but in so doing created the conditions for a community-wide switch out of opium poppies.

It is already clear that high-value crops can generate higher margins per hectare than poppies with an opium price up to $200/kg. Above that, the advantage of high-value crops is less pronounced, with only greenhouses and high-density orchards likely to out-perform poppies once the opium price exceeds $400/kg.

Initial reports are that most of the treatment communities in Badghis have stopped growing poppies completely, with a significant switch also reported in Farah. Analysis of data from UNODC’s 2018 survey will show the true extent of this switch and how it compares with changes in the control communities prompted by the current low opium price.

It is too early to say how durable will be the switch out of poppies, once communities stop receiving new project interventions and non-beneficiary households realise that they are not going to receive a direct benefit. Monitoring the project over the next few years, as the new orchards reach maturity and project interventions cease, will be the real test of the concept that high-value crops can offer a sustainable alternative to illicit crops and contribute to a substantial reduction in opium production.

Overall, this project should make a real contribution to answering that important strategic question, as well as improving rural livelihoods in a highly cost-effective manner.

5.2 Recommendations

This final section presents a series of recommendations to improve the effectiveness and efficiency of the CBARD-W project, as well as some suggestions for follow-on or additional activities. Where appropriate, explanatory text from section 4 is repeated here to put the recommendations in context.
Recommendations marked with an asterisk are to some extent “strategic recommendations” in that they are not fully under the control of the CBARD-W project but will need to be addressed more widely by INL, UNDP, UNODC or other organisations. Here UNDP’s management response might include raising the issue with relevant parties.

5.2.1 Monitoring

For the project to make good management decisions and provide sound advice to farmers, it needs a reliable information base. The recommendations in this section will help to develop that information base and feed into the economic analyses proposed in section 5.2.2 below.

Project database

A good range of data area stored in a spreadsheet database, but items, places and people are entered as free text rather than being selected from a list. A major cause of problems is the multiple ways in which Dari and Pashtu names are transliterated from Arabic to Latin script; for example, one district is variously recorded in the spreadsheet database as “Pusht Rod”, “Posht Rood”, “Pusht-e-Rod” and “Pusht-e-Rood”, thus appearing in automatic tables as four different districts. At community level there is not just the problem of transliteration, but some villages are known by more than one name even in local language; it is understood that this confusion resulted in Badghis ending up with 44 treatment communities rather than 45, as one community was recorded twice under different names or spellings.

The greatest difficulty arises when trying to identify unique beneficiaries, since 30% of beneficiaries do not have a national ID number and so have to be identified from their names and fathers’ names, where a whole range of abbreviations, variant spellings and optional titles preclude any simple match between different tables. At present, the project simply does not know how many unique beneficiaries it has supported, nor how many people have received one, two, three or more different interventions.

The consultant has developed a database structure and is assisting the MAIL team to clean the data as much as possible. Further work will be needed on this activity, which might also be extended to CBARD-E.

**Recommendation 1** Convert the existing spreadsheet records into a structured relational database, and ensure that future data are properly checked and coded before import.

**Benefit:** Robust project tool able to produce a wide range of reliable reports and to support further analysis leading to better management decisions.

Data exchange with UNODC

The UNODC Baseline Report and its annexes contain a large amount of detailed information on treatment and control communities, parts of which are being updated through annual satellite imagery, and parts of which will be updated from the second personal survey to be conducted at the end of the project. These data would be of considerable value for planning and analysing project activities. However, data in the UNODC reports are in a text format which is not suitable for inclusion in the project database. It is therefore recommended that the data in the UNODC pdf reports should also be provided in Excel or database format; given that these data have already been released in text format, no new issues of confidentiality should arise.

**Recommendation 2** Arrange procedures for regular transfer of relevant data from UNODC databases to the project database*. 
**Benefit:** Comprehensive data readily available to the project team to analyse the impact of its interventions.

**From output to impact**

The Project Document contains a detailed Performance Monitoring Plan with more than 50 different quantitative targets. However, most of these refer to activities or relatively low-level outputs, such as the number of people attending a training course. The underlying rationale of the project is that growing high-value crops will increase household incomes and thereby lead to a switch out of poppy cultivation. The important issue is not whether people attend training on, say, Integrated Pest Management, but whether they put this knowledge into practice to get higher yields and higher income. This is admittedly much harder to measure but will have to be assessed in the final evaluation.

The project should start now to think about how the overall economic impact will eventually be calculated and what data it will require. The monitoring team may then ensure that the necessary indicators are being collected, and that those which relate most directly to project impact are given greater prominence in monitoring and reporting. Specific recommendations to strengthen impact-related indicators are given in Recommendation 5 and Recommendation 6 below.

**Recommendation 3** Consider how overall project impact will be calculated, ensure that the necessary indicators are collected, and give greater prominence to indicators that strongly influence household income.

**Benefit:** Greater focus on the issues that matter most, and a reliable set of data for final evaluation.

**Results framework**

The Performance Monitoring Plan has been periodically revised, most recently in January 2018, but a number of activities are still marked as “TBD in Year 1”. This table is used as a basis for quarterly reporting, albeit at a lower level of detail and with some discrepancies between the Performance Monitoring Plan and the Quarterly Reports. The Annual Reports present a summarised view of selected indicators, focussing usefully on whether or not activities are on target, but without a clear reference to the numbered activities. Creating these tables manually every quarter and year is time-consuming and an invitation for errors.

The monitoring team should review, update and synchronise its list of indicators, taking account of the greater emphasis on measuring impact proposed in Recommendation 3. It should share its proposals with the team working on the project database from Recommendation 1. They can then develop standard database reports to show the status of the indicators in consistent format whenever required.

**Recommendation 4** Review and synchronise the targets in the Results Framework, and create standard database reports to give regular status updates.

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40 The Performance Monitoring Plan uses a three-level hierarchy (e.g. 1.1.1) whilst the table in the Quarterly Reports only goes to this detail for Activity 1.1 and thereafter reports at the second level (e.g. 1.2). The Performance Monitoring Plan includes an Activity 1.1.5 Map existing financing opportunities (baseline) within 70 communities in collaboration with local funding organizations/banks, and suppliers, farmer groups, cooperatives, agro-based enterprises, producer groups, SMEs and Entrepreneurs, which is missing from the Quarterly Report.
Benefit: More efficient monitoring and reporting, with less scope for errors.

Gross margins survey
The project has instituted an “APY” survey of Area, Price and Yield amongst its greenhouse beneficiaries. This approach focuses very well on the three most important factors without consuming a lot of resources in data collection, and will be extended to the orchard beneficiaries as well.

However, in order to get a full picture of the economics of high-value crops, it will also be necessary to collect data on costs. Keeping full records of each income, outgoing and resource-using activity is time consuming and typically requires regular visits by project staff to transpose data from on-farm records and ask any necessary follow-up questions. This is therefore best done on a sample basis to get good-quality data from a moderate number of farms, rather than poor-quality data from every farm. An appropriate survey design should be drawn up but might include, for example, every Lead Farmer plus perhaps two non-lead farmers per intervention per village, aiming overall to monitor about 30 farmers for each high-value crop.

Monitoring should also include the inter-crops grown in orchards, as these make an important contribution to the projected gross margins, particularly during the initial years of establishing a new orchard.

Recommendation 5 Supplement the “APY” survey with sample-based collection of cost data to produce full gross margins for each high-value crop, including orchard inter-crops.

Benefit: Robust project tool able to produce a wide range of reliable reports and to support further analysis leading to better management decisions.

Record-keeping for demonstration activities and irrigation projects
So far there has been neither economic modelling nor monitoring of the other interventions of cold stores, raisin houses, compost units, beehives and irrigation works. The first step should be to develop gross margins with local experts, as was done for high-value crops, and to use these to identify the main factors that should be monitored.

For cold stores and raisin houses, where there are only 10 and 41 units respectively, a suitable monitoring tool might be a “stock book” where the farmer records everything that comes in or goes out, together with its origin, destination and price where relevant.

A similar approach might be applied with the 51 compost demonstrations (or as a minimum, all 6 vermiculture units plus a similar number of conventional compost units), recording the main kinds of materials used, the approximate volumes of compost produced and the areas of land treated. Nutrient contents are highly variable but can be roughly estimated from standard tables to give an indication of how much urea and DAP has been saved by using the compost.

Irrigation is more diverse and difficult to assess. As a minimum, for each intervention there should be a record of the command area before and after the works. Then, for at least a subset of the irrigation projects, there should be records of the number of waterings and of the crops grown, matched to the APY records that are already being maintained.

Recommendation 6 Keep records for a representative sample of irrigation project and demonstration activities so that costs and benefits can be calculated.
Benefit: Reliable data to establish which of these activities is worthwhile, providing extension workers with information to promote the profitable activities and establish benchmarks for farmers.

Analysis of other alternative livelihood projects in agriculture
The CBARD interventions follow a model applied by MAIL in other project such as the World Bank-funded “National Horticulture and Livestock Project” (NHLP) which has, over the course of a decade, established more than 40,000 ha of high-value crops. Whilst substitution out of poppies was not a specific project objective, it is almost inevitable that some of the beneficiaries will have previously grown opium poppies. If time-series data on cropping patterns are available, perhaps from the annual UNODC Afghanistan Opium Survey, then it might be possible to see whether the development of high-value crops has brought a reduction in poppy cultivation. As conditionality was not part of that project, then the analysis would specifically measure the impact of the twin mechanisms of resource diversion and need reduction.

This task falls outside the current remit of the CBARD-W project, so INL might wish to consider a separate short contract for this analysis.

Recommendation 7 Consider analysing similar interventions under other projects, such as the World Bank-funded NHLP, to determine their long-term effect on opium growing*.

Benefit: Potential parallel mechanism for a proof-of-concept of high-value crops over a longer time scale and wider geographic area than currently available from CBARD.

5.2.2 Economic analysis
The project needs to be sure that it is promoting the right interventions, and its extension staff need good information to help persuade and advise farmers. These recommendations for economic analysis will help transform the monitoring data from the previous section into actionable conclusions.

Further analysis of high-value crop margins
Gross margins and cash-flow projections have already been created for the main greenhouse and orchard crops, based on input from local experts. The progressive collection of data through the APY survey and the gross margins survey proposed above will allow the estimated values to be replaced with actual data from the field, showing the real performance of ordinary farmers from Badghis and Farah. This will allow a more accurate assessment of costs and benefits and provide a solid basis for promoting successful crops to other farmers.

One specific area for further analysis is that of high-density versus conventional orchards. Initial data indicate that high-density orchards offer higher margins per hectare but conventional orchards give a higher return on investment, as well as taking more land out of poppy production. The project should consider this carefully before deciding how much emphasis to give to the high-density variants.

Analysis could also look at the outliers – those farmers who perform markedly better or worse than average – to find some of the keys to success and mistakes to avoid. This would provide very valuable material for extension workers and provide them with some real-life examples of local best practice.

Recommendation 8 Update and extend the analysis of high-value crop margins using data from project monitoring.
Benefit: More reliable data on the costs and benefits of different high-value crops and a powerful tool to help extension workers promote best practices.

Economic analysis of other project interventions

Although orchards and greenhouses have been analysed in some detail, no economic projections are yet available for the raisin houses, compost units or cold stores. The costs of these intervention are relatively high (for example, the worm compost units involve structures of similar complexity to those for poultry or dairy cattle), and the return on investment may not be sufficient to justify the cost. Before these interventions are promoted to farmers through demonstration units, the project must be sure that they do really offer good value for money.

Likewise, no economic data or projections are yet available for irrigation investments, which seems a significant omission for the second-largest expenditure item in the project to date. Experience elsewhere shows that works that expand the command area typically give good returns as long as the operating costs are not too high, but that canal lining to reduce water losses is often not cost-effective.

The additional record-keeping proposed above would provide an evidence base for economic analysis of these interventions.

This action might also help to develop a common and comparative approach to measuring the income and employment effects of UN projects (the strategic part of this recommendation).

Recommendation 9 Conduct standard financial and economic analysis of all project interventions before promoting them widely*.

Benefit: Clear understanding of which interventions should be promoted and which should not, together with valuable information for extension workers.

Economic modelling for farms and villages

The gross margin models developed so far consider an individual greenhouse or one jerib of irrigated land under a single crop, but in practice most farmers have several parcels of land, some irrigated and some not, of which only one or two are likely to be converted to high-value crops in the short term. The gross margin budgets could be combined into whole-farm models for a limited range of farm types and sizes to examine the effect of interventions on total household income. These models could also be used to examine the impact of the decision whether or not to grow poppies on the land not under high-value crops, and may give valuable insights into how farmers are likely to behave once the conditionality of the project no longer applies.

A further extension of this analysis would be to look at scenarios for entire villages, modelled as a combination of farms that received project interventions, farms that did not receive interventions, and landless households. This would develop understanding of the distributional impact of the project and might help to predict how non-beneficiary households will respond in the long term.

Recommendation 10 Combine the gross margin budgets into economic models to show the impact of the project on whole farms and villages, considering also their other crops.
Benefit: Considerably deeper insights into the impact of the project on total household income for beneficiaries and others, and into the economic pressures that may drive future decisions on whether or not to grow opium poppies.

5.2.3 Round Two

As the project moves into its third operational year and launches its second big round of interventions, it needs to be sure that it is promoting the right interventions and delivering them in ways that maximise the beneficial impact on treatment communities.

Intervention priorities

The economic analyses recommended in the previous section will identify which interventions give the best return to the project’s capital and to the beneficiaries' land and labour. In Round Two the project should focus on the most profitable interventions and those that allow it to reach the greatest number of beneficiaries and move the greatest area of land out of opium poppies and into high-value crops. Initial analysis suggests that the main emphasis should be on establishing conventional orchards.

Recommendation 11 Focus Round Two on crops and structures that give a high return on project funds and can cover large areas of land or numbers of people.

Benefit: Maximum possible number of beneficiaries reached and land move permanently out of poppy production.

Interventions for women

Whilst the general approach should be to focus on the most profitable, affordable and land-using interventions, slightly different priorities might be applied to women beneficiaries. The economic opportunities for women in rural Afghanistan are so limited that project interventions may be the only opportunity that many of them get to gain a degree of economic independence and security, and the UNODC Baseline Report found that women often have little or no alternative to opium production as in an income source. The imperative that interventions should be economically profitable still remains, otherwise it would be more efficient for the project to simply give money to women, but there is a strong social case for providing interventions to women even if they do not reduce opium production and there is little chance of non-beneficiaries being able to replicate them.

The economic performance and social implications of the female-focused interventions of micro-greenhouses, kitchen gardens and beehives should be reviewed as soon as data are available; provided these interventions work and are economically profitable, they should be delivered to other female beneficiaries on a much wider scale to provide them with an alternative livelihood to opium production.

Recommendation 12 Check the economic profitability of female-focused interventions as soon as possible, and implement the profitable ones on a considerably wider scale.


Cost-effective solutions

Although economic analysis is not yet available, it is quite possible that cold stores, raisin houses and compost units costing several thousand dollars each are not cost-effective, and are most unlikely to be replicated by villagers using their own limited funds. However, it might
be possible to achieve almost as good results at considerably lower cost, for example by making compost bins out of earth walls or wire mesh covered with a sheet of plastic laid over branches. Similar low-tech solutions might be possible for cold stores, raisin houses and some of the irrigation structures.

In Round Two the project might experiment with different low-cost alternatives and see if it can come up with designs that beneficiaries can replicate with minimal support from the project. It could perhaps launch a design competition, offering prizes to farmers who come up with the best low-cost solutions.

**Recommendation 13** Seek alternative designs for cold stores, raisin houses, compost units and irrigation structures than can be replicated by beneficiaries at minimal cost.

**Benefit:** Possibility to spread these benefits amongst more people for the same amount of project funds, and greater chance of replication and sustainability.

**Maximise beneficiaries**

So far the project has managed to reach around 10% of households and 1% of cultivable land in the treatment communities. Whilst an impressive achievement for little more than a year, it leave the project very exposed to two risks: firstly, that those who do not receive benefits will become disillusioned, go back to poppy growing, and lost their new-found trust in the government and donors; and secondly, that when the project finishes, the beneficiaries will resume growing poppies on land not devoted to high-value crops. The project should therefore take the target of 2,100 beneficiaries as a minimum, and aim to reach as many people and as much land as possible.

In addition to prioritising the most cost-effective interventions and seeking low-cost alternatives, in Round Two the project should:

- Supply only new beneficiaries, not households that received interventions in Round One;
- Limit new households to a single intervention, unless the interventions are clearly linked and synergistic (e.g. apple orchards + cold stores; orchards + beehives for pollination; grapes + raisin houses);
- Limit orchard beneficiaries in Farah to one jerib per household, as was done in Badghis;
- Consider whether there is scope to increase the level of beneficiary contribution, this letting the project reach more beneficiaries and narrowing the gap between project-assisted and beneficiary-funded investments. It seems that there is little chance of achieving this in Badghis, where communities tend to be very poor, but it might perhaps be possible in some parts of Farah. If done, it should be made clear that the total budget allocation per community will remain the same, but more people will be reached.

**Recommendation 14** Adjust the intervention mechanisms for Round Two so as to reach as many beneficiaries as possible, aiming for more than the original target of 2,100.

**Benefit:** Benefits extended to more households, including the more marginalised. Reduced risk of return to poppy cultivation.
5.2.4 Strengthening access to markets and finance

Access to finance remains one of the unsolved challenges of the project. It is clear that beneficiaries want finance, but equally clear that the normal finance and micro-finance organisations simply do not yet exist in rural areas.

On marketing, it appears that output markets work better than expected, returning a higher-than-usual share of final value to the farmer, but that input supply markets are under-developed and inefficient, perhaps linked to the relatively low use of inputs on low-value crops.

**Input supply shops**

Beneficiaries from Badghis reported that the nearest place they could buy seeds, fertilisers and pesticides was the district centre for some, and the even-more-distant province centre for others. This requires farmers to expend time and money travelling to purchase relatively low quantities of inputs. This may not be such an obstacle for seeds and fertilisers, where the need can be predicted in advance and so the purchase combined with a trip for other purposes, but it is much more of an issue with pesticides, where one of the principles of Integrated Pest Management is to move away from routine spraying to applying pesticides only when the specific risk and weather conditions justify it.

One option to be considered is supporting the establishment of small input supply shops in the larger villages, which could stock the most common requirements and perhaps also serve as sources of advice and distribution points for extension materials and information. Shops could also take advance orders for saplings for farmers who wished to replicate the project orchards.

However, Afghan traders have generally been quick to spot business opportunities, and there may be good reasons why such shops have not sprung up already. This is therefore a recommendation for further research and discussion, possibly leading to a small pilot intervention, rather than a firm recommendation for a large-scale activity.

**Recommendation 15** Consider and possibly pilot local input supply shops as part of the project’s support to community-based input supply infrastructure, with these also serving as contact points for information and advice.

**Benefit:** Better access to the inputs necessary for successful production of high-value crops, and a new community-based, low-cost mechanism for distributing information and advice.

**Working credit linked to input supply**

In many countries, input suppliers are not only the first source of advice, but also a major channel of trade credit and working capital. This or a future project might explore whether a line of credit could be directed through input-supply shops, allowing them to supply trusted farmers with agricultural inputs against a partial down-payment with the remainder to follow after harvest.

It is not hard to imagine the many ways in which this could go wrong, but even with a significant level of default it might offer a half-way house between completely free inputs for

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41 Analysis of extension provision in Serbia, for a USAID-funded Extension Strategy, found that the first point of call for farmers seeking advice was their local input-supply shop, followed by other farmers or the internet (depending on the age of the farmer), with the formal extension service in a distant fourth place.
project beneficiaries and full-cost inputs for the rest of the community. The project has an access to finance component with dedicated officers in each province, but does not have its own credit fund; therefore this recommendation would require working with a partner such as the Agricultural Development Fund.

**Recommendation 16** Consider the possibility of extending trade credit through the new input-supply shops, if established*.

**Benefit:** A possible route to make essential inputs more affordable in areas where conventional credit does not exist.

### 5.2.5 Strengthening extension

Extension is a key part of the project approach, implemented through Lead Farmers, Common Interest Groups and District Monitoring & Extension Advisors. However, it depends very heavily on the capacity of Lead Farmers with rather limited training, support and experience of extension. The next step should be to develop a more systematic approach and a strong support system for the front-line extension workers. Attention should also be given to how farmers with orchards and greenhouses can continue to get good advice after the project finishes.

**Extension toolkit**

So far, Lead Farmers have only been provided with training, and the only equipment given to District Monitoring & Extension Advisors consists of a motorbike and a GPS camera. Neither group can operate efficiently without good resource materials. The project should start to develop a set of locally-adapted leaflets, brochures, posters and videos that can be used by extension workers and distributed through input-supply shops and other community venues. This should be backed by a support system for more difficult problems, for example, letting someone send a photo of pest or disease symptoms to a national expert for diagnosis and advice.

Other projects and experience from similar countries should provide a good starting point and allow a first set of tools to be put together quite quickly.

**Recommendation 17** Develop a toolkit of extension materials to increase the effectiveness of front-line extension workers and for direct dissemination to farmers.

**Benefit:** Wider reach, higher quality and more efficient use of extension workers’ time.

### Sharing lessons learned

The project has aimed to establish mainstream orchards and greenhouses throughout its treatment communities, with a proportion of them also having demonstration units for less common crops and for facilities such as cold stores, raisin houses and compost units. This gives a lot of people the chance to see new technologies for themselves but does not take full advantage of experience gained right across the project area.

The project should aim to share experience across communities, both of best practice and of mistakes to avoid. One part of this should be the economic analyses discussed above, another should be the use of photos, videos and stories to share experiences across the whole project area.

Demonstration plots and structures should have simple information boards showing their establishment costs and the key physical and financial parameters, i.e. the things a farmer
needs to know to decide whether or not to adopt a technology demonstrated by the project. These key parameters should be included in the information sharing between communities. As the project moves into marketing, a similar approach should be applied to analysing and sharing experiences.

**Recommendation 18** Share experience of demonstration plots and regular interventions as widely as possible, with a strong emphasis on the lessons learned.

**Benefit:** Farmers will relate more easily to the experience of other farmers, will have reliable information on which to base their decisions, and will be made immediately aware of the critical factors for successful production and marketing of high-value crops.

**Extension strategy**

The project should develop a strategy to strengthen its extension work and enhance cooperation with MAIL extension staff so that its achievements continue to be used beyond the end of the project. This should include the extension toolkit and sharing of experiences discussed above, but also address training, monitoring and ways in which project extension can interact with the communications campaign to share its messages more widely.

**Recommendation 19** Develop an extension strategy to guide the project’s work in this and integrate it more closely with the MAIL extension system.

**Benefit:** A more coherent and sustainable extension system that can help to spread the project’s successes and continue to support beneficiaries after the project ends.

### 5.2.6 Project management

**Strengthening vertical teams and delegation**

The CBARD projects have a rather flat management structure, with one Project Manager responsible for 21 people in Kabul plus a further 50 in the three provinces with their respective Field Coordinators. The project should formalise a second management tier consisting of the five vertical teams that already exist down to province or district level, namely: Administration & Finance; Engineering; Agronomy and Extension; Monitoring & Evaluation; and Economics, Finance & Marketing.

One member of each vertical team should be designating as team leader and given responsibility for drawing up and implementing a workplan for their team in line with the overall project workplan. Each team leader should hold regular management meetings with their team and report to the Project Manager in a weekly meeting of team leaders. Normal day-to-day management of the teams should be delegated to the team leaders, allowing the Project Manager to concentrate on strategic issues and managing the three Provincial Field Coordinators and the communications team.

In addition, the project should consider creating a post of Deputy Project Manager to take some of the management workload and allow smooth operation of the project when the Project Manager is away or busy.

**Recommendation 20** Develop vertical teams to increase delegation, strengthen cooperation between staff working on similar issues, and improve management efficiency. Consider appointing a Deputy Project Manager.

**Benefit:** More effective teams and better strategic management.
More timely procurement

Procurement and fulfilment of contracts has proved to be quite a lengthy process, due in part to the procurement procedures that the project must follow, in part to the limited choice and capacity of contractors in Afghanistan, and in part to the security situation. For many activities, such as constructing greenhouses or planting new orchards, a few weeks’ delay at a critical time can effectively lose a whole growing season.

Given that there is unlikely to be much improvement in the range of contractors available, the security situation or the flexibility of procurement rules, the project must work within the existing constraints by (a) allowing greater lead time when procurement and delivery time is likely to become an issue, and (b) making greater use of multi-annual “draw down” contracts for the supply of standard items such as seeds, saplings, fertilisers and tools.

**Recommendation 21** Allow greater lead time for procurement and delivery when time is limited, and make greater use of multi-annual “draw down” contracts for supply of standard items.

**Benefit:** Fewer delays in project implementation, helping the project to get back on track to meet its disbursement targets.

Communications expert and campaign

Communication has been raised in Project Board meetings as one of the project’s weakest points, since the project does not yet have a communications strategy nor user-friendly communications material to improve information flow to the donor, partner organisations, beneficiaries and the public at large.

The project has already prepared Terms of Reference for a local expert to develop and implement a communications campaign. This should be implemented as soon as possible and provided with the necessary support.

**Recommendation 22** Recruit a communications expert, prepare a communications strategy and put it into effect.

**Benefit:** More effective sharing of information between stakeholders and wider promotion of the benefits of high-value crops as a profitable and licit alternative to opium poppies.

5.2.7 Looking ahead

**Project duration**

The original project timing, from November 2016 to April 2020, would allow just two or three cropping years; extending this until the end of 2021 would add two more seasons. This is sufficient time to test the viability of the greenhouses but is far too short to gain a real impression of orchards that take 6-10 years to reach full production. Therefore it will be several years before the real impact of the orchards can be assessed, requiring the project to continue monitoring activities for some time after the planned project end date. Currently monitoring is closely linked to advice, and the project will wish to consider whether support and advice should be continued in this follow-up period, perhaps with some form of handover to MAIL extension services.

It is also important to continue monitoring for long enough to judge the persistence of community members’ decisions not to cultivate poppies once the project is over and there is
no longer any conditional link between poppy cultivation and receipt of project interventions. Furthermore, the opium sector has recently shown distinct cyclical behaviour with prices swinging from peaks of $300-400/kg to troughs of $100-200 over a period of 3-4 years; the response of beneficiary communities at the bottom of this cycle may not indicate their behaviour when prices reach their next peak, so monitoring should be continued through at least one full cycle.

The Project Document proposes a number of options for time-series evaluation, recommending that CBARD-W should be monitored until at least 2024, with optional follow-up studies in 2028, 2032 and 2036. Given the maturity period of the orchards, it is recommended that evaluation should continue until at least 2028, ten years after the first orchards were planted. This falls outside the current budget and timetable of the CBARD-W project, and is therefore a recommendation to the donor.

**Recommendation 23**  Consider extending the project until the end of 2021, continuing regular monitoring until at least 2028, and ensuring advisory work continues after the project ends*.

**Benefit:** Much more reliable testing of the concept of high-value crops as a sustainable alternative to opium poppies over a full market cycle and with hard data on the economic performance of mature orchards.

**Testing the scope for scaling-up**

If the results of this project meet all expectations, it will have proved the concept that high-value crops can generate sustainable livelihoods and substitute for opium poppies in a limited number of communities in Badghis and Farah provinces. This will then lead on to the “big question” underlying this and various other projects: *Can high-value crops be introduced throughout the country to bring about a substantial and sustainable reduction in national opium production? And if so, how should this be done?*

The question of long-term sustainability can in part be answered by continuing project monitoring for a full decade from the initial interventions, but to answer the question of scale it is essential to know what will happen when communities, districts and provinces switch from being “importers” to “exporters” of high-value crops and have to compete on foreign markets. To some extent the answer cannot be known until it happens, since nobody can predict how Afghanistan’s neighbours will react to a big increase in Afghan produce on their domestic markets, threatening their own producers.

However, it would be possible to test what happens when several nearby communities increase their production of high-value crops so much that the impact is felt in district and province markets. A possible follow-on activity to investigate this could concentrate a lot of interventions in a few nearby villages, along with a strong marketing component, to test whether a large-scale switch to high-value crops is potentially viable. Given that Afghanistan is already a net exporter of most non-citrus fruit and nuts, this intervention should include working with farmers, processors and traders to build linkages and strengthen export marketing.

**Recommendation 24**  Focus some resources on a limited area to discover whether and how large volumes of high-value crops can be marketed.

**Benefit:** A better answer to the big question of whether high-value crops can ever make a real contribution to a substantial national reduction in opium production.
6 Annexes

Annex 1.  TOR for Mid-term Evaluation
Attached as “Annex 1 – ToR for MTE.docx”

Annex 2.  Description of project interventions
Attached as “Annex 2 – Interventions.docx”

Annex 3.  Studies commissioned by CBARD
Attached as “Annex 3 – CBARD studies.docx”
Annex 4.  List of people met

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<th>Organisation</th>
<th>Department</th>
<th>Name</th>
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<td>UNDP</td>
<td>UNDP CD</td>
<td>Jocelyn Mason</td>
<td>Resident Representative &amp; Country Director</td>
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<td>Napoleon Navaro</td>
<td>Deputy Country Director, Programmes</td>
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<td>Ahmad Jamshed Khosheen</td>
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<td>Soraya Sofiezada</td>
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<td>Nick Maddock</td>
<td>Chief Technical Advisor (consultant)</td>
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<td>Project Manager</td>
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<td>Senior Horticulture Specialist</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Malika Azad</td>
<td>Female Agronomy specialist</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Ahmad Masoud Atayee</td>
<td>Finance Analyst</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Zabihullah Sharifi</td>
<td>Procurement Specialist</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Yama Hewadmal</td>
<td>Badghis Field Coordinator</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Gran Agha Haidarzai</td>
<td>Nangarhar Field Coordinator</td>
</tr>
<tr>
<td>MAIL-NLHP</td>
<td></td>
<td>Mohammad Khalid Ibrahim</td>
<td>Senior Orchard Management Specialist</td>
</tr>
<tr>
<td></td>
<td></td>
<td>A. Samad Kamawe</td>
<td>Horticulture Coordinator</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Dr M. Afzal</td>
<td>Extension Specialist</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Ghulam Rasul Sayed</td>
<td>Marketing Specialist</td>
</tr>
<tr>
<td>Samsor Ban Agricultural Services &amp; Exporters</td>
<td></td>
<td>Hedayatullah Omarkhel</td>
<td>CEO (agronomist)</td>
</tr>
<tr>
<td>Roots of Peace</td>
<td></td>
<td>Ahmad Shah Shafaq</td>
<td>Deputy Chief of Party</td>
</tr>
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**Badghis beneficiaries and extension workers met on 11th December 2018**

<table>
<thead>
<tr>
<th>Name</th>
<th>Father’s Name</th>
<th>Gender</th>
<th>Village</th>
<th>District</th>
<th>Position</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ab Qadir</td>
<td>Arbab Alim</td>
<td>Male</td>
<td>Tahti Bazar</td>
<td>Ghormach</td>
<td>Beneficiary</td>
</tr>
<tr>
<td>Saifuddin</td>
<td>Haji Moh Amin</td>
<td>Male</td>
<td>Meyan Terak</td>
<td>Ghormach</td>
<td>Beneficiary</td>
</tr>
<tr>
<td>Khodadad</td>
<td>Wazir</td>
<td>Male</td>
<td>Baranzai</td>
<td>Bala Murghab</td>
<td>Beneficiary</td>
</tr>
<tr>
<td>Najibulah</td>
<td>Shamsullah</td>
<td>Male</td>
<td>Kabuli ha Farari</td>
<td>Bala Murghab</td>
<td>Beneficiary</td>
</tr>
<tr>
<td>Fatema</td>
<td>Ab Haq</td>
<td>Female</td>
<td>Khasdar ha</td>
<td>Bala Murghab</td>
<td>Beneficiary</td>
</tr>
<tr>
<td>Ab Khaliq</td>
<td>Ab Haq</td>
<td>Male</td>
<td>Khasdar ha</td>
<td>Bala Murghab</td>
<td>Beneficiary</td>
</tr>
<tr>
<td>Bahawuddin</td>
<td></td>
<td>Male</td>
<td>Bagh</td>
<td>Jawand</td>
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</tr>
<tr>
<td>Mohammad</td>
<td>Haji Moh Ali</td>
<td>Male</td>
<td>Darband Safid</td>
<td>Qadis</td>
<td>Beneficiary</td>
</tr>
<tr>
<td>Momeen jan</td>
<td>Haji Akhtar Mohammad</td>
<td>Male</td>
<td>Mawlawi Amin</td>
<td>Qadis</td>
<td>Beneficiary</td>
</tr>
<tr>
<td>Edi Gul</td>
<td>Abdualah</td>
<td>Female</td>
<td>Qadis Khordak</td>
<td>Qadis</td>
<td>Beneficiary</td>
</tr>
<tr>
<td>Moh Azim</td>
<td>Abdualah</td>
<td>Male</td>
<td>Qadis Khordak</td>
<td>Qadis</td>
<td>Beneficiary</td>
</tr>
<tr>
<td>Aisha</td>
<td>Quratulah</td>
<td>Female</td>
<td>Mahal Qasab ha</td>
<td>Qala i Naw</td>
<td>Female Extension Officer</td>
</tr>
<tr>
<td>Dor Mohammad</td>
<td>Haji Noor Mohammad</td>
<td>Male</td>
<td>Mahal Qasab ha</td>
<td>Qala i Naw</td>
<td>Mahram</td>
</tr>
</tbody>
</table>
Annex 5. Evaluation methodology and timetable

Methodology applied

In conducting this evaluation, the consultant has:

➢ Carefully reviewed project documentation, including the project document, inception report, baseline report and needs assessment, quarterly reports and annual budgets, work plans, procurement plans and human resource plans, and commissioned studies, throughout the evaluation (see).

➢ Reviewed background documents on opium production in Afghanistan, including Mansfield & Pain, 2005; Mansfield, 2011; RAND, 2015; Pain & Huot, 2017; UNODC, 2018 (see). Findings from this review are particularly taken into account in section 3.2: Project rationale.

➢ Structured and analysed the project database to see what was done, when, how much it cost and who benefited (see section 3.3: Project status). This involved detailed discussions both during and after the mission, with the project’s Senior Monitoring & Evaluation Specialist (Sayed Ghani Kamrani) and Specialist for Management Information Systems & GIS (Toryalay Ayubi), who carried out additional data checking and cleaning.

➢ Analysed data from UNODC (2018) on opium areas, production, yields and prices to calculate typical poppy margins at different points in the market cycle, as the margin against which high-value crops must compete (see section).

➢ Analysed FAOSTAT data for national production, consumption, import and export of high-value crops to investigate possible market impacts of project interventions (see section).

➢ Analysed the Gross Margin budgets prepared by the Chief Technical Advisor and local experts to examine whether high-value crops have the potential to offer a viable and sustainable alternative to opium production (see section). This work was done in discussion with the Chief Technical Advisor (Nick Maddock) before, during and after the mission.

➢ Requested and received, via the project team, detailed agricultural statistics from the Statistics Department of the MAIL Planning Directorate.

➢ Prepared a detailed description of the project interventions, including the number of interventions so far of each, and estimates of their costs and benefits (see Annex 2: Description of project interventions). Information was provided and drafts checked by the UNDP Project Manager (Jamshed Khosheen) and the Senior Monitoring & Evaluation Specialist (Sayed Ghani Kamrani).

➢ Carried out structured interviews with staff from UNDP, UNOCD and the CBARD-W project (at national, province and district level) employing the questions set out in the box below.

➢ Met and interviewed a group of 12 beneficiaries from Badghis province (9 male and 3 female, including a female extension worker), again following the questions set out in the relevant section of Annex 6: Templates of tools and questionnaires employed.
Met the project’s consultant agronomist (Hedayatullah Amarkhail) to discuss technical and economic aspects of crop production in Badghis and Farah provinces, helping to strengthen section.

Travelled with the project team on a “virtual tour” of project sites via Google Earth and other satellite imagery, further informed by data from the project’s GIS systems; the situation in one project district is presented in section 3.3.2: A typical project area.

Carried out structured interviews for each relevant Evaluation Question (see box below) with the UNDP Programme Officer (Jamshed Khoshbeen) and the CBARD Project Manager (Homayoon Milad), Senior Monitoring & Evaluation Specialist (Sayed Ghani Kamrani) and Chief Technical Advisor (Nick Maddock). This process began with personal interviews during the mission and continued by Skype and e-mail after the mission, returning to people whenever necessary to resolve uncertainties and apparent discrepancies between sources. It was a major input to section 4: Evaluation.

**Methods planned but not yet employed**

- It had been planned to meet a second group of beneficiaries from Farah province, but this could not take place because the two flights from Herat to Kabul that week were both cancelled due to bad weather.

- The donor, INL, preferred not to meet the consultant during the evaluation mission but instead to give their comments and input after reviewing the draft report.

- Planned meetings with the Ministry of Counter-Narcotics (MCN) and with the responsible Deputy Minister from MAIL could not be held because a medical emergency required the consultant to leave Afghanistan a few days early; it is suggested that these discussions be held by Skype on the basis of this draft report.

- It was not possible to make a quantitative analysis of the impact of the first project year on opium production, as UNODC survey data on treatment and control communities in 2018 were not yet available. This important analysis should be carried out in due course, and will presumably be done by UNODC under their monitoring contract.
Evaluation timetable

The evaluation timetable is presented below. Essentially, it comprised:

- Desk study from 29th November to 7th December, 2018, resulting in the Evaluation Inception Report submitted on 23rd December.
- A mission to Kabul from 8th to 17th December, during which the meetings listed in Annex 4 took place.
- Detailed analysis and reporting, supported by Skype interviews and exchange of emails, from 19th December 2018 to 11th January 2019 when this draft report was submitted. An End-of-Mission Report was also submitted on 23rd December in lieu of the planned end-of-mission debriefing.

<table>
<thead>
<tr>
<th>Date</th>
<th>Place</th>
<th>Activity</th>
</tr>
</thead>
<tbody>
<tr>
<td>29 Nov 2018</td>
<td>-</td>
<td>Contract signed</td>
</tr>
<tr>
<td>29 Nov – 7 Dec</td>
<td>Belgrade</td>
<td>Initial review of documents &amp; data, continued throughout the project (see Annex 10: References). Skype meetings with project team.</td>
</tr>
<tr>
<td>7 Dec</td>
<td>-</td>
<td>Evaluation Inception Report submitted to UNDP.</td>
</tr>
<tr>
<td>8-9 Dec</td>
<td>BEG-IST-KBL</td>
<td>Travel to Kabul</td>
</tr>
<tr>
<td>9-16 Dec</td>
<td>Kabul</td>
<td>Meetings &amp; analysis (see Annex 4: List of people met).</td>
</tr>
<tr>
<td>10 Dec</td>
<td>Kabul</td>
<td>Revised and final version of Evaluation Inception Report submitted to UNDP.</td>
</tr>
<tr>
<td>16-17 Dec</td>
<td>KBL-DXB-IST-BEG</td>
<td>Travel to Belgrade</td>
</tr>
<tr>
<td>19 Dec onwards</td>
<td>Belgrade</td>
<td>Analysis &amp; reporting; Skype meetings with project team in UNDP &amp; MAIL</td>
</tr>
<tr>
<td>23 Dec</td>
<td>-</td>
<td>End-of-Mission Report submitted to UNDP.</td>
</tr>
<tr>
<td>29 Dec</td>
<td>-</td>
<td>Preliminary draft of evaluation findings submitted to UNDP.</td>
</tr>
<tr>
<td>10 Jan 2019</td>
<td>-</td>
<td>Full draft Mid-Term Evaluation Report submitted to UNDP.</td>
</tr>
<tr>
<td>14 Jan – 4 Feb</td>
<td>-</td>
<td>Written comments received from the Programme Analyst, INL and the project team.</td>
</tr>
<tr>
<td>25 Feb 2019</td>
<td>-</td>
<td>Final Mid-Term Evaluation Report submitted to UNDP.</td>
</tr>
</tbody>
</table>
**Evaluation questions**

The evaluation systematically addresses the 34 specific questions set out in the Terms of Reference and listed in the box below:\(^42\):

<table>
<thead>
<tr>
<th>Evaluation Questions</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Relevance</strong></td>
</tr>
<tr>
<td>1) Is the project design appropriate to address the substantive problem that the project is intended to address? How useful are the project outputs to the needs of the target beneficiaries?</td>
</tr>
<tr>
<td>2) What is the value of intervention in relation to the national and international partners’ policies and priorities (including SDG, UNDAF and UNDP Corporate Strategic Plan; ANPDF/NPPs, UNHCR regional strategy, etc.)?</td>
</tr>
<tr>
<td>3) Are the project objectives consistent with substantive needs and realistic in consideration of technical capacity, resources and time available?</td>
</tr>
<tr>
<td><strong>Efficiency</strong></td>
</tr>
<tr>
<td>4) How well is the project managed, and how could it be managed better?</td>
</tr>
<tr>
<td>5) What is the project status with respect to target outputs in terms of quality and timeliness?</td>
</tr>
<tr>
<td>6) What is the potential that the project will successfully achieve the desired outcomes?</td>
</tr>
<tr>
<td>7) To what extent were project start-up activities completed on schedule?</td>
</tr>
<tr>
<td>8) If there were delays in project start-up, what were the causes of delay, and what was the effectiveness of corrective measures undertaken? Do start-up problems persist?</td>
</tr>
<tr>
<td>9) To what extent were adequate resources secured prior to project implementation? Did the project use the resources in the most economical manner to achieve its objectives?</td>
</tr>
<tr>
<td>10) Is there an appropriate mechanism for monitoring the progress of the project? If yes, is there adequate usage of results/data for programming and decision making?</td>
</tr>
<tr>
<td>11) What are the potential challenges/risks that may prevent the project from producing the intended results?</td>
</tr>
</tbody>
</table>

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\(^42\) The Terms of Reference included a 30th question under the heading of “Coverage”: 30) *Have vulnerable families been reached, including those with girls, children with disabilities, and low-income families?*. The evaluator was advised that this question was not relevant as the project design did not target or monitor these groups.
**Effectiveness**

12) Are the project’s objectives and outcomes clearly articulated, feasible, realistic?
13) To what extent is the project logic, concept and approach appropriate and relevant to achieving the objectives?
14) Are the underlying assumptions on which the project intervention has been based valid? Is there a clear and relevant Theory of Change?
15) To what extent has the project managed to implement activities across the target project locations?
16) To what extent has the project implemented activities as envisaged? To what extent have those activities contributed to achieving the project objectives?
17) To what extent did the project start-up activities adhere to the agreed approach and methodology?
18) To what extent have the project implementation modalities been appropriate to achieve the overall objectives?
19) What factors have contributed to achieving/not achieving the intended results?
20) To what extent do external factors, such as logistical or security constraints, have impacts on project implementation?

**Perception and Impact**

21) What is the wider perception of the project, its image, applicability and performance? Are project communications effective in positively promoting the project to a wider audience?
22) What are the results (or preliminary results) of the intervention in terms of changes in the lives of beneficiaries against set indicators?

**Sustainability**

23) What are the Implementing Partner’s resources, motivation and ability to continue implementing activities until the end of the project?
24) Is there adequate all-party commitment to the project objectives and chosen approach?
25) To what extent is there constructive cooperation among the project partners? What are the levels of satisfaction of government counterparts, donors and beneficiaries?
26) What has been the quality of implementation of the implementing partner, and if applicable where are there specific areas for improvement?
27) What is the likelihood that the project results will be sustainable in terms of systems, institutions, financing and anticipated impact?
28) What is needed for the project intervention to be adapted/replicated further?
Coverage
29) Which groups have been reached and what is the different impact on those groups?

Coordination
30) What are the effects of coordination or lack thereof at district/province/national level?

Coherence
31) What are areas and ways of cooperation with other UN and donor agencies in regard to set goals and objectives?
32) What is the existing national policy on agriculture and rural development?
33) Is there coherence across policies of different donor agencies and national stakeholders? (this criteria should be assessed to the extent possible)

Protection
34) Is the response adequate in terms of protection of children of different groups? (this criterion should be assessed in regard to what measures/actions need to be taken to provide, for example, support systems for children with disabilities, as/where applicable.)
Annex 6. Templates of tools and questionnaires employed

a. General issues and questions

Analysis of the materials received and discussions held before the mission indicated a number of questions or issues to be pursued, including:

- How important are the project-supported high-value crops to the total household income of beneficiaries, after considering other farming activities, non-farm income, remittances, etc? This may affect their motivation and hence the project’s sustainability and scope for replication.

- How important are the areas of these high-value crops to the land available for poppy production in the community? Is there, for example, a risk that the new crops will displace other licit crops on irrigated land, whilst poppies continue to be grown on areas where irrigation is not available?

- How significant are the project areas when compared to the national poppy area? Project spreadsheets project that the area of land covered by activities supported under CBARD-W plus CBARD-E will reach 923 ha by 2020. This represents 120-280 % of the area of poppies eradicated annually in 2017 & 2018, but only 0.3 % of the national area under poppies in those years. Whilst the project area is sufficient to meet the project’s immediate goal of “proof of concept, very significant upscaling would be required to achieve any meaningful impact on the overall production of opium.

- What are the plans to replicate the project if it proves successful? Would this require renewed attention to areas such as finance and marketing?

- How many “indirect beneficiaries” will the project reach through demonstrations, extension, marketing support, employment, etc? The indirect impact could potentially reach a much larger area than just that of the direct beneficiaries.

- How do the project activities relate to other farm-level anti-narcotics initiatives, such as eradication or diversion to medical use? Are they complementary or contradictory?

- Distributional income effects: How would the switch from poppies to other high-value crops affect the demand for hired labour and hence the income stream for landless workers and other indirect beneficiaries? Project calculations show around $ 1,600 per year of hired labour for apples compared to $ 3,100 for poppies (Rand Corporation estimate); greenhouses would use considerably more annual labour per hectare. There will also be variations throughout the season, and between local and migrant workers.

- Timescale: Whilst the greenhouses, rehabilitation of existing orchards and terracing of existing grapes will bring measurable results within the planned life of the project, none of the new orchards or pistachio plantations will have reached full bearing, so the final income streams will be unknown and the marketing challenges will hardly have been addressed. This is very relevant to the question of project extension.

- Marketing: Whilst some analysis of value chains has been conducted, more work may be needed to develop the marketing strategy for high-value products and to implement it through the project. The project team is aware of this, and the issue is currently being addressed by another consultant.

- Focus: Some of the areas addressed by the project appear rather tangential to its main focus. For example, it might be worth examining whether the preconditions yet exist
for the profitable development of organic agriculture, or whether greater attention should be given to mitigating the influence of unregulated pesticide use.

b. Beneficiary focus groups
Focus groups should involve lead farmers, other beneficiary farmers and community leaders from both provinces, selected to cover all the main kinds of individual and community support packages, with a mixture of male and female beneficiaries.

• In discussions with individual farmers on **perennial crops and greenhouses**, the issues to explore include:
  
  o How did the new activity change your farm? What was the land used for before? How much of your total farm area and labour input is now tied up with the new activity? (Given the likely reluctance of people to openly state that they grew poppies, this might have to be approached indirectly).
  
  o What is the overall structure of your household income (numbers not required), comparing agriculture to non-agricultural activity, remittances, etc?
  
  o Did you have previous experience of the new activity? What challenges have you met in getting it started? Where have you turned for help and advice?
  
  o How have other people (e.g. family, community or people from outside) reacted to beneficiaries’ decisions to move from poppies to high-value crops?
  
  o Who will buy your crop and where (sell from farm or transport to market)? How will you arrange transportation if required?
  
  o How easy have you found it to market the new output (greenhouse crops) or how easy do you expect it to be to market the output from new orchards and plantations when they mature? What marketing issues do you anticipate or face?

• In discussion with community leaders and others on **irrigation projects**, issues to explore include:
  
  o How is irrigation, and the project’s support to irrigation, organised in your area?
  
  o Did the investment benefit all water users in the community? If not, how was it decided which issues to prioritise?
  
  o How will the community (and/or MAIL) manage and maintain the new irrigation structures in future?

• In discussion with community leaders and others on **cold stores, dry stores & raisin houses**, issues to explore include:
  
  o How are these facilities organised in your area? How are costs and benefits allocated between different users?
  
  o What other facilities of this kind (private, community or state) are available in your area?
  
  o How important are these facilities in letting you market your product? Or put another way, how would or did you store and market your produce without them?
c. Meetings with MAIL and project team

- Initial meetings should give a clear idea of the various hierarchies and regional structures, including:
  - Regular MAIL staff, including Minister, Deputy Minister, Province Directors and District Directors.
  - Regular UNDP staff who manage this project.
  - Temporary staff employed by MAIL specifically to work on this project (NTAs).
- Background issues to be explored include:
  - How is each of the selected high value products produced and marketed (i.e. establish the technical and economic context)?
  - How is extension organised and funded? How effective is it?
  - How is irrigation organised and funded? How effective is it?
  - How are community facilities such as cold stores managed and funded? How well do they work?
  - What is the overall structure of rural income and employment in areas covered by the project?
- Project issues to be explored include:
  - How is the project managed at its different levels?
  - How are beneficiaries and community projects selected?
  - How are goods distributed to beneficiaries?
  - Are grants-in-kind the best way to provide support?
  - How is training and advice delivered to beneficiaries, including the interaction between MAIL’s extension structures and the project’s Farmer Field Schools?
  - How well does the Lead Farmer system work?
  - How is the money disbursed and controlled?
  - How is the project monitored?

- Data issues:
  - Meet the Statistics Department of the Planning Directorate to get detailed agricultural statistics.

d. Meetings with funders and partner organisations

INL

- What is their primary objective for the project – development or reduction of opium production?
- How does this project relate to wider issues for narcotics control in Afghanistan, particularly to farm-level initiatives such as eradication or purchase for medical use?
- What are their initial thoughts on expanding or extending the project? What particular areas would they like the MTE to investigate to assist them in this decision?
- If the project were successful and eventually expanded to a large enough area to significantly affect national poppy production, how do they think the opium buyers
would respond? Would they be able to raise the price sufficiently to entice farmers back to poppy production?

• What are their current thoughts on AgroBusiness centres?
• The decision to remove the access to finance component (the MTE must note this change from the original project plan).
• Relevant previous studies and projects.

**UNODC**

• How does this project relate to wider issues for narcotics control in Afghanistan, particularly to farm-level initiatives such as eradication or purchase for medical use? (REPEAT FROM INL)
• What data are available from the annual opium survey? Could the satellite images help us to monitor areas of other crops under this project?
• If the project were successful and eventually expanded to a large enough area to significantly affect national poppy production, how do they think the opium buyers would respond? Would they be able to raise the price sufficiently to entice farmers back to poppy production? (REPEAT FROM INL)

**MCN:**

• How does this project relate to wider issues for narcotics control in Afghanistan, particularly to farm-level initiatives such as eradication or purchase for medical use? (REPEAT FROM INL)
• How does it relate to other initiatives on rural livelihoods?
• If the project were successful and eventually expanded to a large enough area to significantly affect national poppy production, how do they think the opium buyers would respond? Would they be able to raise the price sufficiently to entice farmers back to poppy production? (REPEAT FROM INL)
Annex 7. Market analysis of high-value crops and opium

The viability of high-value crops as a sustainable alternative to poppy cultivation is highly dependent on the market for high-value crops and the market for opium. Two questions are particularly relevant to sustainability:

Q 3. Can markets absorb the extra high-value produce generated by project interventions?

Q 4. Will high-value crops still be competitive if opium prices return to their former high level?

This annex examines the two product markets to help answer these questions.

a. Production, consumption & trade of high value crops

The following chart presents FAOSTAT data for production, consumption, imports, exports and losses of relevant fruit and nut categories, showing annual averages for the 4-year period 2010-13. The category “Other fruit” includes peaches, plums, persimmons and pomegranates, as well as other fruit not supported under either CBARD project; “Nuts” includes all nuts, not just pistachios. The FAOSTAT database does not distinguish greenhouse vegetables, appears to be missing data for tomatoes, and includes cucumbers in the large category of “Other vegetables”, so vegetable data are not included. The data table is presented after the graph.

![Afghanistan supply balances for fruit & nuts](http://www.fao.org/faostat)
### Imports and Exports

<table>
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<tr>
<th>Item; Trade flow</th>
<th>Production</th>
<th>Imports</th>
<th>Consumption</th>
<th>Losses</th>
<th>Exports</th>
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<tbody>
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<td></td>
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</tr>
<tr>
<td>Supply</td>
<td>67,622 t</td>
<td>3,213 t</td>
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<tr>
<td>Utilisation</td>
<td>58,076 t</td>
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<td>Citrus</td>
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<td>669 t</td>
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<td>Grapes</td>
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<td>Supply</td>
<td>522,525 t</td>
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</tr>
<tr>
<td>Utilisation</td>
<td>225,237 t</td>
<td>16,569 t</td>
<td>41,448 t</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Nuts</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Supply</td>
<td>71,301 t</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Utilisation</td>
<td>62,793 t</td>
<td>8,517 t</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>


### Apples

Total supply averages just over 70,000 tonnes, with 95% produced domestically (68,000 t) and 5% imported (3,000 t). Consumption account for 82%, losses 5% and exports 13% (9,000 t). Overall, Afghanistan is a small net exporter, with imports probably occurring once domestic supplies have been used up towards the end of the marketing year.

Projected annual output from both CBARD projects is 4,700 t by 2031, representing a modest 7% increase in national production.

Increased domestic supply could lead to higher domestic consumption (normally associated with lower prices), reduced imports or increased exports, largely depending whether it was marketed shortly after harvest or stored until supplies run short.

### Citrus

Almost 95% of citrus supplies are imported, with a small domestic production of less than 4,000 tonnes and no significant exports.

Projected annual output from both CBARD projects is 2,400 t by 2031, representing a very significant 65% increase in national production but less than 3% of consumption.

Increased domestic supply should mainly serve to substitute for imports.

### Grapes

The graph shows grapes and grape products, including raisins. Grapes are the most important fruit by far, in terms of volume, with over 520,000 tonnes produced annually and no imports. Exports of almost 110,000 tonnes account for 21% of total supply.

Projected annual output from both CBARD projects is 4,600 t by 2031, representing a rather insignificant 0.9% increase in national production.
Increased domestic supply should be aimed at export, either fresh or (more probably) as raisins.

**Other fruit**
This category is too diverse to analyse with confidence. Total annual production is over 275,000 tonnes, with a further 2% imported. Exports account for 15% of overall usage, but these data do not show which specific fruits are being exported.

Projected annual output from both CBARD projects is 13,300 t by 2031, representing a 5% increase in national production.

**Nuts**
Annual nut production of 71,000 tonnes is almost equal to that of apples, but will have considerably greater value due to the higher price of nuts. Exports account for 12% and probably consist mainly of pistachios.

Projected annual output from both CBARD projects is 330 t by 2031, representing a 0.5% increase in total national production.

Increased production of pistachio nuts should lead to higher exports; where there should be little difficulty in marketing the modest extra output projected.

**b. Opium production and market**
The opium poppy sector in Afghanistan shows many of the characteristics of other crop sectors, with linkages between price, area, yield and production. Understanding these linkages is important for predicting how various narcotics control strategies, including promotion of alternative crops, are likely to affect the opium market.
**Price and production**

Price and production influence each other: a high price induces farmers to use more land for opium poppies, the resultant increase in opium production drives down the price, leading farmers to reduce their production two or three years later in a classic commodity cycle:

Source: UNODC Afghanistan Opium Survey 2018, Key Findings report

This suggests that, over the next few years, the poppy area may decline towards 200,000 ha and the opium price rise above $200/kg.
**Yield versus area**

The “Key Findings” report from the UNODC Afghanistan Opium Survey 2018 includes graphs showing annual area and production from 1994 to 2018. The following chart shows the relationship between area and yield over this period:

![Opium yield vs Poppy area in Afghanistan, 1994-2018](image)

*Source: Data from UNODC Afghanistan Opium Survey 2018, Key Findings report*

In the years when the poppy area is below 100,000 ha the yield is relatively high, at around 43 kg/ha (slightly less than 9 kg/jerib). As the area increases to 100-200,000 ha it appears that poppy cultivation has been extended onto less suitable land, perhaps rainfed areas or dasht land with limited irrigation, and the average yield drops to 33 kg/ha (just under 7 kg/jerib). When the area exceeds 200,000 ha, as it has in five of the last six years, the average yield drops to 26 kg/ha (just over 5 kg/jerib).

In the absence of any significant interventions by government or donors, the next few years are likely to see a reduction in the poppy area as farmers respond to the current low price of opium. Most of the reduction is likely to occur on the more marginal land, so the average yield will rise.

If there were a major switch from opium poppies to high-value crops, this substitution would occur almost entirely on good land with irrigation, and so the reduction in poppy area would probably not lead to a significant increase in average opium yield.
**Scenarios for comparison**

In comparing the gross margins of high-value crops with those of opium production (see section 3.2.1 above), four different scenarios are considered:

- High area (> 200,000 ha), low price ($100/kg), low yield (5 kg/jerib)
- Medium area (1-200,000 ha), medium price ($200/kg), medium yield (7 kg/jerib)
- Low area (< 100,000 ha), high price ($300/kg), high yield (9 kg/jerib)
- Low area (< 100,000 ha), very high price ($400/kg), high yield (9 kg/jerib)

The fourth scenario, with prices of $400/kg or higher in current terms, has not been seen since 2004 but must be considered as a possibility if the poppy area fell dramatically.
Annex 8. Gross margins of high-value crops and opium poppies

In order to test the “viability of high-value agricultural-based interventions in improving local economies in Farah and Badghis” it is necessary to have some measure of their economic effect. The most appropriate measure at the level of the farm household is the “Gross Margin”: the income from a crop minus the direct costs of seed, saplings, fertiliser etc. At final evaluation, the change in Gross Margin from all the beneficiary households can be summed to calculate the aggregate effect at province or project level.

At this early stage in the project, none of the new orchards is yet bearing fruit and there is only one year of data for the first greenhouses. It is thus too early to measure the viability of the high-value crops, but the project has worked with local experts to produce typical budgets for the lifetime of each investment and thereby to estimate the gross margin that the farmer will receive. These Gross Margins consider the full cost of the investment and would therefore apply to “replicators” establishing high-value crops with their own money, rather than to beneficiaries who received a grant-in-kind from the project.

Gross Margins

Orchards have an initial planting cost followed by an establishment period when yields gradually build up, but for all orchard types except pistachios the farmer is able to grow an intercrop of vegetables or forage in the early years. Greenhouses have a high initial cost and require replacement of the plastic every three or four years. The following chart takes account of these cash flows by showing an average or “annualised” gross margin over 15 years for a farmer using hired labour for the main operations; it covers all the main high-value crops included in the project, plus opium poppies at four different levels of price and yield, together with irrigated wheat as a comparison low-value crop; the values are for one typical unit supplied by the project (i.e. one greenhouse or one jerib of orchard) and for one jerib of poppies or wheat:

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43 The Gross Margin is calculated as total Revenue (annual crop or high-value crop plus intercrop where applicable) minus the Variable Costs of seed, fertiliser, pesticide and hired labour; also subtracted are the costs of saplings, supports, greenhouses and replacement plastic, which are often treated as Fixed Costs. It might therefore be better described as a “Partial Net Margin”.

All costs and revenues are based on estimates by the Chief Technical Advisor, with standardised values for labour and fertiliser costs and an updated exchange rate of $ 1 = 75 Afs.

The usual way to compare multi-year investments with irregular cash flows is to calculate the Net Present Value (NPV). However, this is difficult to compare with the Gross Margins that farmers and advisors are used to seeing for annual crops, so in this case the NPV has been calculated and then expressed as the constant annual sum that would have the same NPV over 15 years. With a discount rate of 10% and a period of 15 years, the annualised equivalent is equal to the NPV × 0.120.

44 The rationale for using different yields is set out in section 0; it applies when considering the possible national response across varying types of land, but is less relevant for changes within a given community.

45 There is no particular reason to compare a greenhouse against one jerib of orchard except that this is the size used by the project. If greenhouse margins are expressed per jerib, then they clearly out-perform all of the orchard crops – but at a capital cost of almost $ 70,000/jerib that is out of reach for the large majority of farmers.
At the current low opium price of around $100/kg, poppies appear to be loss-making and are out-performed by all other crops, including wheat. At an opium price of $200/kg, the average for the current decade, all of the orchard crops except pistachios offer a better return than poppies. However, a jerib of poppies still brings a higher return than a greenhouse bought by the farmer; the only exception is where the greenhouse grower can get two crops per year, in which case the return is more than double that of a jerib of poppies.

Once the opium price gets to $300/kg, poppies appear more attractive than all of the high-value crops except for high-density orchards.

*Source: Based on Gross Margin budgets prepared by the project in 2018*
**Value Added**

The Gross Margins were calculated after subtracting the cost of hired labour for major operations. However, many households rely on family labour and choose their cropping mix according to what they can manage; for them, the labour cost is all part of the household income. To represent the situation of these families, the following chart shows the same crops ranked by “Added Value”, i.e. Gross Margin plus labour cost:

![Value Added Chart](image)

*Source: Based on Gross Margin budgets prepared by the project in 2018*

Here the coloured bars represent the Gross Margins exactly as in the previous chart, with the grey bars stacked on top showing the labour cost; thus the combined height of the bars represents the Value Added. Whilst Gross Margin gives the best indication of the likely response of farmers who rely on hired labour, Value Added is a better predictor for households using family labour, as well as showing the total return to the community including landless workers.

The first thing that emerges here is that opium poppies are a high-labour crop. For a family using its own labour, poppies are still quite profitable at a low opium price of $100/kg, generating a margin more than twice that of wheat. This may explain why Afghan farmers grew more than 200,000 ha of opium poppies in 2018 despite its apparently negative Gross Margin.

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46 In the one instance of a negative Gross Margin (poppies with opium at $100/kg) the labour bar should be read as starting below the axis, at the bottom of the Gross Margin bar. The overall height still indicates the Added Value.

47 In some cases, farmers may bring in cheap hired labour from outside their village but farm work, including opium production, is probably an essential source of income for landless and marginalised community members.
At an opium price of $200/kg, poppies rank in the middle of the conventional orchards and better than any of the greenhouses growing one crop per year.

Once the opium price reaches $300/kg, then poppies again appear more attractive than all of the high-value crops except for high-density orchards.

The UNODC Afghanistan Opium Survey 2018 shows a 15-year time series for opium prices, with an average of around $215/kg; orchards represent an investment for at least 15 years and so their performance should be compared with this average price rather than the current price at the bottom of the market cycle. This suggests that, for a household using mainly family labour, conventional fruit orchards and vineyards offer a viable alternative to opium poppies – not a massively higher return but a sufficient return to give them a choice between opium and high-value crops.

The comparison between greenhouses and poppies is more complex because it depends on the size and number of greenhouses and the area of poppies. Project calculations shows that one 400 m² greenhouse will generate Value Added of around $750 from a single crop per year, equivalent to that from just over half a jerib of poppies. For a family currently dependent on opium production, that would probably not be sufficient income to let them give up poppies entirely. However, if the greenhouse were given by a project rather than paid for by the farmer, then the beneficiary would generate Value Added of around $2,000 per year, which might well be enough to let them live without growing poppies.

**Sustainability**

All of the high-value crops appear profitable from the very first year for beneficiaries who are given the greenhouse or saplings, together with the first year’s inputs. However, to be truly sustainable on a large scale, high-value crops must also work when the farmer has to replace the greenhouse without project support, and for replicators who want to establish orchards or greenhouses using their own funds or borrowed money.

The figures for Gross Margin and Value Added take account of the full capital cost of the high-value crops including saplings, supports, greenhouses and replacement plastic, though they do not value the farmer’s time for preparing the ground and planting the orchard; they also use a discount rate of 10% per year to reflect the time value of money. Under these assumptions, all of the high-value crop appear profitable over 15 years (i.e. they have a positive Net Present Value). However, most farmers have no access to credit, or only to micro-credit at the very high rate of 2% per month (24-27% per year, depending how the interest is calculated). For them, the projected cash-flow of the orchard or greenhouse will be a critical factor in whether or not they can afford to invest.
The following chart shows the projected cash-flow for one jerib of the different kinds of orchards, assuming that the farmer is not borrowing money and paying interest:

![Cashflow for 1 jerib of new orchards, without borrowing](image)

Source: Based on Gross Margin budgets prepared by the project in 2018

Both conventional apple orchards and pomegranates show a positive cash-flow from the first year, so the farmer only needs to fund the cost of the saplings for a few months until he gets an income from the intercrop. The Gross Margin budgets show a lower-value intercrop for grapes, probably a forage crop rather than vegetables, so here the cash flow does not become positive until the third year, presenting the farmer with a more difficult funding challenge. Pistachio plantations are not considered suitable for intercrops, so it would take six years for the farmer to recoup his initial investment; it is questionable whether a farmer would make such a long-term investment to produce a crop that grows wild on the hills around his village.

High-density apple orchards present a rather different story: cash-flow does not become positive until year 4, but then rises steadily and offers much higher margins per jerib than conventional orchards. The question is how could the farmer raise $4,500 to plant one jerib, and then service the loan for the next four years? If affordable multi-year credit could be made available, then it might help larger and more commercially-oriented farmers to establish high-density orchards, but without such credit it is doubtful whether this intervention will be widely replicated.

These cash-flow projections are very sensitive to the assumptions made about the intercrop – its type, yield and price. The project might wish to re-visit these assumptions and ensure that a consistent and conservative approach has been applied to all the orchard budgets. The budgets also suggest that intercropped vegetables are quite a high-value crop in their own

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48 So far, all orchard beneficiaries have been male, whilst both men and women have received greenhouses.
right, without the capital costs of a greenhouse or the establishment time of an orchard; the project might consider whether it could develop a “Field Vegetables” package comprising tools, seeds, fertilisers, pesticides, training and advice, as a relatively low-cost intervention that could be rolled out over a large area. The biggest challenge would probably be marketing a large volume of vegetables once the immediate local demand had been satisfied, so the marketing component should look at how much produce could realistically be marketed, and how this could best be done.

The following chart presents similar cash-flow data for one greenhouse of each type:

![Cash flow for one greenhouse, without borrowing](chart.png)

Source: Based on Gross Margin budgets prepared by the project in 2018

Micro-greenhouses have a modest initial outlay of around $1,250 but their cash-flow does not become positive until year 4; it is unlikely that many women would be able to afford this without project or government support.

Conventional greenhouses were projected to cost almost $14,000\(^{49}\). If producing two crops per year, then their cash-flow becomes positive from year 4; if cropping once per year, then not until year 6 or 7. It is hard to envisage widespread uptake of commercial greenhouse without either a new source of affordable credit, or farmers who are able to cross-subsidise from some other business activity.

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\(^{49}\) This entire section is based on project calculations from cost estimates made before exact procurement prices were known. So far the project has managed to procure greenhouses more cheaply, at around $8-10,000 each, but the size has been reduced from 400 to 300 m\(^2\) and initial yields were also lower than forecast. Once another year or two of data become available, the project should be able to update all of its gross margin budgets to reflect actual costs and revenues.
Return on investment
The project has implemented a diverse range of investments, ranging in cost from under $200 for a jerib of pomegranates to almost $14,000 for a commercial greenhouse. Which of these offers the best return on limited project funds, or put another way, which would give the best return on the farmer’s own investment?

A key measure in investment appraisal is the “Net Present Value” (NPV), the sum of each year’s cash-flow, positive or negative, after adjusting for the interest or discount rate. If the NPV is positive, then the investment is profitable, and the higher the NPV the better. However, NPV changes directly with the scale of the project and does not show the return relative to the size of the original investment. Two of the ways in which this can be done are the “Internal Rate of Return” (IRR) and “Return On Investment” (ROI):

• Internal Rate of Return shows the maximum interest rate at which a farmer could borrow money and still make a positive return on his or her investment (formally, the IRR is the interest or discount rate at which the Net Present Value of the investment is zero). If the IRR is higher than the farmer’s cost of borrowing, then the investment is worthwhile.

• Return On Investment is calculated as the Net Present Value of the investment, excluding capital cost, divided by the capital cost. If the ROI is greater than 1, then the investment is worthwhile.

• For both measures, the higher the number the better. All other things being equal, the farmer should choose the investment with the highest IRR and ROI.

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50 If the farmer did not establish an orchard or greenhouse, then he or she would presumably use the land to grow another crop. Establishing the high-value crop implies foregoing the Gross Margin from the alternative crop that is no longer being grown, which is known as the “Opportunity Cost”. In this section, the alternative crop is assumed to be irrigated wheat, and so the margin for wheat is subtracted from the margin for the high-value crop to measure how much better off the farmer is by making the investment and switching crops.
The following chart shows these measures for one greenhouse of each kind, or one jerib of each type of orchard:

<table>
<thead>
<tr>
<th>Intervention</th>
<th>Project cost</th>
<th>NPV</th>
<th>ROI</th>
<th>IRR</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Greenhouses</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cucumbers &amp; tomatoes, greenhouse, 400 sq.m</td>
<td>$ 13,954</td>
<td>$ 14,714</td>
<td>2.1</td>
<td>36%</td>
</tr>
<tr>
<td>Cucumbers, greenhouse, 400 sq.m</td>
<td>$ 13,784</td>
<td>$ 4,319</td>
<td>1.3</td>
<td>18%</td>
</tr>
<tr>
<td>Tomatoes, greenhouse, 400 sq.m</td>
<td>$ 13,466</td>
<td>$ 2,244</td>
<td>1.2</td>
<td>14%</td>
</tr>
<tr>
<td>Cucumbers, micro greenhouse, 60 sq.m</td>
<td>$ 1,295</td>
<td>$ 1,374</td>
<td>2.1</td>
<td>43%</td>
</tr>
<tr>
<td>Tomatoes, micro greenhouse, 60 sq.m</td>
<td>$ 1,247</td>
<td>$ 1,063</td>
<td>1.9</td>
<td>35%</td>
</tr>
<tr>
<td><strong>Orchards</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Apples, high-density, with intercrop</td>
<td>$ 4,448</td>
<td>$ 35,942</td>
<td>9.1</td>
<td>63%</td>
</tr>
<tr>
<td>Grapes, with intercrop</td>
<td>$ 284</td>
<td>$ 12,585</td>
<td>45.3</td>
<td>106%</td>
</tr>
<tr>
<td>Pomegranates, with intercrop</td>
<td>$ 188</td>
<td>$ 11,269</td>
<td>60.9</td>
<td>353%</td>
</tr>
<tr>
<td>Pistachios</td>
<td>$ 200</td>
<td>$ 3,937</td>
<td>20.7</td>
<td>34%</td>
</tr>
<tr>
<td>Apples, conventional, with intercrop</td>
<td>$ 246</td>
<td>$ 7,130</td>
<td>30.0</td>
<td>-</td>
</tr>
</tbody>
</table>

*Source: Based on Gross Margin budgets prepared by the project in 2018*

Reading along the first row, for a 400 m² commercial greenhouse producing two crops each year, one of cucumbers and one of tomatoes:

- The total **Project cost** – for the greenhouse and the first year’s seeds, fertiliser and pesticides – is $13,954.

- The **NPV** or “Net Present Value” is the discounted sum of the value of all of the cucumbers and tomatoes sold over 15 years, less the costs of labour, seed, fertiliser, pesticide, replacement plastic and the original greenhouse itself. In this case the farmer would get back the full original investment plus $14,714. This value is large and positive, indicating that the investment is worthwhile.

- The **ROI** or “Return On Investment” is the total discounted return ($13,954 + $14,714) divided by the original project cost of $13,954. In this case, the investment pays back just over twice its original cost.

- The **IRR** or “Internal Rate of Return” is the maximum rate of interest that the farmer could pay if he or she had to borrow the full project cost and pay it back with interest. In this case, the investment is profitable at interest rates of up to 36%51.

Considering each type of intervention:

- **Commercial greenhouses producing one crop per year** offer Returns On Investment of around 1.2 and IRRs of 14-18%. They would not be worthwhile for a farmer who had to borrow from a micro-finance organisation at 2% per month (24-27% per year) but would represent an acceptable return on a loan from an international finance institution such as the World Bank – if such were available.

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51 The IRR cannot be calculated for the last row in the table, conventional apple orchards, because the cash-flow is positive from the very first year.
• **Micro-greenhouses** and **commercial greenhouses cropping twice per year** offer Returns On Investment of around 2.0 and IRRs of 35-43%. In theory these would be worthwhile even at the high interest rates charged by micro-finance organisations, but the profit margin is probably not high enough to justify the substantial risk.

• **High-density apple orchards** offer a Return On Investment of more than 9 and an IRR of 63%; if finance were available, larger farmers might well be interested in borrowing to establish such orchards.

• But by far the best returns come from **conventional orchards**, with Returns On Investment of 20-60 and IRRs of up to 350%\(^52\). Cash requirements are low and most of the real investment comes from the farmer’s own labour. The returns on investment appear so high that both donors and government should prioritise conventional orchards over the other high-value crops so far considered. This conclusion could be applied directly in the next round of interventions by CBARD-W.

**Results in practice**
All of the data in this section are based on Gross Margin budgets compiled by the Chief Technical Advisor and local experts, rather than on actual results from CBARD-W. Over time they should be updated to reflect actual project costs, returns to beneficiaries measured by the APY survey\(^53\), and production costs for which a new survey instrument will be required. The only APY survey data available so far cover the first year’s results for 138 greenhouses, showing average revenue of $915 for the majority that had produced just one crop and $1,330 for those who harvested a second crop within the period. These values are lower than the projected annual revenue of around $2,400 per greenhouse, but they cover the very first steps of a new venture when farmers must learn a whole range of new technical skills and find the best way to market their crop. Returns will probably rise in future years and can then be used to refine the Gross Margin budgets.

**Effect of wage rates**
One of the main effects of economic development is to create employment and raise wage rates. This increases the income of working families, encourages a substitution of capital for labour, and changes the relative profitability of different activities.

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\(^{52}\) Pistachios have a rather different cash-flow from the other orchards: because there is no inter-crop, the net cash-flow does not become positive until year 6 but is good thereafter. This results in a modest IRR of 34% but an impressive ROI of almost 21.

\(^{53}\) Annual records of Area, Price and Yield from all relevant project beneficiaries.
The following graph explores what would happen if the cost of agricultural labour doubled from 300 to 600 Afs, i.e. to $ 8/day:

Source: Based on Gross Margin budgets prepared by the project in 2018, with the daily wage rate doubled to 600 Afs

Under this scenario, poppy cultivation at an opium price of $ 100/kg is highly loss-making for the farmer who must hire labour. Even at $ 200/kg poppies are out-performed by all of the high-value crops except micro-greenhouses. Grapes and pomegranates approach the margin of poppies even as the opium price rises towards $ 300/kg, a price that is only reached about one year in five.

What could drive up the price of rural labour? Orchards would not be sufficient, as their annual labour requirement is less than that of opium poppies, but greenhouses absorb a lot of labour, as can food processing. In most countries the rise in rural wage rates is driven not by agriculture at all, but by non-farm employment and, most crucially, by commuting or migration to better-paid urban jobs.

Storage and processing

Two interventions being demonstrated by the project are zero-energy cold stores for apples, and raisin houses for drying grapes. Estimates of their economics have not yet been made, but the question can be looked at the other way round:

- Cold stores cost the project an average of $ 10,000 and are designed to store 10 tonnes of apples each year. At a discount rate of 10 %, a cold store would need to raise the selling price of apples by 66 %, from 30 Afs/kg to 50 Afs/kg, in order to pay for itself in five years.
Raisin houses cost an average of $6,800 and will dry 10 tonnes of grapes per year to produce 2-2.5 tonnes of raisins. They would have to add 45% to the original price of the grapes (assumed as 30Afs/kg) in order to pay back in five years.

Data are not yet available on seasonal fruit prices in Afghanistan. Experience from other countries shows that the peak price of apples, reached just before the new crop comes onto the market, may be as high as twice that immediately after harvest. However, prices typically build up slowly over several months, and it remains to be seen whether the project cold stores are able to store apples in good condition for long enough to make this investment worthwhile.

The economics of raisin production will depend on the yield (dry:fresh ratio), the quality and marketability of the raisins, and the seasonal price fluctuations in the specific conditions of Afghanistan.
Annex 9. Stimulating and measuring changes in poppy production

The project has a clearly-stated purpose of reducing opium cultivation in the treatment communities, which raises two key questions:

➢ How would high-value crops lead to a reduction in the poppy area?
➢ How will the project tell whether changes in the poppy area are due to project interventions or other factors?

Mechanisms for high-value crops to reduce poppy area

The Theory of Change set out in the Project Document shows how improved production and marketing of high-value crops, supported by improvements in agri-business infrastructure, should lead to “Improved household income with less dependency on illicit cultivation”.

An important question is whether increased income from high-value crops will lead to farmers reducing their area of opium poppies, or whether they will simply grow high-value crops as well as opium poppies. At least three different and potentially overlapping mechanisms can be envisaged for how an increase in high-value crops might lead to a decrease in poppy area:

4) Resource diversion: Farmers are no longer able to grow opium poppies because their land, labour or capital are tied up by high-value crops.
5) Dependency reduction: Farmers could still grow opium poppies, and it might be profitable for them to do so, but they do not need to grow opium to survive because they get an adequate income from high-value crops.
6) Conditionality: Farmers must stop growing opium poppies in order to receive benefits from the project.

Each of these mechanisms is now considered in more detail:

1) Resource diversion: Opium cultivation could be reduced by diverting the resources of land, labour or capital to alternative and more profitable crops; if farmers genuinely find that they can make more money from other activities, then opium production should indeed decline. However, high-value crops are unlikely ever to occupy all of the 328,000 hectares that grew poppies in 2017, due to constraints in production, marketing and capital availability. There is also considerable scope for poppy production to relocate onto rainfed areas or to previous desert areas that can now be irrigated with solar-powered borehole pumps. Thus a large-scale initiative to promote high-value crops might result in these crops being grown on the best and most accessible land, whilst poppies continued to be cultivated on other land.

Diverting labour away from opium production could be achieved in many different ways, including high-value crops, livestock, agro-processing, non-farm rural employment and urban-rural migration. In the long run, a rise in the cost of agricultural labour could play a major role in reducing opium production, as it did in Thailand. However, gross margin budgets produced by the project indicate that most orchard crops require fewer annual work-days than poppies, so these interventions alone may not be sufficient to divert labour away from opium production. There is also the possibility that women and children will be employed in the poppy fields whilst men work in the orchards and vineyards.

Capital does not seem to be a major limiting factor in poppy production, since there is little long-term investment, and the opium buyers will often supply inputs or extend credit for working capital. Compared to this, greenhouses are quite capital intensive, and the lack of...
available finance was seen by beneficiaries as one of the major constraints on other people replicating models demonstrated by the project.

One key issue is the price elasticity of supply of opium, as clearly demonstrated by the second chart in the “Key Findings” report of the 2018 UNODC Afghanistan Opium Survey. As land and labour are diverted away from poppies to other crops or activities, opium production will fall, prices will rise, opium cultivation will appear more attractive and the margin of high-value crops over opium will be eroded. The current price of opium in Afghanistan is around $100/kg, so poppy margins may even be negative and many alternative crops will seem more attractive to farmers.

If opium production falls and prices return to their recent level of around $200/kg, then, as shown in the previous section, opium will become more profitable than pistachios but less profitable than conventional fruit orchards or vineyards.

However, in recent years buyers have been willing to pay $300/kg or more, and at this price only high-density orchards can compete. It therefore seems likely that a major expansion of high-value crops would lead to a reduction in the poppy area and a rise in the opium price. Conventional orchards would then seem less attractive, the uptake of high-value crops would slow, and a new equilibrium would be reached with a lower level of opium production and a higher opium price.

2) Dependency reduction: A slightly different rationale – and the one emphasised in the project’s Theory of Change – is that alternative livelihoods will make households less dependent on opium production: it might still be the most profitable crop, but they could at least live a normal life without having to grow opium. Reduced dependency would be most likely to lead to reduced opium production if supported by other social, moral, religious or legal incentives and sanctions, with alternative livelihoods forming one part of a comprehensive counter-narcotics strategy. This is in keeping with the conclusion of Rand Corporation (2015) that “higher rural incomes ... appear to be a necessary, if insufficient, condition for substantially curtailing the cultivation of illegal crops”.

Developing profitable alternatives to opium helps with both resource diversion and reducing dependency, since the smaller the economic advantage of opium over the alternatives, the easier it should be to persuade people to move out of poppies.

3) Conditionality: The Badghis community leaders reported that they had given signed undertakings that opium poppies would not be grown in their villages, and also said that they had been promised that everyone in the village would receive some kind of benefit from the project. Given the limitations of the budget, it seems unlikely that any official representative of the project would have made such a promise, but the current situation seems to be one of conditionality: the communities have agreed to cease opium production as a condition to receive future benefits from the project – and their leaders made clear that poppy production would resume if such benefits were not forthcoming.

Rand Corporation (2015) reviewed the experience of conditionality and concluded that is not an effective means of reducing narcotics production. In terms of this project, it is quite possible that the treatment villages will resume poppy production once they stop receiving new benefits from the project.

In summary, the Project Document emphasises the mechanism of dependency reduction, but at this early stage in the project few beneficiary households have yet seen their incomes rise.
They must therefore be responding to expectations of future benefits, and to the implicit and explicit conditionality of the project. The power of conditionality will wane as the project reaches its end and, at its current scale, the extent of resource diversion will be rather limited. The critical issue, which this project sets out to test, is whether dependency reduction through high-value crops will give farmers sufficient incentive to give up growing poppies even in those years when it would clearly be profitable to do so.

**Measuring and interpreting changes in poppy area**

As a central part of its monitoring strategy, the project will utilise remote sensing through the services of UNODC’s *GLOU34: Illicit Crop Monitoring Project* as a means to measure CBARD-West’s impact on cultivation of opium poppy on a yearly basis. Community-level results are not yet available from the satellite images collected in spring 2018, the first since project interventions began, and there will be several more to follow; it would therefore be useful to consider in advance how the results of these surveys should be interpreted.

The impact of any project may be defined as the difference between the actual situation of the treatment units after the project, and the situation that these units would have been in if there had been no project. This is particularly important in agricultural projects where weather, market conditions, pests and diseases can cause big fluctuations in output and revenue from one year to the next, often making it hard to distinguish project impact from these external factors. Determining the counterfactual situation of “What would have happened without the project” is therefore essential, but also one of the most challenging parts of project evaluation. In this case the project design includes 38 control communities as well as its 70 treatment communities, and so will have a good basis to estimate the counterfactual situation.

Once results have been obtained and analysed, and after making any necessary adjustments for underlying differences between the treatment and control communities, four different outcomes can be envisaged:

1) Opium poppy area reduced in treatment communities by significantly more than in control communities (control communities show an increase, no change, or a smaller decrease than treatment communities) ⇒ PROJECT SUCCESS

2) Opium poppy area reduced in treatment communities but not significantly more than in control communities (control communities show a reduction at least as high as that in treatment communities) ⇒ PROJECT FAILURE

3) Opium poppy area increased in treatment communities but by significantly less than in control communities (control communities show a larger increase) ⇒ PROJECT SUCCESS

4) Opium poppy area increased in treatment communities and not significantly less than in control communities (control communities show a decrease, no change, a smaller increase or a similar increase) ⇒ PROJECT FAILURE

Scenarios 1 and 4 are easy to understand and present, as they involve both an absolute and a relative increase or decrease in poppy area. Scenarios 2 and 3 require more careful explanation, as they deal with the project “failing” even though the poppy area decreased, or

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54 Project Document page 19: VI. MONITORING AND EVALUATION; Opium Production Monitoring Agent.
“succeeding” even though the area went up. That is why it is good to establish the rules in advance, so that there can be no accusations of the final evaluation attempting to mislead stakeholders.

One way to make this complex story more accessible is to graph the changes in poppy area for treatment and control communities, compared to the baseline of 2017. The following chart shows how this might look, using purely imaginary data:

![Example chart to show changes in poppy area in treatment & control communities, using imaginary numbers not based on real data](chart)

Provided the line for treatment communities is clearly below that for control communities, then the project is having the desired impact, regardless of whether the lines themselves are heading up or down.

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55 The simplest approach, and the one shown here, is to compare the overall change in treatment communities with the overall change in the control communities. However, it is also possible to compare each treatment community with a specific matched control community or control group, to create an explicit counter-factual scenario for every treatment community. The lines would then be labelled “With-project” and “Without-project”, rather than “Treatment” and “Control”. 
Annex 10. References

a. Project documents

Project reports
- CBARD-W Project Document
- CBARD-W Inception Report
- CBARD-W Quarterly Reports:
  - 2017 Q1
  - 2017 Q2
  - 2017 Q3
  - 2017 Q4
  - 2018 Q1
  - 2018 Q2
  - 2018 Q3
- CBARD-W Annual Progress Reports:
  - 2016
  - 2017

Planning documents
- Procurement plans:
  - CBARD-W Procurement Plan 2017 (Excel)
  - CBARD-W Procurement Plan 2018 (pdf)
- HR plans:
  - CBARD-W UNDP HR plan
  - CBARD-W NTA HR plan
- CBARD-W Annual Work Plan 2018
- CBARD-W Revised AWP, PP & HR plan 2017
- CBARD-W Needs Assessment and Baseline Report

Commissioned studies, CBARD-W
The following documents are also attached in a zipped file as Annex 3: Studies commissioned by CBARD:

**Commissioned studies, CBARD-E**

The following documents are also attached in a zipped file as *Error! Reference source not found.*:


**b. Other UN documents**

**UN**


**UNODC**


**c. Documents on related projects**

**AREDP & RED**


**d. Government documents**


**e. Other studies and papers**

**RAND Corporation**


**AREU**

Afghanistan Research and Evaluation Unit

- Between a Rock and a Hard Place: Counter-narcotics efforts and their effects in Nangarhar and Helmand in the 2010-11 growing season. David Mansfield.
Afghanistan Research and Evaluation Unit, Case Study Series, October 2011. Funded by the European Commission.
