RALF Project 01-07

ORGANIC EXPORT FEASIBILITY STUDY

SOUTHERN AFGHANISTAN

Phase 2 Report, May 2006

"Laying the groundwork for a pilot-scale organic conversion in the Kandahar region"

Authors: A. Chubb & J. Wright

The RALF Program is funded by the UK Department for International Development (UK) and managed by the International Centre for Agricultural Research in the Dry Areas (ICARDA)

RALF01-07: Restorative Agriculture and Rural Economy (RARE) Research Project

Sub-Agreement AFG/RALF/002-04

between Mercy Corps Scotland

and Henry Doubleday Research Association

The Restorative Agriculture and Rural Livelihoods Research Project (RARE) of Mercy Corps is funded by DFID's Research in Alternative Livelihoods Fund (RALF). The Project examines alternatives to opium cultivation in Afghanistan, seeking to provide information for the cultivation of a profitable and legitimate agricultural economy. Within this, the Organic Export Feasibility Study aims to evaluate, over two years, the prospects and possibilities for the development of a southern Afghan organic export market.

The authors of this report gratefully acknowledge the support of staff of Mercy Corps Afghanistan in undertaking this work, and of the numerous interviewees who willingly gave up their time to respond to questions and participate in discussions, in Kabul, Kandahar, and the UK. This said, the authors take full responsibility for the contents of this report, including any inadvertent misinterpretations of the discussions and information provided to them.

CONTENTS

EXECUTIVE SUMMARY

This report synthesises the process and outcomes of the second phase of investigation into the feasibility of organic exports from southern Afghanistan. It focuses around the main activity of this phase: the field visit undertaken by Alan Chubb and Julia Wright, during January 2006, but also summarises the background research undertaken throughout this 2nd phase period from June 2005 to May 2006.

Project development of marketing chains within both the US and EU regions is not feasible owing to the differing organic requirements of these regions. Within Europe, the UK is one of the two strongest markets, and four major British dried fruit importers express interested to purchase Afghan produce. Of these, one in particular, which deals in conventional, organic and fair trade produce, is offering to come on board in the early stages of project development.

For several reasons, the most promising crop is raisins. It has the largest market, is versatile as a food ingredient in both organic and fairly traded products, and is a traditional export product for Afghan producers. Other crops to keep in the picture are apricots, pomegranates, and novel products such as dried watermelon, mulberries, cherries and plums.

The main concerns of UK importers are: consistency and adequacy of supply, mechanisms for maintaining quality during harvesting, washing and drying, preserving methods, packaging, security in the region, and ability of the project to maintain autonomy from local warlords.

Based on field interviews, the main opportunities for organic and fair trade production are: compatibility and appropriateness of organic husbandry techniques with current traditional agriculture systems, high yields in the region, conceptual similarity of organic with traditional 'watani' (healthy, local) produce, farmers and traders motivated by premium prices to cooperate and convert, traders open to concept of matching funding for business development, government support for organic production, current development efforts to improve processing facilities,

The main challenges for organic and fair trade production are: low awareness within the agricultural sector of organic farming / environmental concerns, desire by farmers, and promotion by private (foreign) and public sectors to industrialise production, intercropping of vines with industrial crops (including poppies), identification of culturally and economically appropriate soil fertility improvers in vineyards, producer confidence to go through the full conversion process, the ability of the production cooperative to operate as a transparent, democratic business, culturally-acceptable labour configurations, current low quality production and processing, strong hold over production by traders and middlemen, lack of quality processing factories, field security for both extension and foreign negotiators/certifiers.

Estimated costs indicate organic raisin production to be highly economically attractive for the farmer, with additional production costs in the region of $500/ha or $80/t, offset by a premium of $400/t. The future development of the local fresh grape market would add stability to this production. Nevertheless, the additional costs / risks of

organic registration, administration and certification (estimated $3,000/year) should at first be born by the project, until full certification is achieved. The other major cost to be budgeted for out of the project is equipment upgrading, estimated by the private sector at up to $100,000 for a complete factory refurbishment (but considerably less if local/regional skills are hired).

Crucial components of an organic export plan in the region comprise essential staff training, the development of trade linkages, improvement of processing quality, the development of organic certification, and extension activities for sustainable agriculture.

The original project budget is insufficient to support the conversion of a pilot producer group to organic, with just $9,300 available for Phase 3 of the project. In January discussions, Mercy Corps advised that they will make efforts to raise sufficient extra funds for the conversion to go ahead, and based on this, Phase 3 of the project will focus on initiating the conversion process and putting into place the components as identified in the above paragraph.

Crucial first steps in Kandahar are to: identify pilot group of 10-20 farmers willing to go through the conversion process, preferably all who have not applied synthetic inputs in the 2006 cropping season and all who do not rely on sharecroppers; for each farmer, map out farm land with the location of the vineyards and date; identify local, committed and motivated project coordinator and 2-3 others for project steering committee (include farmer representative, MAAHF extension or research staff); set up system to record and date all activities within the vineyards.

Further proposed activities for Phase 3 are: register farmer group with UK certification body, arrange pre-inspection / training visit by accredited Asian organic body, arrange visit by UK importer (to include addressing processing upgrading requirements), develop organic conversion plan and internal control system, identify and set up demonstration and experimental activities, organise for overseas training of local co-ordinator.

1.0 INTRODUCTION

1.1 This report forms the main output of Phase 2 of the Organic Export Feasibility Study, conducted by HDRA for Mercy Corps' RARE project. Phase 1 of the study, from January to May 2005, sought to determine the theoretical possibility of an organic conversion, focusing on dried fruit and nut products. It concluded that although global market needs were generally saturated, opportunities for niche activities and new products existed, and organic prices were favourable for dried fruits and nuts. Owing to the lack of organic knowledge and infrastructure already in place in Afghanistan, organic production would require foreign support at least in the early years, this to include certification. Appendix I contains a fuller summary of the Phase 1 report.

1.2 The objectives of Phase 2 were to make recommendations on specific crops, linkages, economic scale, and other issues for the initiation of an organic export initiative. (See Appendix II for full TOR for Phase 2.) In addition, awareness raising and training on organic agriculture would be conducted for staff of both Mercy Corps and the MAAHF. The technical overseeing of conversion of at least two farmer groups would be dependent on the acquisition of additional project funding.

1.3 Phase 2 commenced with a review of Phase 1 outcomes and filling in of information gaps based on feedback from Mercy Corps. A technical field visit to Afghanistan was planned for autumn/winter of 2005. Owing to the fluctuating security situation, this visit was put on hold and eventually executed from 19th January to 2nd February 2006 by Alan Chubb and Julia Wright. The results and outcomes of the field visit form the basis for this current report.

1.4 The final Phase 3 of the project will run from June to December 2006, and given the increased certainty of additional project funding, will initiate the conversion of at least one farmers' group to organic as in the original TOR.

2.0 PHASE 2 PREPARATION: SUPPLEMENTARY ACTIVITIES AND PLANNING OF FIELD VISIT

2.1 Supplementary activities

2.1.1 Following feedback by Mercy Corps (MC) on the Phase 1 Report, additional secondary data was collected and activities undertaken prior to commencing the technical field visit. A range of British-based organic dried fruit and nut importers operating in the Asia region were interviewed. Through this, details have been obtained of quality specifications and other considerations for producers and processors, as well as of prices, processing techniques, appropriate management approaches, and current production challenges in country. Potential partnerships and collaborations with importers have been established.

2.2 Current fruit production, processing and export activities in Afghanistan

2.2.1 Only a few export initiatives could be identified from outside the country. For example, AISA (set up by GTZ) have developed business parks in Kabul and Kandahar which may include raisin drying and export (www.aisa.org.af). Roots of Peace are developing table grape production in several sites in Afghanistan, reclaiming land mine areas. They have 20 extensionists operating in vineyard development. Most of the current grape production is exported to Pakistan. Raisins currently go to Ukraine and Moscow. Although no foreign certifiers operate in Afghanistan, SKAL, the Dutch organic certifiers, operate close by in Pakistan.

Box 2.1 Previous attempt at exporting raisins from Kandahar: the experience of Western Commodities

Western Commodities, Devon, are the largest importers of conventional and organic bulk dried fruit into the UK, including supplying organic retailers such as Suma, Queenswood, Essentials and Infinity Foods which repackage and sell under their own brands.

In 2003, Western Commodities initiated a trading relationship with the Central Asian Development Group (CADG) for raisins from Kandahar. CADG had been tasked to improve processing facilities in order to give work to widows in the region. Western Commodities imported 200t raisins, of which 75t had to be dumped due to poor processing; the product had been overwashed and was full of stones and had to be re-processed. After this experience, trading ceased, but Western Commodities remain interested in a quality product with continuity of supply. In the meantime they source organic raisins from California and Turkey, through Rapunzal (0090 2328777132 www.rapunzel.tr) who would agree to a visit to its state-of-the-art factory operation in Turkey which, for example, used laser scanners to pick out stones (contact UK agent Paul Burgess, Shropshire 07866 604203).

2.3 Focusing on UK importers

2.3.1 The main regions of organic demand are Europe, the USA, and Japan. According to the British Department of Food and Rural Affairs (DEFRA), up to 2002 there have been no imports of organic apricots, raisins, sultanas or almonds to the EU from Afghanistan. From the Asia region, Pakistan has been the major supplier of these products, with some raisins from Uzbekistan to Germany (certified by QC&I). Within Europe, the UK and Germany are by the far the largest organic markets. It is likely that Afghan produce is exported to Pakistan, and repackaged and sold as Pakistan-sourced. From Kandahar, the direct trade route is from lorry southwards to Bandar Abbas in the Gulf. The organic requirements for imports of certain products into the US are not acceptable for importing into the EU. This will have an impact on the project if attempts are made to develop marketing chains with both these regions.

2.3.2 According to European importers, fruit from Afghanistan is at a slight disadvantage when it arrives into the EU market in late Dec/early Jan, whereas Turkish fruit is available in Oct/Nov in time for processors to use before Christmas. However, seasonal over-saturation is not a problem for organic produce coming into the UK; on the contrary, there are out-of-stock periods for organic produce.

Table 2.1 British importers interested to purchase Afghan dried fruit and nut products *(where (**FT**=fair-trade, **C**=conventional, **O**=organic)*

Company	Contact	Product items required	Price offered	Quantities	Regional experience
Western Commodities Devon (largest UK importer of dried fruit)	Richard Stoker, Jonathon Ray	Raisins. **C** & **O**.	Raisins **C** $1,050/t		Kandahar (funded by CADG)
Tropical Wholefoods, London	Adam Brett, Kate Sebag	Raisins, apricots, novel items. **FT**, **O** & **C**.	Apricots **FT** $3.54/kg **C** $1.86/kg		Gilgit, Pakistan (with Aga Khan)
Alara Wholefoods, London	Alex Smith	Raisins, apricots, novel items, (for muesli) **FT**, **O** & **C**	Raisins **O** $1,408/t **FT** $1,760/t **C** $980/t	**FT** 100t/yr **O** 120t/yr **C** 200t/yr (4 yr supply contract)	
Pomegreat (RJS Foods)	Adam Pritchard	Pomegranate juice, syrup. **C**, **O**.	$3.35/kg concentrate (65 brits)		In 2005 approached MAAHF about sourcing juice.

2.3.3 Competitive pricing was one but not the only reason for the strong interest in Afghan produce by UK importers (Alara Wholefoods, for example, offering $40/t less than currently paying for similar produce from Iran). Other attractive factors included access to novel products and the opportunity to help develop a new market sector and to help out the country in general. Some importers were currently having difficulties with the certification process in other exporting countries. All importers were also interested to act as (fee based or subsidised) consultants and project advisors, and did not see product quality as being an insurmountable challenge but as an issue to work through with the producers.

Box 2.2 Fair Trade in Pakistan: Profile of Tropical Wholefoods and project in Gilgit (http://www.fmfoods.co.uk/home.htm)

Tropical Wholefoods aims to find and develop markets for third world producers in an equal and empowering relationship, undertaking to ensure that growers receive at least 10% of the UK FOB price. They sell dried fruits, dried vegetables and snack bars in the UK from their partners in Burkina Faso, India, Pakistan, Uganda, Zambia, and Zanzibar who all do processing in-country, generally as either organic (35%) or fairly traded (less than 30% certified FairTrade). (Note that in processed products, only 20% of ingredients need to be certified for the product to be labelled Fair Trade. Also note that TW use the term 'fairly traded' for much of their products, based on their own standards and without the Fair Trade label). They currently import apricots (kernels and fruits), bananas, cashew, mango, pineapple, brazils, chillis, mushrooms and papaya. Their main expertise is in the processing and marketing (fair trade) of the product in western markets, and they offer their expertise on a consultancy basis. As yet they undertake little packaging in-country because of lack of capacity, but provide specifications for bags and boxes which can hold up to the EU limit of 17kg. TW will use any certifier recognised by IFOAM/EU.

TW currently import $264,000/pa worth of apricots (50t per annum), almonds, apricot kernels, walnuts and dried apples from Gilgit, N. Pakistan. These are shipped via Karachi to Tyneside in the UK at a cost of $1,857 (£1,000)/container. This diverse range keeps the drying / processing factory busy for 7-8 months/year. The Aga Khan RSP provided $111,400 over 3 years for project enterprise development. Out of this, the factory was constructed, cheaply at a cost of $18,565 (not including equipment), by local engineers.

2.3.4 Because the response from approaching UK importers has been highly positive, and because of the pilot-scale nature of the proposed organic conversion in Afghanistan, a wider trawl of potential European, US and Japanese importers is being put on hold for the moment.

2.4 Focus crops for conversion

2.4.1 Of the range of organic dried fruits and nuts, raisins has the largest market, currently mainly supplied by California. Importers expressed strongest interest in raisins and apricots. Particularly raisins are versatile and especially as a bulking ingredient in fairly traded processed products (owing to the limited range of fair trade ingredients, only 20% of the final composite product has to be certified). Traidcraft (contact Joe Osman, Sourcing & Development Manager, joeo@traidcraft.co.uk) is currently the only UK importer of Fair Trade raisins. Importing from Afghanistan would be dependent on quality; the California raisin was large and clean and is a yardstick for competitors. (See Appendix III for basic specifications of Western Commodities for imported dried raisins.) In addition, other lines of fruit, nuts and seeds were of interest, eg. cherries, plums, growing seed.

2.4.2 Pomegranate juice/syrup were also in demand and an organic market starting to develop. Particular interest for Kandahar as the centre of origin of pomegranates and are regarded as the best in the world. Importers identified the main challenge as the juicing process which may be too high-tech for a rustic scale and open to risks. There are currently no Fair Trade criteria for pomegranates and these could take 2 years to develop from the date of instigation. Current main sources of pomegranates from Turkey, Iran, India.

Box 2.3. Appropriate pomegranate processing technology: the ITDG experience of passionfruit processing in the Caribbean
(source: Barry Axtell, ITDG, axtEll@aol.com, tel. 01788 823662, also contact Dr Sue Assan-Ali, food technologist, tel. 01509 554236)

Processing pomegranate would require a similar technology to that of passionfruit, and on a small-scale this has been developed by ITDG in the Caribbean context.

Basic processing process: wash fruit, cut in half and scoop out interior. Dilute this with sugar syrup (to thin). Pass through a 'pulper finisher' - a cylindrical sieve with rotating arm and brushes on it, which push the liquid out one end and the seeds the other. A small machine can process 100kg/hr seed. The raw juice can then be mixed with sugar, approx 10-12% for direct consumption, or 45% sugar to form a concentrate. It then needs to be pasturised to 80'C, and then packaged. If to be consumed direct, package whilst hot and seal well. If used as a syrup, preservative needs to be added, normally SO^2. Seed chips tend to get into the juice so need to add a fine mesh straining system at the end of the process. Pulper finishers cost approx $9-13K in the UK (stainless steel), but are manufactured in India and Pakistan for about $3,700. See Appendix IV for ITDG's list of manufacturers' addresses from their book 'Tools for Food Processing'.

2.5 Basic considerations for an organic / fair trade initiative:

- The UK/EU market is generally very competitive on price and quality, but grade B quality may still be used in processed goods.
- Minimum recommended quantities: 10t (1 container) may be purchased on spec, but better to enter into a long term trading agreement.
- Some considerations for exporter/importers: consistency and adequacy of supply, length of harvest and price range throughout the season, mechanisms for maintaining quality including during the harvesting, washing and drying arrangements/facilities (ensure removal of stones, controlled washing to remove dust and dirt), drying ratio (between fresh and dried fruit), preserving methods and preservatives used (and acceptability of organically preserved products in local markets), processing and drying costs, simple packaging, transport and certification costs.
- Need effective, profit-driven motivation for success. A good working model is to bring together a core business group of 2-3 people, connected to the local community in question but also with an external, accountable NGO or similar. These people will be committed, and receive 2-5% of trade (if Fair Trade).
- For Fair Trade, factory workers and farmer groups receive profit share and a % of RRP, and this discourages them from selling to other buyers.
- Early on, need to elect farmer representatives, and immediately make farm maps and document history of chemical application, and get signed chit from each farmer about this, with the date. If this is acceptable by the certification body, the organic conversion would be possible in 18 months.
- For Fair Trade, approx 10% of FOB price goes to a community organisation, whose primary function is to empower the group. Should be a democratic decision on what to spend the money on.
- Best to have both conventional and organic production/processing to meet volumes.
- There are different processing techniques for organic and non-organic, such as the use of oil sprays and sulphur.
- Processing equipment such as raisin washers can be cheaply sourced from Pakistan, India or Russia, and are acceptable as long as the manufacturing workshop is of sufficiently high standard.
- Need chilled storage in-country.
- Freight costs can be juggled with as possible to ship dry goods in lull periods, which is cheaper.
- Importers need long term (e.g. 5 year) commitment from producers as well as from any project donors.
- Local partners can themselves explore Asian market options once chain is up and running.
- Need to use ISO/HCCP certified factories
- Fairtrade Labelling Organisation (FLO) Producer Business Unit has small funds available for consulting on the development of smallholder Fair Trade production.

2.6 Costs and prices

2.6.1 From the retail perspective, farm gate prices can be calculated by working back from retail prices for particular products. For example, for fair trade produce, the logic is as follows:

Starting with retail price/kg

- subtract 25-32% retail margin
- subtract 40% distributor/importer margin
- subtract shipping $1,858 per 10t container
- subtract .65-.74c/kg in-country freight, customs clearance etc. (Pakistan-Karachi)

Taking an example of fair trade apricots, a UK retail price of $5.58/kg (£3) works back to an in-country, ex-processor price of $2.50/kg.

2.7 Planning of technical field visit

2.7.1 With regard to the technical field visit, and based on communications with Mercy Corps staff, it was decided to delay the visit until early 2006, largely owing to the security situation in the province of Kandahar. Two short field visits had originally been planned for this Phase, for a total of 3 persons, and these were merged into one longer visit for two persons. This change increased cost-efficiency of the project.

2.7.2 At the time of planning, feedback from MC made clear that there was currently no extra funding available outside the original budget, and therefore insufficient to support an organic conversion process. In terms of staffing support, MC could supply one person half-time from Kabul, and relatively unskilled, part-time support in Kandahar. The field visit was planned around this. See Appendix V: Technical field visit objectives and main activities.

Importer information sources:

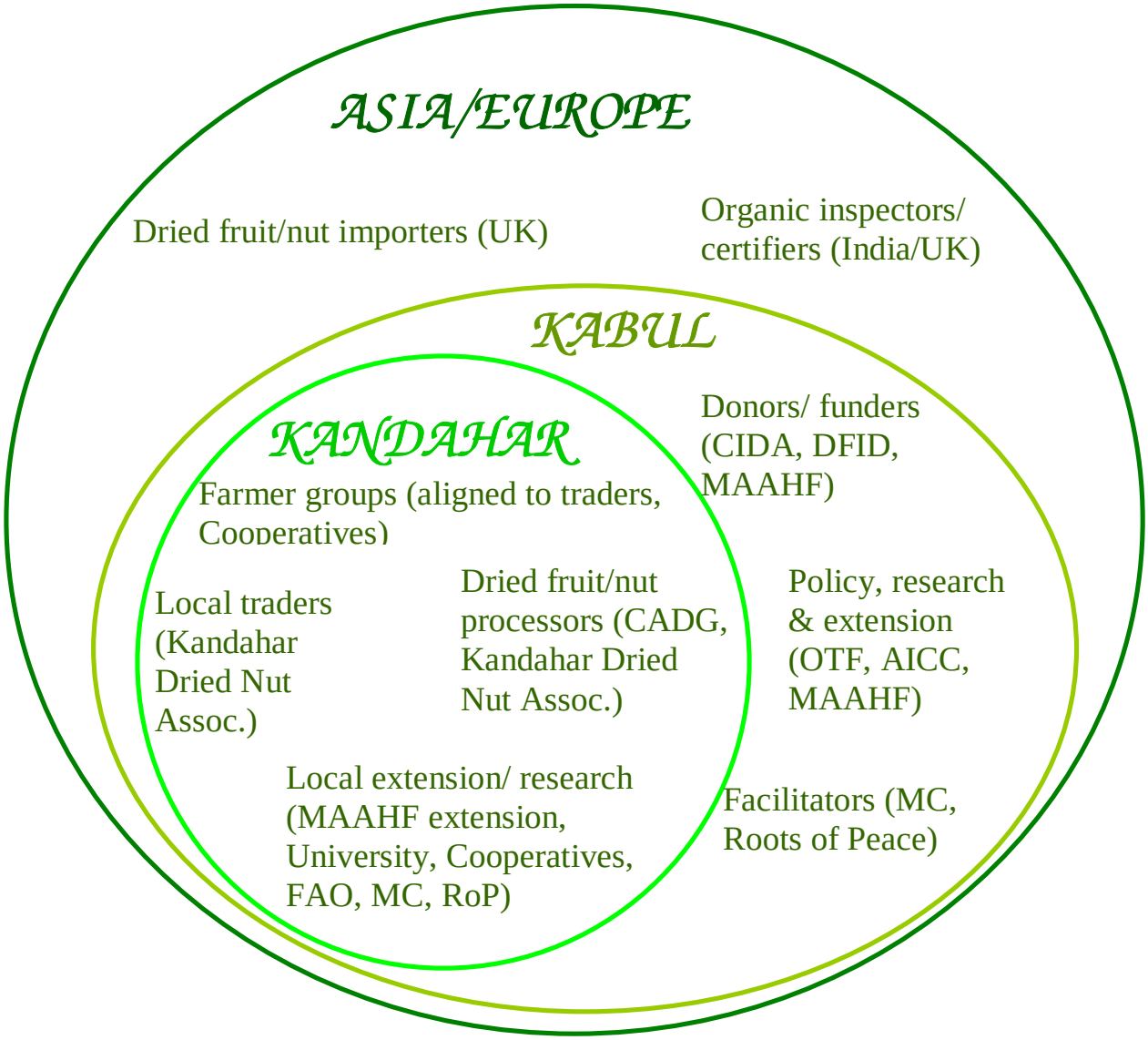
Telephone conversation 19/09/05, Western Commodities, Devon. Richard Stoker.
Telephone conversation Dec 05 with Tropical Wholefoods. Kate Seabag.
Meeting 12/12/05 with Western Commodities, Devon. Jonathon Ray (WC), Alan Chubb.
Meeting 06/01/06 with Alara Wholefoods, London. Alex Smith (AW), Julia Wright, Alan Chubb.
Meeting 11/01/06 with Tropical Wholefoods, London. Adam Brett (TH), Alan Chubb, Julia Wright.
Telephone conversation, 16/01/06, with ITDG, Barry Axtell.
Telephone conversation, 13/01/06 with Pomegreat, RJS Foods. Adam Pritchard.
Meeting Western Commodities, Devon. Alan Chubb.
Meeting 10/04/06 Tropical Wholefoods, London. Adam Brett, Julia Wright.

3.0 STAKEHOLDERS IN THE KANDAHAR ORGANIC FRUIT / NUT EXPORT CHAIN

3.1 The field visit

3.1.1 The field visit itinerary, from 20/01 – 02/02 2006, and the list of stakeholder contacts visited in Kabul and Kandahar, is given in Appendices VI and VII respectively. The main outcomes of stakeholder interviews and discussions are summarised in the following three sections, under the subheadings of production, processing, trade and marketing, and socio-political aspects. The proceedings and outcome of the main workshop, held in Kandahar on 29th January 2006, is summarised in Appendix VIII. At the end of the field visit, a debriefing session provided valuable feedback on the results and on the future direction of the project.

3.2 Identifying the stakeholders in the export chain



3.3 Stakeholder sensitisation on organic agriculture

3.3.1 One major objective of this field visit was to raise awareness amongst stakeholders of the nature and benefits of organic agriculture. Specific literature was brought out to the Mercy Corps Office in Kandahar. These included the IFOAM Guide to Local Marketing in Asia, the IFOAM Training Manual on Organic Agriculture, sets of standards for Organic Agriculture (Soil Association) and Fair Trade (FLO), A Handbook of Organic Farming (Sharma A.K., 2001, A Handbook of Organic Farming. Agrobios, India, 627 pages), and HDRA farmer education booklets on agronomic aspects of organic production. During interviews, organic agriculture was defined at the outset, and the positive market situation described. At the workshop in Kandahar, the first hour was spent detailing the history of organic agriculture, its similarity to 'watani' production, and its potential benefits. Samples of branded organic and fair trade products (dried fruit, nuts, processed products) were exhibited.

Figure 3.1 Secondary stakeholders: dried fruit and nut merchants in Kabul (Jan/06)

4.0 OPPORTUNITIES AND CHALLENGES FOR THE EXPORT OF ORGANIC DRIED FRUIT / NUTS FROM SOUTHERN AFGHANISTAN

4.1 Discussions with key stakeholders in Kabul and Kandahar yielded a rich picture of the opportunities and challenges associated with the development of an organic export initiative. The main points are summarised below, divided into aspects of production, processing, trade and marketing, and socio-political.

4.2 Production aspects

Opportunities	Challenges
• Current low use of agrochemicals by many farmers. • Potential for alternative soil fertility improvers: low-spreading green manure, leguminous cover crops, compost tea sprays, mulch. • Some clover and alfalfa already grown as cover crop and fodder. • Potential for rationalised use of sulphur, improved crop hygiene, use of local and imported natural products, use of compost and comfrey teas, introduction of budded grape varieties onto recommended rootstocks. • Existence of local knowledge on traditional agronomic practices using local resources in Kandahar (e.g. by Abdullah Haj). • Organic conversion period possibly reduced to 2 years (from 3). • Fair Trade conversion period more rapid, possibly 1 year. • Kandahar grape yields 20-30 t/ha (RoP estimate 14t/ha minimum economic yield) • Farmers would be encouraged to produce higher quality for higher farm gate price. • MAAHF master plan promotes production of grape, almond, apricot, pistachio and pomegranate. • May plant new areas with trellis systems and green manure intercrops. • Fruit grown nearer the city than nuts, therefore easier/safer to work on. • Other regions for export potential include Shumani Plain and northern regions.	• Farmer desire to use more agrochemicals, and currently apply to home consumption crops also. • Farmers may receive synthetic fertilisers for poppy production and may intercrop with vines. • Farmers may receive synthetic fertilisers through development programmes e.g. for wheat production, using up to 4.8 t/ha ($3000/ha) with poor application techniques. • RoP introducing chemical fertilisers to encourage high yields in situation of low manure availability. (Also introducing gibberellic acid treatment, and Californian rootstock into region of rich local diversity). • Poor pruning methods with stems broken off by hand and little thought about the following crop. • Grapes lie against mud walls – increased pest and disease problems. • Hand weeding using shovels when clearing irrigation channels; • All vineyards planted with cuttings and therefore susceptible to root-borne pests and disease. • Farmers use alfalfa for cattle feed (not for green manure) • Green manure may be unsuitable in vineyards as: channels flooded, planted with vegetables over winter, may hinder air circulation amongst vines, and higher labour requirements for cutting and transportation. • Trellis system not used traditionally; orchard irrigation channels impossible to change. • Manure shortage - used locally for fuel, and livestock numbers decreased due to drought. • Soils intensively cultivated. • Farmer lack of awareness of environmental issues and alternative farming approaches. • Common misperception that Afghan produce is organic because few or no chemicals are used, and that wild produce is also organic. • Production limitations to Fair Trade: extent of share cropping (concept of minimum wage), child labour need for good admin. procedures, female participation. • Other vine development projects introducing agrochemicals & Californian high-technology. • Degraded germplasm. • RoP experienced difficulties working through village Sharia. • Pomegranates may require too much water for a sustainable organic system.

4.3 Processing aspects

Opportunities	Challenges
• 3-4 processing factories in Kandahar. • New equipment purchased for CADG factory • Kandahar Dried Nut Merchants Assoc. (DNMA) has provided matched funding for nut processing (almond shelling) equipment with RoP (also Fresh Fruit Assoc. matched funding for new packing house and cold storage - total cost of $100,000). • ALP currently assessing processing needs in Kandahar and Helmand regions. • Head of DMTA and CADG estimate can produce higher quality products than sample supplied by Western Commodities, and RoP also envisage no problem achieving required quality in Kandahar. • RoP study of local packaging found no major obstacles. • MAAHF Master Plan horticultural benchmark includes 7 raisin cleaning factories by 1389 (40,000 t/yr); and its rural finance quality control benchmark includes food safety laws and regulations enforced by same date. • Current use of sulphur permitted in organic regulations. • Estimate cost of 100,000 rupees for de-stalking machine (sourced from Pakistan).	• Processing quality: factories run-down and little investment in equipment due to low market prices: currently no adequate equipment in Kandahar (CADG factory has no cold storage) • No immediate funding for improving equipment. • AICC estimate $500K/new factory (with 10-15,000t/pa capacity); political interest in large-scale only and less confidence in cheaper Asian equipment. • Current export markets do not demand high quality. • Green ‘kishmish’ raisins are most profitable but need costly shade drying sheds (kishmish khana).

4.4 Trade and marketing aspects

Opportunities	Challenges
• MAAHF Master plan horticultural benchmark includes "Certification and standards developed (Integrated Pest Management, certification of plant material, products, organic products) by 1387", and "Marketing and promotion (trade fair attendance, trading agencies established, organic branding developed) by 1389".* • Embassy of Canada organic marketing study identified main buyers as: UK, Germany, Czech Republic, India, UEE, Pakistan, Soviet Union. • OTF developing dried fruit export enterprise. • Trade stakeholders in Kabul and Kandahar keen to establish international trade links and motivated by favourable premium prices. • Traders hold detailed knowledge of small farmer production/quality. • 2 new exporters' associations in Kandahar; for nuts, dried fruit and herbs, and for fresh fruits (supported by RoP/RAMP). • Trade associations support 50% salaries of local RoP extension staff. • Traditional produce, favoured for its flavour and other qualities, is known as 'watani' and sells for a higher price than imported produce. • RoP very keen to support the development of Fair Trade products. • US private initiative to set up dried fruit processing and export production in Kandahar (contact: Tom Brown, through RoP). • Example of Indian trader who successfully certified group of Afghan producers with EURGAP. • Current export markets unfavourable, e.g. Indian traders purchasing raisins \$6/kg, selling at \$23/kg. (Currently 80% of Kandahar raisins goes direct to Delhi, 15 trucks/day) • Existing CADG study on pomegranate markets in Asia (author: Thomas Payne). • 59 different dried fruit products in Afghanistan, of which 27 easily mobilised for export. • Main wild/natural produce: pine nuts, pistachio, asphoetida, walnuts, almond, mulberry, raisin and grape. • Main industrially grown produce: raisins, almonds, apricots, pistachio. • Traders have strong, paternalistic relationships with producers. • Only 20% of sundried raisin production currently exported. • Export Promotion Association laboratory already issues quality assurance licences. • Currently tariff-free status on most Afghan agricultural products imported into the EU. • Existing fair trade project in Kabul: Yamana carpets (French).	• MAAHF Master Plan ambitious and not all will be implemented. • Major trade with the UK had ceased post 1989, and currently for dried fruits consisted of only relatively small quantities, also to Germany, Russia, India, Czech Republic and USA. • There is no certified organic market within the country. • Negligible awareness of organic or fair trade production amongst trade stakeholders or MAAHF. • Importer concern over producers reneging on contracts. • Kandahar merchants' trade associations comprise of members obligatorily appointed by AICC.

* MAAHF Master Plan runs from 2004-2008 (year 1385 ends in March 2006).

4.5 Socio-political aspects

Opportunities	Challenges
• Deputy Minister of Agriculture (M. Sharif) interested to support organic agriculture development, including establishing demonstration area at MAAHF Kabul. • Interest of MAAHF DGs Planning, Research and Extension. • An integrated organic project would address wider food security and environmental issues. • Farmer groups already existing in Kandahar: 115 registered farmer cooperatives, comprising 9,000 farmers. Legal minimum size 11 members of min 1/5 ha (1 jerib) size each including livestock. Elected coop committees. • To develop Fair Trade, could use labourer standards and work through local traders/producers, or identify farmers who don't use hired labour. • No tribal discrimination. • Organic regulations are in line with appropriate low cost, low-external-input agriculture that is most suitable for the Kandahar small-farm structure.	• Donor interest in short-term impacts only. • National agricultural plans pushing for large scale industrialised production. • Recent donor policy is shifting to direct funds through government ministries. This may cause a delay in accessing these funds whilst tender processes are developed. • Security: NGOs and MAAHF Extension staff unable to operate in Kandahar fields. Organic production would require regular field visits by advisors/inspectors/buyers. • Low government awareness of environmental impacts of agriculture or of innovative methodologies. • Previous research documentation / knowledge on sustainable agriculture lost during war years. • Small farm pattern may pose logistical/time problem for organic inspection. • New farmer cooperatives in infancy stage and with little government funding or clear strategy. • Local MAAHF demonstration area too small, and extension dept. receives little funding. • Social standards: children under 15 years work in fields, and men receive wages for wives' work.

5.0 KEY CONSIDERATIONS FOR AN ORGANIC EXPORT PLAN

5.1 Technical feasibility of organic raisin production

5.1.1 Of the three main agricultural districts of Kandahar, Zhari is the best for grape production (of the other two, Panjwai is dry and with irrigation constraints, and Arghanhab more humid and suitable for pomegranates). Grapes tend to be intercropped with poppies, almonds multicropped with wheat, and mulberries grown along river banks.

5.1.2 An outline of current farming practices within the grape growing areas of Kandahar is outlined in Appendix IX. This data is limited but gives an insight into the labour and financial inputs that a vineyard owner has to consider. It is important, especially as far as the smallholder is concerned, to address whole farm management as there appears to be a bottleneck in labour needs in April/May and September, and a more detailed economic survey of farmers' management practices is needed to fully quantify this problem.

5.1.3 The harvesting and sale of grapes for the fresh market, which has in the past accounted for 30-40% of the crop, is not addressed here owing to the ineffective functioning of the market in Kandahar at this moment (market trials undertaken by RoP use air transport which is uneconomic). Nevertheless, trading in fresh grapes as another income generating activity will increase returns to the producer.

5.1.4 The outline of farming practices is indicative of a smallholder currently following a low input 'organic' management system. This can be profitable especially if kishmish raisins are produced, but even if only sundried raisins are produced an income is achieved that is equivalent to the standard hired labour rate (assuming family labour is available for all farm tasks). For the larger-scale grape producer who will hire all his labour and use fertiliser, the profits are reasonable as long as good yields are obtained and quality kishmish raisins are produced (fresh grape sales will be a major part of the sales of the larger scale producer once that market is re-established). If poor quality raisins are produced, this grower will face a loss.

5.1.5 Thus there is an economic opportunity for smallholders to adopt a full organic approach that will give them the option to continue with current practices and increase returns from the organic premium that they would command under an organic certified programme. Farmers who follow an organic approach will also avoid the problems of conventional farming which involve cash or loan purchases of fertiliser which then depend on subsequent increased yields. This is particularly important in the absence of an effective extension programme in the field, when getting farmers to financially commit themselves to purchased inputs such as fertilisers, without back-up assistance in pest and disease control and soil management, would only increase the risks to the farmer.

5.1.6 The undertaking of an organic approach is not without its own risks to the farmer, but this is purely in terms of his time. When discussing organic management in Kandahar, farmers were aware and more concerned about the day-to-day labour input requirements than financial costs.

The organic approach

5.1.7 Farmers can qualify for organic status by following many of their current practices, although there is great scope for improving general management practices that will increase yields through improving soil fertility and reducing pest and disease incidence (these basic sustainable agricultural practices will in fact be relevant to all farmers). There is also the opportunity to re-allocate labour inputs within the whole farm management system to the advantage of the organic farmer.

Whole farm approach:

5.1.8 When planning to convert vineyards to organic status it will be important to consider the whole farm owned by the farmer (this is a requirement of some of the certifying bodies). As far as possible, all inputs to the vineyard should come from the whole area farmed by the owner. Hence the comments raised below over the role of green manures, and cattle fodder and foliar feed usage. Furthermore, with the effort and costs being put into the conversion of the farmer's land and vineyard, the farmer should also consider the potential market for other crops that could be (or currently are being) grown within the farm. The widespread existence of apricot and pomegranate trees raises the importance of addressing the rehabilitation of these plantings, particularly as the drying and export markets of these crops are similar to that of raisins.

The use of cover crops/green manures:

5.1.9 No cover crops are currently used within the vineyard although clovers and alfalfa are grown elsewhere on the farm for green fodder for zero-fed cattle. The introduction of a low-growing, annual clover along the irrigation furrow just above the irrigation level will give a nitrogen boost to the new vine crop if cultivated into the soil in February / March. Alternatively, a perennial clover could be utilised that will reduce the need for the winter weeding and add to soil fertility. It should be noted that vines do not require high levels of nitrogen and that a well grown legume intercrop should fix adequate nitrogen as well as adding to general soil fertility.

Foliar fertilisers:

5.1.10 Farmers were concerned about the occurrence of micro-deficiencies which is thought to be due in part to alkaline soil conditions. Soil samples (and later this season leaf samples) from potential organic producers should be taken for analysis as no records were obtained during the consultants' visit. The adding of green manures to the inter-rows will alleviate soil nutrient imbalances over time. The overuse of homemade lime sulphur and the practice of applying this to the newly weeded soil within the vine lines in the winter as a mildew control measure will exacerbate the micro-deficiency problem. Applications of acidifying FYM and compost will help if adequate amounts are available.

5.1.11 The growing of comfrey (*Symphytum peregrinum)* is recommended for use in producing a foliar fertiliser. Comfrey leaves are harvested and left in a plastic barrel. After 14 days the liquid produced by the decaying leaves can be used as a 2.0:0.5:2.8 NPK foliar feed if applied at 1 part in 20 parts water. Other commercial organic products such as seaweed extract, a nutrient/pesticide foliar product, could be assessed although this would need to be imported as no local supplies are available. Large scale compost production is not considered an option until further identification of sufficient farm by-product that could be used in any quantity.

Pest and disease control:

5.1.12 The main disease issue is powdery mildew (*Oidium sp.)* which can, under organic regulations, be controlled by using sulphur. However, application rates and the timing of applications need to be reviewed. Early monitoring for leaf symptoms should be carried out with an application of sulphur if necessary at the flag stage (initial 2 leaf growth), repeated twice more until flowering. Assistance in identifying early outbreaks and calculating application rates will be a key role in any extension programme. The use of either knapsack sprayers (preferred) or dust applicators should be encouraged (subsidised?). Sulphur is not effective at temperatures below or above 18^{o} and 30^{o}C and should not be used when these temperatures are ambient.

5.1.13 Copper oxychloride can be used against Downey mildew (*Plasmopara viticola*) and Botrytis (*Botrytis cinerea*), although the use of copper must be kept to a minimum (below 3kg/ha/yr).

5.1.14 Vineyard hygiene should be maintained at all times, with the farmer regularly checking the vineyard for disease symptoms and removing any leaf showing symptoms. This of course will add to the labour input time although the farmer and his family should be trained to look for disease symptoms whenever carrying out other tasks within the vineyard (summer pruning/thinning). The thinning that is carried out during the summer is important in increasing aeration within the vine canopy, thus reducing conditions for mildew and botrytis development. Winter prunings should be removed from the vineyard to minimise overwintering mildew infection sources.

5.1.15 The overriding concern for both organic and non-organic vineyards is the fact that they are predominantly raised from vines grown from cuttings and are thus susceptible to *Phylloxera* and nematode attack as well as other soil-borne pests and diseases. Whilst neither pest is a problem at the moment, steps to develop nurseries using suitable rootstocks should be a priority. Selection of rootstocks that confer mildew resistance should be assessed.

5.1.16 Many aspects in the development of the national grape/raisin industry are relevant to both the organic and non-organic sectors and will impinge on the recommendations outlined here. These include:-

- The training and establishment of an effective agricultural extension programme that promotes sustainable agricultural practices rather than just simple ‘input led’ practices.

- The establishment of certified nurseries that produce named varieties raised from certified virus-free mother trees on selected recommended rootstocks.
- An agricultural research programme that is based not only on government research station sites but also on farmer fields.
- Socio-economic studies that address the whole farm management system that includes labour inputs of the whole farmer family.

Organic Farmer Field Schools

5.1.17 The recommendations for organic vineyard management are very much drawn on experience elsewhere, and it is on this understanding that farmers can be encouraged to follow adaptations to their existing practices. These innovative practices need to be field tested by the farmers themselves in order to gain acceptance, and it is suggested that this can be effectively achieved through the establishment of Organic Farmer Field Schools. By using the targeted group of farmers who wish to grow organically and who are all growing the same crop, they can be encouraged to share their experience. Innovative organic/sustainable techniques are better tried and tested by the farmers against traditional practices on their own fields under local conditions rather than on government research stations.

5.1.18 It is important that a series of field trials/demonstrations are started within the participating farmers vineyards as soon as possible (see Appendix XII). There is a wealth of practical knowledge in the country that can be tapped into. For example, the local farmers will all have ideas on the best use of clovers and green manures, the varieties, the timing of planting and their cultivation. Demonstration plots of the full range of legumes that are grown within Afghanistan should be established for agricultural extension staff and farmers to see and make suggestions on their usage (see Appendix XIII for suggestions). Local remedies against pests and diseases can be tested against the suggested alternatives.

5.1.19 There is also the need to demonstrate and make available alternative agricultural implements, as only shovels are currently in use within the vineyards. ITDG has a range of equipment that will be relevant not only for cultivation but also on-farm processing.

5.2 Economic feasibility of organic raisin production

5.2.1 Basic costs of production have been compiled for red sundried raisins and green kishmish raisins, whether they are produced by smallholders using family labour or by larger growers using hired labour (see Appendix X). These 4 systems of production were all practiced within the raisin industry in Kandahar (again, see Appendix IX). Local producers do not consider the marketing of grapes for the fresh market to be economically significant at the moment. This market is currently constrained due to the lack of infrastructure for exporting the grapes out of the zone to Kabul and elsewhere; this leads to a rapid flooding of the local market and subsequent drop in prices. However, once this market is re-established up to 40% of production can go to this sector, bringing into the region of an extra premium of $100-150/ton of grapes

over kishmish raisin prices. Nevertheless, the organic premium is greater than the fresh market premium.

5.2.2 It is very profitable for smallholders to produce kishmish raisins if adequate family labour is available, and sundried raisin production is also profitable. A producer who relies solely on hired labour is however limited to the kishmish market and the premium prices that are available in order to be profitable.

5.2.3 Whilst the exact additional costs to the producer for organic production are unknown at this stage, they should be in the region of an extra $500/ha or $80/t raisins. This would be more than offset by the premium price of $400/t for certified organic red raisins that has been offered in the UK.

5.2.4 For a group of 20 farmers with a total of approximately 200has, the costs associated with organic certification and facilitation of a group export business are put at $3000/yr ($15/ha) which includes registration, certification and local administration. Because farmers are already taking a perceived risk in changing their production approach, it is unlikely that they could or would cover these costs themselves. Therefore organic certification and associated costs should be born by the project, although the farmers should be able to cover these costs once full certification is achieved.

5.2.5 The other major cost is capital investment to improve processing equipment. For this, UK importers have expressed willingness to help provide investment finance, and Afghan trade associations have previously matched costs for equipment upgrades. Nevertheless, the project should also budget for support with this outlay.

5.2.6 Trading costs of conventional sundried raisins from the farm gate to EU delivery have been calculated as $535/t (Roots of Peace have put this cost as $725-$760). Compared with this, purchase prices quoted by importers in the UK have been in the order of $1,050/t. The difference between these two prices should be adequate to interest traders to supply non-organic raisin.

Box 5.1 Example of trader costs for export raisin enterprises: Kabul, to Indian, Russian and German markets (Haji M Hassan, 22/01/06)

Haji Hassan is one of the largest dried fruit traders in Kabul, and red sundried raisins from Kodaman province are his main quality raisin product. He buys at 57c/kg from the farmer (cash on collection), and outlays $35/t for processing costs (sorting, de-stoning and washing). His biggest losses are at grading out, with 35% loss for raisins (20% for almonds). Export quality licences are obtained from the Export Promotion Association at $14/t. Overland transport form Kabul to Peshawar costs $71/t, and one 19' container Peshawar-Germany $3,200 (a 40' container costs $4,200).
Hassan sells red raisins at 90c-$1/kg. Other raisin products sell for:
- Good quality, hand sorted $1.90/kg
- Green, round $2.05/kg (to German market)
- Black seedless $1.50/kg
- Green $4/kg

(Quality apricots sell at $1.45 - $1.75 including transport to Europe).

5.3 Components of an organic export plan

5.3.1 It is clear, based on an analysis of the information, that several crucial components need to be addressed in order to create and sustain an organic export initiative from southern Afghanistan. These components are addressed individually in this section.

5.3.2 Key staff training

- Need to increase knowledge on sustainable growing techniques, organic export processes, participatory methodologies.
- Need to identify key, long-term staff for local project co-ordination (from MC Kandahar office, MAAHF research/extension, RoP, local NGOs such as VARA or ADA)
- Key staff training at regional organic centre e.g. India
- In-country training and sensitisation of larger group on organic standards and processes, including processors, traders, MAAHF.

5.3.3 Developing trade linkages

- Need guaranteed market to incentivise farmers to convert, to build confidence and to advise on quality/specification requirements.
- Support visit by UK traders for conventional as well as organic/Fair Trade production.
- Follow-up Fair Trade technical visit from FLO.

5.3.4 Improving processing quality

- Evaluate sample products in the UK
- Follow up on ALP processing assessment of Kandahar region
- Need for processor experimentation with quality grades on existing equipment
- Need for farmer experimentation with drying techniques (field and Kismish khanas)
- Advice from visiting UK traders.
- Identification of equipment required to meet quality standards.

5.3.5 Development of organic certification

- List and map 10-20 participating farmers.
- Agree to no agrochemical use and sign individual agreements with date
- Record applications and follow conversion plan.
- Register producer group with certification body, and organise pre-inspection.
- Coordinate 2 further years' inspection.
- Organise final inspection/certification.

5.3.6 Sustainable agriculture extension

- Establish farmer agro-ecological field school.
- Promote participatory on-farm experimentation
- Complement with on-station trials.
- Introduce economic and livelihood evaluations.

5.3.7 Development of project continuation

- Need for sufficient funds to undertake pilot conversion project, to cover, for example, annual inspection and certification costs, and monitor/evaluate wider benefits on food security and environment.
- Need to ensure stakeholders' commitment through a longer-term project.
- Need to be aware that the development of an Afghan organic sector will in the future require: development of national level certification programme, national organic standards, national organic working group and independent organic institution.

6.0 NEXT STEPS : PROJECT PHASE 3, May-Dec 2006

6.1 Phase 3 Terms of Reference

6.1.1 The original TOR for Phase 3 of the project, from May – Dec 2006, was as follows:

- Continued technical overseeing of conversion of two farmers' groups to organic.
- Monitoring and evaluation of conversion.
- Final report based on findings, on the potential for organic production and export in Afghanistan.
- Continued training for MC and Ministry of Agriculture staff.

6.1.2 At the end of the technical field visit, the main parameters and concerns are:

- duration insufficient to establish full conversion process given the current low levels of capacity
- remaining budget of $9,300 insufficient to support conversion
- wary of raising farmers' expectations
- next steps depend on the extent of MC/HDRA consultants' input
- should it be stand-alone in case additional funds unobtainable?

6.2 Three scenarios discussed

6.2.1 On the final day of the field visit, 1st February, a feedback and debriefing session with MC Kabul staff discussed the major outcomes of the trip and options for the future direction of the project. These options, or scenarios, were based on the understanding that currently no additional funds had been raised to go ahead with a full organic conversion process, and that any activities would have to fall within the existing budget of $9,300.

SCENARIO 1 – little HDRA input

- subsidise visit by traders.
- pay initial costs of conversion/certification process (to end of year 1)
- key staff training
- establish farmer field school.

But uncertainty of subsequent funding.

SENARIO 2 – little MC input

- subsidise visit by traders.
- develop follow-on project proposal.
- UK follow-up of Fair Trade options and processing requirements.

But little practical impact.

SCENARIO 3 – the middle way?

- subsidise visit by traders.
- undertake some training on sustainable agriculture production.
- assist development of follow-on funding proposal.
- some UK follow-up of Fair Trade options and processing requirements.

6.2.2 After much fruitful discussion, MC confirmed their confidence in raising sufficient extra funds to go ahead with the pilot organic conversion and export plan. It was not, however, in the remit of the project to tackle the development of national-level organic infrastructure such as organic standards. Potential funding sources for project continuation include the following:

- Fairtrade Labelling Organisation (FLO) Producer Business Unit
- EU in-country funds which are currently undersubscribed (contact: Edward Auer)
- CIDA – looking to fund integrated projects
- DFID – not possible directly, but through MRRD, World Bank or CIDA
- Aga Khan Rural Support Programme – previously funded Tropical Wholefoods fair-trade initiative in Gilgit, Pakistan.
- ALP – for improving processing equipment?
- Matching funds from UK/Afghan traders.

6.3 Phase 3: Commencement of organic conversion

6.3.1 In view of the above, it is recommended to go ahead with a pilot-scale organic conversion process, and to continue developing mechanisms for a Fair Trade conversion.

6.3.2 A programme for developing a certified organic group of farmers is outlined below. This incorporates the key components of an organic export plan as listed in 5.2 above. Crucial initial activities are to: 1) identify local project coordinator and team, 2) identify and register farmers, and 3) enable buyer's / pre-organic inspector's visit.

6.3.3 There will be a number of practices that farmers will need to follow and this will need some assistance from Mercy Corps staff :-

- Signed documents for each farmer including a farm map showing the location of the vineyard.
- All activities within the vineyard are recorded and dated (no GM intercrops planted, e.g. wheat).
- An internal control system that includes a programme for adopting organic practices is planned, discussed with the farmers and put into practice.

6.3.4 The date of registration of farmers as converting to organic is important. Under organic certification standards, perennial crops require to be grown for 3 years under organic conditions before organic status is achieved. However, a reduction of one year in this process is possible if farmers are registered, their land mapped out in an identifiable way, and they confirm not to have applied agrochemicals throughout the most recent growing season. Farmers will need to sign a document that they will not apply prohibited products to their vineyards and will allow their vineyards to be mapped. The production area should be well defined and not simply part of a field. The existence of formal land ownership documents would assist, but otherwise a simple map and description showing the boundaries. In this way the visiting inspector can

approve backdating of the conversion period to the date of registration (or of the start of the season) and not to the date of his/her visit.

6.3.5 The Soil Association, a UK-based organic certification body, have an Indian based accreditation body which would be well placed to undertake field certification (the Swiss based FiBL organic certification body are linked with Indocert under a similar arrangement). This would bring annual inspection costs down, although the final certification would still require to be undertaken by the Soil Association (or other UK certification body acceptable to the importers).

6.3.6 Tentative programme (assumes MC ability to obtain extra funds)

When	**Who**	**Action**	**Estimate costs required**
Jun-Jul 06	Producers, traders, MAAHF extension, MC Kandahar, HDRA backup.	• Identify key, motivated local coordinator to run with the pilot conversion plan (suggestions: from MAAHF extension office, or junior at MC Kandahar) • Identify 10-20 producers who don't use agrochems. (to supply minimum 120t organic raisins, minimum 10 producers to qualify for cheaper group certification) • Producers able to confirm that they have not applied chemicals during this season of 2006 (preferable but not obligatory, though whole group needs to be at same starting point). • List and map producers. • Agree to follow specific organic farming practices from now on, and identify simple soil improvement techniques to apply instead. • Coordinator to record their applications and follow outline plan developed in collaboration with HDRA. • Identify demonstration producer and needs. • Identify research experimental plot.	Assume MC covers local costs. HDRA 5 days $1,750
Jun-Jul 06	HDRA	• Liaise with UK buyers (and possibly FLO) to come on board. • Identify accredited pre-inspector from India/Sri Lanka.	3 days $1,050
Jul 06	Soil Assoc.	Register producer group (official conversion starts on registration date).	$2,074

Aug-Oct 06	Buyer visit to Kandahar	Link with producer group, talks contract for current and future crops, build confidence, assess processing needs required for equipment upgrade to meet their specifications.	$4,000
Aug 06	Organic inspector (India/Sri Lanka/Thailand)	Pre-inspection. Develop and confirm full 2-3 year conversion plan. Provide basic training on organic processes and procedures to farmer group & co-ordinator.	$3,500
Jul-Dec 06	Local project coordinator, farmers, HDRA backup	• Collect data and follow conversion plan. • Coordinator training course overseas. • Implement on-farm demonstration plot. • Introduce alternative techniques. • Basic improvement of factory/pack-house (assumes major improvements will require separate funds)	Overseas training course $4000 Basic factory improvement £5000 Demonstration materials $500 HDRA 4 days $1,400.
Oct 06	Producers	Harvest of conversion crop - 1st sale to UK buyer?	Contingency support $500.
Approx. total costs of Phase 3 to end of project Dec 2006			$23,774

6.3.7 There is every confidence that UK traders will come on board this year. In April 2006, three of the main traders were contacted again and 2 expressed enthusiasm to remain involved. One, Tropical Wholefoods, reiterated the following offer:

- Provision of assistance to local Afghan farmer business in setting up an export-grade factory / packhouse with all the required systems and as part of a whole business plan,
- Creation of market for the finished fruit: interest to purchase conventional during the conversion process, and assist with conversion to fair trade; also interest in standard produce and also novel such as green raisins, mulberry, dried watermelon.
- Need for their early involvement to be underwritten by project funding, on standard project day & expenses rates, with agreement that their participation will become self-funding at the point where trade reaches a key cut-off point.

6.3.8 Note that other major components of the organic export plan need to be addressed from 2007 onward as per those listed in section 5.2. These include continuation of the conversion process, improvement of existing processing facilities, further development of training and experimentation on sustainable agriculture and organic approaches, and continued development of trade linkages including Fair Trade.

APPENDIX I: Summary of Phase 1 Report

- Currently no certified organic production or organic standards/ regulation in Afghanistan.
- Worldwide: 130 countries, 24 million ha land (880,000ha in Asia) certified organic production.
- Global market: $10 billion 1997; $26 billion 2004.
- Main markets: USA ($13 billion), Europe ($8 billion) (esp. UK & Germany), Japan.
- Main organic production: US (raisins, almonds), Turkey (raisins, apricots), Spain (almonds), India (walnuts).
- Afghan produce has traditionally aimed at lower quality markets e.g. India.
- "Watani" produce – local equivalent?
- Certified organic agriculture:
- production standards govern what can and cannot be done by farmers
- inspection to ensure compliance
- certification of procedure as organic
- award of symbol as a consumer guarantee
- Standards cover farming practices, land management, processes in the chain between farmer and consumer, manufacturing.
- Inspection and certification from IFOAM accredited body in importing country (can use regional accredited inspectors e.g. Thailand, Japan, China).
- Individual or group certification (internal control systems).
- 3 year conversion process, can be reduced by up to 1 year.
- Costs of certification (based on Soil Association figures): Individual $595 (£320), group $2,291 (£1,190), inspection fee+expenses $483 (£260)/day.
- Fair trade: allows access to international markets, additional producer benefits, social and environmental criteria, one international standard-setting body - FLO (2 generic standards: for small farmers' organisations and for hired labour), market doubling every year.
- Fairtrade in Afghanistan: possible to combine with organic or stand-alone, certification process faster and premium currently higher, dependent on grassroots democratic processes.
- Fair Trade small producer certification fees: Application fee $2,860 (EUR 2,250), certification $2,543 (EUR 2,000), processing installation $253 (EUR 200), annual renewal inspection $ 2,003 (EUR 1,575).

APPENDIX II: Phase 2 Terms of Reference

Phase 2 (June 2005 – May 2006)

- Recommendations of crops which would be most suited for organic export.
- Recommendations for creating linkages between producers and export markets.
- The conducting of any necessary tests or research to provide the requisite information to fulfil the above.
- Recommendations on the economic scale of organic operation required for profitability, and formation of appropriate farmers' groups etc.
- Technical overseeing of conversion of at least two farmers' groups to organic (Subject to additional Mercy Corps funding).
- Basic organic sensitisation training for MC and Ministry of Agriculture staff on organic farming and conversion.

APPENDIX III: Basic specifications for dried raisins, Western Commodities

Product Specification

Western Commodities Ltd.
Aller Barton Commercial Unit, Stoneyford, Cullompton, Devon EX151QQ
Tel : 0044 (0) 1884 839 710 Fax : 0044 (0) 1884 839 711
email : qa@westcomfoods.com

Reference: CADG AFGHAN RED
Reissue Date : 18/12/2002

Prepared for .....

Description	Natural Red Undipped Sun Dried Raisins
Country of Origin	Afghanistan
Colour	Characteristic Dark Red/Brown
Size	300 - 340 berries per 100 gr +/- 5%
Allowances for defects	Glass, metal, wood and other foreign bodies : nil Shrivelled, damaged berries <1 % by count Sugared fruit < 1 % by weight pre April, less than 3% by weight April/September Seeded fruit <1%
Stones > 2 mm	Target Nil. Maximum 3 per metric tonne
Grit < 2 mm	Target Nil. Maximum 3 per metric tonne
Stalks	>15 mm target nil max 1 per carton > 4 mm maximum 2 per carton
Capstems	Maximum 4 per 100 gr loose/attached
Flavour/Texture	Palatable characteristic flavour without taint or bad odours. Free from fermentation. Firm, chewy, free flowing.
Additives	Lightly dressed with GMO free vegetable oil (e.g. TPY, or NG500 Durkex) Product to be free from S02
Moisture	> 13% < 16 %
Packaging	12.5 kg net weights at point of delivery in cardboard cartons free from metal staples with inner blue unperforated poly liner
Marks	Product description, lot number
Shelf Life	12 months from date of packing subject to storage conditions (not marked on cartons)
Infestation	Nil evidence of infestation, nil live infestation. Free from evidence of rodent/bird contamination/activity (including outer cartons)
General	Fruit to undergo a combination of double washing and triple static picking in order to remove all foreign bodies, stones, stalks etc in order to achieve specification parameters/tolerances. Product to be fumigated with Methyl Bromide prior to shipment.
Metal Detection	All product to be metal detected to 2.5 mm ferrous/2.5 mm non ferrous prior to packing.
Quality Assurance	Four cartons per tonne to be static table inspected during production. Results to be written in English showing clearly levels of stones, grit, stalks and other foreign matter found. Document to accompany shipping advice.
Microbiological	Total Viable Count < 5,000 per gram Yeasts & Moulds < 500 per gram Total Coliforms < 100 per gram Escherichis Coli Absent in 10 grams Salmonella Absent in 25 grams Inorganic Bromide 50 ppm Aflatoxin nil detectable
Certification	Fumigation prior to shipment, So2 (nil), QC/positive release document
Warranty	Product shall comply fully with the requirements of the Food Safety Act 1990 and any subsequent revisions and any other relevant European legislation applicable in the U.K.

Prepared by and signed for and on behalf of Western Commodities Limited

For and on behalf of CADG

W.A. Stoker

Technical Director

Position

APPENDIX IV: Pomegranate Processing: list of regional equipment manufacturers (India, from ITDG)

Company name and address	Equipment	Details
Eastend Engineering Company 173/1 Gopal Lal Thakur Road, Calcutta 700 035 India. Tel: 91 33 577 3416 / 6324 Fax: 91 33 556 6710/160	Screw type Juice Extractor	Capacity 25 - 100 kg/hour
	Pulper	Capacity 100 - 2000 kg/hour
Gardners Corporation 6 Doctors Lane, Near Gole Market, PO Box 299, New Delhi – 110001, India Tel: +91 11 334 4287 / 336 3640 Fax: +91 11 371 7179	Pulper	Pulpers and Juicers for Fruit and Vegetables. Capacity: 0.5 ton/hour. Power: Electric
Narangs Corporation P-25, Connaught Place, New Delhi - 110 001, India Tel: +91 11 336 3547 Fax: +91 11 374 6705	Hand Screw Basket Press	This press has a steel frame, wooden tray and basket and it extracts juice from soft fruits.
	Coil Type Juice Extractor	This extractor has an aluminium juicing head with a stainless steel sieve. Fruit Capacity: 750-2000 oranges/hour. Power: Electric.
	Tomato and Grape Crusher / Fruit and Vegetable Presses	This machine will crush tomatoes and other soft fruits. The hopper is suitable for hand or pulley drive.
Dairy Udyog C-230, Ghatkopar Industrial Estate, L.B.S. Marg, Ghatkopar (West), Bombay - 400 086, India. Tel: +91 22 517 1636 / 517 1960 Fax: +91 22 517 0878 Email: jipun@vsnl.com	Milk Bottles and Bottling Equipment	Batch steriliser having a capacity of 50 bottles per batch and fitted with pressure gauge, safety valve, release valve and temperature gauge. Power: Electric.
	Sealing and Filling Machines. Liquid Fillers	Semi automatic machine for packing liquids such as milk, oil, ghee etc. in pillow packs. It is automatically operated. Capacity: 300 pack/hour. Power: Electric.
	Fruit Pulper/ Siever / Sieves	Used for the extraction of juice or pulp from fruit. Complete with feed chute, removable stainless steel perforated screen, rotary paddle with blades and collecting tray below. Power: Electric.
	SemiAutomatic Sack Weigher	For weighing sacks of 10-100 kgs.

APPENDIX V: Technical field visit objectives and main activities

Main objectives

1. To identify and mobilise stakeholders

2. To inform relevant stakeholders on the project and provide training on export-oriented organic (and fair trade) agriculture in specific tree crops.

3. To gather primary information to verify the theoretical feasibility of export organic production, and identify relevant opportunities and constraints of such.

4. Dependent on the outcome of 3, to put in place resources and training to initiate pilot project.

Main activities

i) Meet Mercy Corps team. Discuss information required, which MC can gather. Undertake brief stakeholder analysis. Set out conditions required for successful operation (eg. volumes, consistency, reliable processing operator).

ii) Meetings Kabul: identify current business operations and support for this UK, ascertain conventional chain for export fruit crops. Visit: Embassy Commercial section, Roots of Peace, Afghan business sector, other potential investors/donors, Ministry (incl. Raisin and Other Dried Fruit Export Promotion).

iii) Meet stakeholders in/able to travel to Kabul from Kandahar, including local farmers reps., processors, village leaders, wholesalers.

iv) Run stakeholder workshop on the concepts and potential of organic agriculture. To include definition of organic agriculture, implications for environment and food security, links with 'watani' produce, income potential, global market situation, certification process, fair trade, identification of opportunities and challenges.

v) With key stakeholders, discuss and develop pilot production and processing plan. Analyse current cropping systems and factors necessary for conversion. Identify suitable processing facilities (and changes required for organic processing) with orchard back-up and/or wholesalers. Identify suitable demonstration and training farm site, and knowledge levels and further training needs of farmers, MC staff and other key stakeholders. Ascertain volumes achievable and consistency. Gather product samples. Identify reliable field co-ordinator.

vi) Develop project plan and discuss with key stakeholders.

Field team: Alan Chubb, Julia Wright (10 field days+travel, 2.5 days preparation)

APPENDIX VI: Field Visit Itinerary 20 Jan – 03 Feb 2006

Date	Place	Whom/what
Fri 20 Jan	Lon-Delhi	Flight BA0143, 20:40 – 10:30
Sat 21 Jan	Del-Kabul	Flight IC843, 11:55 - 12:55 (delayed, arrival 14:30) PM: Visit to MC office with Geof Dolman, met with Penelope Anderson Programme Officer MC.
Sun 22 Jan	Kabul	AM: Met with Michael Bowers, Director MC, Dr Foushanji and Dr Ayatullah, Security Officers MC. MC Office discussion with Deran Thomas Garabedian, Afghanistan Competitiveness Project, On the Frontier. PM: Discussion with Deran and Haji A.M. Hassan, independent trader.
Mon 23 Jan	Kabul	AM: Visit to MAAHF. Met with: Mohammad Sharif, First Deputy Minister Dr M Aziz Osmanzai, Head Agricultural Research Institute (ARIA) Akbar Zad, DG Planning Dr Fasal, DG Extension. PM: Stakeholder identification.
Tue 24 Jan	Kabul	AM: Visit British Embassy, Geoff Patton, 2nd Secretary Pol/Mil/Economic. PM: Visit Roots of Peace, Zach Lean, Jean-Pierre Detry. MC Office discussion with Farid Ahmad, Development Officer, Embassy of Canada.
Wed 25 Jan	Kabul	AM: Develop workplan for Kandahar. PM:Visit Azarakhsh Hafizi Chairman, Hamidullah Farooqi Chief Executive, Haji Mir Azam Noor, Board member & Head Dried Fruit, Afghanistan International Chamber of Commerce.
Thu 26 Jan	Kabul-Kandahar	Flight 08:30 – 10:00 AM: Met with Atiqullah Khan, MC Kandahar Field Office. Visit to Aminullah Aziz MAAHF Dept. Extension, and Mohammad Ramanullah, Director Agricultural Co-ops. PM: Visit Mohammad Mohsin, CADG
Fri 27 Jan	Kandahar	AM: Met with Haji Samad Barak, MC RARE Project Manager, based in Lashkar Gah. PM: Guest house writing up report.
Sat 28 Jan	Kandahar	AM: MC office discuss with Haji Muhammad Wali and Abdullah Haj, local dried fruit traders. PM: Visit to Haji Wali's dried fruit packing factory, city outskirts. Discussion with assorted farmers, workers, traders.

Sun 29 Jan	Kandahar	AM: MC office Workshop and lunch. 19 participants (13 recorded). PM: review of workshop. MC guesthouse met with Edwin Hayashi, consultant ALP.
Mon 30 Jan	Kandahar-Kabul	Flight 09:30 – 15:30 via Herat. Met with Christina Lamb, Sunday Times Senior Correspondent International Affairs.
Tue 31 Jan	Kabul	AM: Visit dried fruit and nut market with Dr Foushanji. Visit Roots of Peace. PM: Visit Anthea Kerr, Livelihoods Advisor, DFID.
Wed 01 Feb	Kabul	AM: MC office prepare for debriefing workshop. PM: MC Debriefing Workshop for M Bowers, P Anderson, G Dolman, Dr Foushanji, new MC Director.
Thu 02 Feb	Kabul-Delhi	Flight IC844, 14:05 – 16:15
Fri 03 Feb	Delhi-Lon	Flight BA0142, 03:23 – 07:35

APPENDIX VII: Contact Addresses, Kabul and Kandahar

Contacts Kabul

Name	Address	Contact numbers
Afghanistan International Chamber of Commerce (AICC) Hamidullah Farooqi, Chief Executive Azarakhsh Hafizi, Chairman. Haji Mir Azam Noor, Board member & head dried fruit.	House no 91, Str 2, Shash Darak, Kabul	HF: 070281615, 079195655 Hamidullahfarooqi@yahoo.com AH: 070007777, 079014493 chairmanaicc@yahoo.com AN: 070275209, 0202102941 Azamimpex_c_ltd@yahoo.com
British Embassy Geoff Patton, 2nd Secretary Pol/Mil/Economic	15th St Roundabout Wazir Akbar Khan, PO Box 334 Kabul	0202952306 mob 079004244 FTN 84042306 (fax 2274) Geoff.patton@fco.gov.uk
DFID Anthea Kerr, Livelihoods Advisor	German Club Street Shahr-e-Naw Kabul	Mob 93 (0) 70038572 a.kerr@dfid.gov.uk
Embassy of Canada Farid Ahmad, Development Officer,	House 256, Street 15, WAK/Maison 256, rue 15, WAK	Office phone (93) 0799742863 Cell 0799349863 Farid.Ahmad@international.gc.ca www.international.gc.ca
Haji A. M. Hassan Independent trader		079 9328363
Ministry of Agriculture, Animal Husbandry and Food MAAHF. Mohammad Sharif, First Deputy Minister	-	0202500314, 0202301627 mob 070286677 mob 079545208 sharif_moal_affg@yahoo.com
Dr M Aziz Osmanzai, Head of Agricultural Research Institute (ARIA), MAAHF	Islamic Republic of Afghanistan. PO Box 5291.	mob 93 (0) 70207045 or 79314802 aosmanzai@yahoo.com
Akbar Zad, DG Planning, MAAHF		
On The Frontier Afghanistan Competitiveness Project, Deran Thomas Garabedian	House 7, Lane B, Street 10, Wazir Akbar Khan, Kabul	079297911 dgarabedian@otfgroup.com
Roots of Peace Zach Lea, Chief of Party. Jean-Pierre Detry, Lead Extension Advisor. Guy Ewald, Marketing and Development. Peer Muhammad, Marketing Manager. Mohammad Gul, Market Center Manager.	Karte Char Road, near Technique bus stop, Karte Char, Kabul	ZL: 079403246 zach@rootsofpeace.org JPD: 079183542 Jean-pierre@rootsofpeace.org GE: 079183541 guy@rootsofpeace.org MG: mob 079454271 mgulk@yahoo.com PM: 070247600 Peer_ahmadzai@yahoo.com www.rootsofpeace.org
Sunday Times Magazine Christina Lamb, Senior Foreign Affairs		07785 316992 Christina_lamb@hotmail.com

Contacts Kandahar

Name	Address	Contact details
Abdullah Haj, head Kandahar Dried Fruit Association	-	
CADG, Mohd Mohsin, agricultural coordinator	-	
Edwin M Hayashi Food Processing Consultant (Kandahar), ALP	Engineering Design Services, 440 West Fallbrook #105 Fresno, California 93711	559 4323638
Mercy Corps Office Atiqullah Khan Haji Samad Barak (Lashkar Gah)	-	
Ministry of Agriculture, Aminullah Aziz, Head Extension Mohammad Ramanullah, Director Agricultural Cooperatives, Kandahar Province	-	
Muhammad Wali, dried fruit trader	-	
Workshop participants: Haji Najeebullah, landlord Haji Khan Aqa, landlord Haji Jumagul, landlord Din Mohammad, landlord Prof. Sayeed Mohamamd Kabir, Dean Faculty of Agriculture. Salahuddin, FAO representative M Lal Seed, MC Allauddiin, MC S Mohd mohsin, CADG agricultural coordinator Abdullah Amin, MC Acting head of office H Rahmatullarlleh, CADG Aminullah Aziz, OIC, Agricultural dept Kandahar province Azzatulah, Dept Extension	-	

APPENDIX VIII: Summary of Kandahar Workshop, Sunday 29th January 2006, 10.30 am to 2pm

A workshop was called at Mercy Corps offices in Kandahar, with MC staff inviting key stakeholders to attend. The aim was to raise awareness on the project and on organic agriculture, to stimulate discussion on the potential for organic export from the region, its benefits and challenges, and to identify individuals interested to participate in a pilot scale project.

Nineteen participants attended the workshop, with fifteen recording their names.

Number	Name	Role
1.	Haji Najeebullah	Landlord
2.	Prof. Sayeed Mohammad Kabir	Dean, Faculty of Agriculture
3.	Salahuddin	FAO representative
4.	Mohammad Lal-Seed	Mercy Corps
5.	Allunddin	Mercy Corps
6.	Mohdmohsin	CADG Agricultural Coordinator
7.	Abdullah Amin	Acting head of office, Mercy Corps
8.	H. Rahmatullullah	CADG
9.	Aminullah Aziz	OIC, Agri-Dept, Kandahar Province
10.	Azzatullah	Dept. Extension-Agriculture
11.	Haji Khan Aqa	Landlord
12.	Haji Jumagul	Landlord
13.	Haji Mohammad	Landlord
14.	Attiqullah Khan	Mercy Corps Kandahar
15	Haji Samad Barak	Mercy Corps Lashkar Gah

Attiqullah Khan introduced the workshop and the organic feasibility project. He also served as translator, first for Julia Wright who then gave an overview of the history of organic agriculture, its principles and concepts and links with 'watani' produce, and the development of organic certification. Alan Chubb went on to provide details of the UK importers, their specifications and purchasing prices. Participants were then drawn into discussion over production and processing methods for raisins and the changes that would be necessary for organic production.

Alan Chubb addressing workshop participants

Participants raised some concerns over:

- the need for Afghan agriculture to industrialise in order to feed its population,
- the risk of organic production techniques and lack of knowledge on the same,
- the risk of being rejected by a foreign certifier after 2-3 years of conversion.

However, they agreed that the necessary investment in new technologies could be met by the premium of organic products.

The group identified some needs:

- good leadership and clear policies
- learning and training on organic standards

All participants expressed interest to be involved in a pilot scale initiative.

Workshop lunch with participants, at Mercy Corps office Kandahar

After lunch, Alan Chubb held a smaller meeting with the producer participants ("landlords") on the feasibility of specific husbandry techniques.

APPENDIX IX: Outline of current farming practices within the grape growing areas of Kandahar

Agronomic inputs

A simple questionnaire was worked through with the head of Mercy Corps Agriculture in Khandahar, with 3 local farmers and separately with a group of farmers, traders and government officials gathered together at the Mercy Corps Offices in Kandahar. This information was verified with and further information obtained from the Head of Extension for Roots of Peace. This information is summarised below.

Table IX.i General agronomic data

Crop	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Wheat						H	H				S	S
Poppy				H	H				S	S		
Cotton				S						H		
Maize				S					H			
Alfafa				C						S		
Clover*				H						S	S	S
Pomegranate					Fl				H			
Apricot				Fl			H?					
Almond			Fl						H			
Grape					Fl			H	H			

S – sowing H – harvesting Fl – flowering C – up to 8 cuttings over 2 years
* probably berseem clover (*Trifolium alexandrinum)*

Labour

There are times when there is a labour shortage, thus effecting both labour availability and hire rates, e.g. during April with the poppy harvest and the wheat/maize/cotton sowing and alfafa cutting. Some families group together to assist in harvesting each others' crops.

Sharecropping is common, with differing rates charged to the sharecropper according to the crop. The sharecropper is normally a local person known in the community. 30% is paid to the landowner if poppy is grown (plus the 'scratchers' charge 20-25% of the crop as well as $3/day labour), 20% for cotton, maize and grapes and 33% for water melon.

Cattle

Traditionally smallholders kept a small numbers of cows for milking, although with civil disturbances and the recent drought the number of families with cows has dropped. Alfafa and clovers are grown in fields and as an understory crop within apricot and pomegranate orchards. The green matter is cut and carried by hand to the family compound where the cows are zero-grazed. Farmers were not aware of the full benefits of leguminous crops and did not plant them within the vineyards. Manure was used for soil application although current was used more as fuel after drying.

Grapes

- Are traditionally grown on mud walls at an approximate spacing of 1.5-2m x 3.5m (approx 1600vines/ha)
- Are grown from cuttings with no rootstocks being used.
- Some of the larger vineyard owners do apply fertiliser obtained from local sources, with little guidance over application rates and the timing of applications.
- Poppies are grown within the vineyards which can complicate the management programme but shows that intercrops such as clovers are a practical option.
- There is a standard 'community levy' charged to all farmers of 10% of the crop which is donated to the local mullah.

Pruning/trellising

- Vines are grown on a multiple cordon system with pruning undertaken twice a year. The summer pruning entails breaking off by hand the leading shoots of each bearing spur to curtail excessive vegetative growth. Labour input 10mdays/ha.
- The winter pruning involves the removing of all shoots that have borne fruit. As no visits to the field were possible, it is not clear if prunings are all removed from the vineyard (for crop hygiene reasons). This is sometimes carried out by hired labour at $256/ha (higher price paid for skilled labour).
- Labour input for winter pruning 64 mdays/ha.
- Roots of Peace are experimenting with a standard trellising of vineyards that will raise the vines off the soil floor, leading to better aeration and sunlight. However the cost (estimated $2,000/ha) of this is only viable on new plantings as it is not practical to install within the existing mud wall traditional layout. It may be economically feasible for the higher priced fresh table fruit market.

Yields

- It was hard to get definitive yield data from the farmers. Those quoted range from 9-15 kg/vine (14.4t-24t/ha). The Ministry of Agriculture Master Strategy plan gives an average yield at the lower end of this range. Roots of Peace consider 24t/ha to be the minimum economic yield for fresh grapes.
- A mid range yield of 19t/ha has been used in the production costing outlined below.

Harvesting

- Harvesting is carried out by family members if the vineyard is small. Otherwise labour is hired in gangs.
- For the harvesting and transfer to the drying ground, labour input has been put at 4.2 mdays/t (80 mdays/ha for an average crop of 19t) at a cost of from $320-$720/ha depending on labour availability.
- To hang, dry and sort grapes in kishmish khanas, an additional 8.3 mdays/t or $50/t grapes is required.

Pests and diseases

- Powdery mildew was quoted by all farmers as being the main problem, although microdeficiency problems were also quoted as being observed. A recent outbreak of what is apparently anthracnose (verified by Roots of Peace extensionist) was of concern to the growers interviewed.
- Control measures are only occasionally applied. Sulphur is the main fungicide used, and lime sulphur as made by the farmers themselves (1 part sulphur to 9 parts lime) is also applied against powdery mildew. 2 applications can be applied although farmers were unsure about the importance of timing and quantities used.
- Recent progress has been made by Roots of Peace with the introduction of dust applicators instead of the traditional method of using a powder-filled sock that is tapped around close to the leaves. Copper sulphate is also used.
- Labour inputs 20mdays/ha.

Fertilisers

- Only the larger growers/landowners will apply fertiliser, and specifically those involved with fresh grape production as encouraged by Roots of Peace.
- Urea ($0.45/kg) and Di-ammonium Phosphate (DAP) ($0.64/kg) are used and bought locally. The importance of application rates and timings are not fully understood.
- DAP is applied at a rate of 0.5kg/vine (800kg/ha) although rates of up to 3kg/vine (4800kg/ha) were quoted. DAP is applied within a hole dug alongside each vine during the winter weeding round.
- Urea is applied at 250g/vine (400kg/ha) after flowering. Some foliar fertilisers were quoted as being used although no details were obtained. Fertiliser costs can be up to 36% of the total farm budget.
- Labour inputs 60 mdays/ha.

Weeding

- 2-3 weeding rounds/yr are commonly carried out.
- In January the main weeding round is undertaken that includes the clearing out of the irrigation furrow/channel with a spade with the excavated soil being applied to the mud wall and around the lower vine trunks. Green matter is carried back to the house for cattle fodder.
- A second weeding round is carried out in April and a further weeding round sometimes is carried out during the course of the summer.
- Hired labour is sometimes used at a rate of $4/day and weeding can be up to 30% of the total farm budget, otherwise labour input 250-300mdays/ha.

Table IX.ii Summary of inputs for smallholder

Activity	**No. mdays/ha**	**Cost**
Weeding	275	Family labour
Fertilising	-	-
Harvesting (sundried)	80	Family labour
Pest and disease control	20	$100 (for materials)
Pruning summer winter	10 64	Family labour Family labour
sun drying	95	Family labour
Total	**544**	**$100**

Table IX.iii Summary of inputs for larger grower

Activity	**No. mdays/ha**	**Cost**
Weeding	275	$ 825
Fertilising Materials	65	$ 195 $ 728
Harvesting	101	$ 404
Pest and disease control	20	$ 60 (inc materials)
Pruning summer Winter	10 64	$ 30 $ 256
Kishmish drying	199	$ 797
Total	**734**	**$ 3295**

APPENDIX X: Estimate costs and returns of organic production

Costs to produce organically

It is hard to accurately specify at this stage what added costs a farmer would incur if he was to adopt organic practices. In this situation, where a minimal input system is being followed, only a small change would be anticipated at first, and these extra inputs should, over the first 2 seasons, result in a consequent increase in yields. The establishment of a green manure within the vine rows at a cost of 50mdays/ha plus an extra 50mdays/ha for weeding/pruning and 20 mdays/ha for pest and disease control should be considered.

Thus a total extra cost in the region of 120mdays or $480 would be expected which would be offset by a yield increase of approximately 2t/ha or 10%.

The administrative costs, including visiting inspection, certification charges, local administration, would be in the order of $3,000/yr and international aid assistance should be sought to cover these charges until full certification is achieved and organic premiums are obtainable.

Producer returns and marketing

Most grapes are dried by the farmers themselves in the field or shade dried in kishmish khanas (traditional mud-walled drying houses) and sold to traders or their agents. Factory processing (washing, de-stoning and sorting) is normally contracted out by the traders who then undertake the transport and international sales of the processed raisins. Details of the costs for each of these stages were obtained from a number of traders both in Kandahar and Kabul.

Roots of Peace have undertaken some trial export sales through different outlets and have also investigated the fresh grape export market. Their figures are also outlined below.

There are 4 main qualities of raisins/grapes that are traded:

1. Sundried red raisin
2. Green Kishmish raisin
3. A small, round, green grape variety
4. A black grape with seed variety

It is only the first 2 that are to be considered for organic export at this stage.

Table X.i Farm gate prices (source Obaidullah Khan, Mercy Corps Kandahar)

Producer Name	Type of raisin	Quality grade & price (Price/Mt in USD $)		
		1st	2nd	3rd
Abdul Baqi	Sun dried	266	253	235
	Kishmish	1111	888	666
Habibullah	Sun dried	266	244	231
	Kishmish	1044	933	666

A number of prices were also obtained from other traders
Dried Fruit consortium Kabul $570/t sundried
Roots of Peace $418-530/t sundried
CADG $205/t sundried $260/t kishmish

For the purposes here, the average 2nd grade prices for kishmish and sundried raisins supplied by Abdul Baqi and Habibullah are used. (2nd grade prices are used as a worse case scenario; it would be hard to estimate at the moment the percentage of crop that could be graded as premium.)

Two scenarios are considered: a smallholder using family labour and a larger trader who uses hired labour (although some family labour may be used).

Returns/ha for a smallholder
Grape yield of 19t/ha at a drying ratio of 4:1 produces a yield of 4.75t raisins
Average price/t for second quality Kishmish raisins $911
Average price/t for second quality Sundried raisins $249

Table Xii Returns to smallholder of kishmish and sundried raisins

kishmish:sun-dried ratio	$ kishmish	$ sundried	$ costs	$ 10% community levy (after costs deducted)	$ return/ha	$ return/ manday	$ returns/ ton grapes
Assuming 90%:10% split	$3895	$118	100	391	3522	$6.47	185
Assuming 0%:100% spilt	-	1182	100	108	974	$1.79	51

Returns/ha for a large holder
Grape yield of 24t/ha at a drying ratio of 4 produces a yield of 6t raisins
Average price/t for second quality Kishmish raisins $911
Average price/t for second quality Sundried raisins $249

Table Xiii Returns to larger holder of kishmish and sundried raisins

kishmish:sun-dried ratio	$ kishmish	$ sundried	$ costs	$ 10% community levy (after costs deducted)	$ return/ha	$ return/ manday	$ returns/ ton grapes
Assuming 90%:10% split	4919	149	3295	177	1596	2.17	66.5
Assuming 0%:100% spilt	-	1494	2498	-	-1004	-1.88	-42

Comments
Production of kishmish raisins by smallholders is very profitable as long as adequate family labour is available. The simple production of sundried raisins is also worthwhile and gives a return that is similar to the local labour rates. However if a producer relies solely on hired labour then he must produce for the fresh grape and kishmish market if his investment in labour is to be profitable. The encouragement of this type of producer will be dependant on the development of the infrastructure for the fresh market.

APPENDIX XI: Current trade prices

Trading

Producers sell their produce to middlemen as soon after drying as possible as they need the cash. The middlemen then hold the produce in store until selling on to a trader. The trader will then contract processing factories to sort, wash and de-stone sundried and green raisins ($24/t for 2 washes - DFC Kabul pay $35/t for 2 washes de-stoning and sorting) before exporting. The traders suffer a 30-35% grading out loss at this stage, although the out-grades are sold at lower prices.

Export Prices

A Kabul trader H M Hassam quoted transport costs from Peshawar to Germany, 40t container for $4,200, or 20t container for $3,200. Transport from Kabul to Peshawar $71/t.

Table XI.i Trading costs for export market for 2nd grade sundried raisins/t (HDRA information)

Item	$/t
Purchase from producer (avoiding middlemen)	$249
Cost 2 washes and sorting	$ 35
Grade-out loss (say 30% as local sales for lower grade)	$ 75
Cost transport to Kabul	$ 71
Cost of transport to EU	$105
Total	$535

Table XI.ii Sales prices quoted from other sources

Source	Product	Price	Market
DFC Kabul	Quality sundried raisins	$1900	EU
DFC Kabul	2nd quality sundried raisins	$1500	EU
DFC Kabul	Green Kishmish raisins	$4000	EU
Roots of Peace	Red raisins (3rd quality?)	$950-1050	Moscow
Roots of Peace	Red raisins (3rd quality?)	$610-750	Pakistan
Roots of Peace	Red raisins (3rd quality?)	$650-680	India
Roots of Peace	Green Kishmish raisins	$1111	India
Roots of Peace	Green Kishmish raisins	$2450	Germany

Value chain of red raisins Kandahar to Russia (source RoP)

farm gate price	$ 530/t
Kabul processor	$ 130/t
transport to Russia	$100/t
auction price	$1050/t

Value chain of red raisins Kandahar to Karachi

farmgate	$418
Transport to processor	$14.50
Processor costs	$210.20
Transport to Chaman	$17.50
Transport to Karachi	$65
Total auction price of raisins	$750

APPENDIX XII: Suggested themes for field trials and demonstrations

Research recommendations to be conducted in locality:

- Improvement of traditional drying houses (kishmish khanas)
- drying rack technology
- use of potassium carbonate
- use of polytunnels (out of season) – may be too humid
- soil fertility – green manures, mulches (selection of types, timing, irrigation)
  - other soil improvers eg. Compost tea
- improving water systems incl. Rainwater harvesting
- improvement of stock (nurseries, varieties)
- soil and leaf testing on annual basis
- economic analysis of production and processing
- growing management techniques (pruning, trellis systems, intensification etc)
- pest and disease control – availability of organic solutions
- Impact on: food security, the whole farm system, local community, income levels, environment, gender roles

APPENDIX XIII: List of potential legumes/green manures for use in Kandahar region

The choice of cover crops or green manures depends on a range of criteria viz. climate, growth habit, fodder requirements and soil management requirements. Ideally in Kandahar, a cover crop/green manure for grape production is one that has the following characteristics:

- Drought resistance – annual rainfall of 155mm but with intermittent irrigation during 5 summer months.
- Tolerant of a wide temperature range 35^{o}C to-5^{o}C.
- Preferably perennial or self seeding annual – self seeding annuals will need to be cut back in late spring after seed set to permit seed dispersal but also to prevent competition with the vines.
- Nitrogen fixing.
- Spreading – not climbing.
- Annual legumes could be used for summer intercropping with some irrigation and grown as a fodder or cash crop.

As a guide for selecting cover crop options for vineyards in Kandahar, the characteristics for alfafa (*Medicago sativa*) and berseem clover (*Trifolium alexandrium*) can be taken as a guide, as these legumes are widely planted within local orchards. Their characteristics include drought tolerance, ease of establishment with minor weeding needed, grow in low fertility soils, produce good fodder allowing up to 10-12 cuts (for alfafa), have a spreading growth habit, are biennial/perennial, have high N fixing ability, ideal pH of 6.2-7.8 and are tolerant of waterlogging (poor irrigation).
Ref:
http://www.fao.org/documents/show_cdr.asp?url_file=/docrep/005/x7660e/x7660e0c.htm

The role of green manures needs to be reviewed within the existing farm cropping and traditional vineyard management systems, as part of the organic approach. The option of growing fodder or annual cash crops as well as perennial green manures will need to be discussed with farmers to see how they can be incorporated into the farming system and then trialled in the field.

Listed below are a selection of options in addition to alfafa and berseem clover that should fulfil the local conditions and should be investigated on trial plots and within farmers vineyards to assess their suitability. This list is not definitive and other legumes, especially regional ones, may also be suitable.

Persian clover (*Trifolium resupinatum*)
An annual clover for Mediterranean climates native to Turkey, Afghanistan, Portugal, Greece, Iran, and Iraq. There are two groups of Persian clovers: hard-seeded types (*Trifolium resupinatum var. resupinatum*) which are self-seeding clovers for use in pastures and cover crops; and soft-seeded types (*Trifolium resupinatum var. majus*) used more for annual cover crop mixes that are ploughed into the soil or short-term rotations that require annual reseeding. This cover crop has excellent seedling vigour,

grows and blooms over a long period of time, and tolerates water-logged soils once it has germinated. It is an attractive plant, with lavender to pink coloured flowers, and deep green foliage. In California, two cultivars are available for planting. 'Nitro' belongs to the hard-seeded Persian clover group, and is suited for self-reseeding annual cover crop swards. It grows taller than subterranean clover, and later into the growing season. 'Lightning' is a soft-seeded Persian clover, and must be seeded annually. It is taller in stature than Nitro and is well-suited as a nitrogen builder for vineyard soils. It can be planted with small grains such as triticale, and is competitive in mixed annual cover crop swards. Persian clover seeds are quite small, and should be seeded at the rate of 10 lbs per acre. It is aromatic, and attracts many beneficial insects. Ref: http://www.agric.nsw.gov.au/reader/5487

Subterranean Clover *(Trifolium subterraneum)*: Commonly used leguminous cover crop for no-till vineyard cover cropping systems! Does well in acid soils. Low growing and self-reseeding, this cover crop produces moderate amounts of nitrogen and biomass. Grows mostly when grapevines are dormant, so it is not a big competitor for soil moisture.

Centrosema pascuorum – gives good quality fodder and good N fixing – is commonly used within plantations.

Macroptillium atropurpureum* or *lathyriodes - gives good quality fodder and good N fixing and good ground cover– is more used within pastures.

Vicia villosa - gives good quality fodder and good N fixing – is commonly used within plantations.

Arachis hypogea – common groundnut that is grown widely in S. Afghanistan which could be incorporated into a rotation within the vineyard rows as a cash crop.

Vigna unguicalata – cowpea that could be used in the same way as groundnuts. It has good high temperature, waterlogging and drought tolerance and is a good N fixer. It also frees P and K into the soil and loosens compacted soils.

Arachis pintoi – perennial and good ground cover, reasonable N fixing ability but uncertain tolerance of low winter temperatures.

TERMS AND ACRONYMS

Acronyms

AICC	Afghan International Chamber of Commerce
AISA	Afghanistan Investment Support Agency
ALP	Alternative Livelihoods Programme
CADG	Central Asian Development Group
CIDA	Canadian International Development Agency
DFC	Dried Fruit Consortium Kabul
DFID	Department for International Development
DNMA	Dried Nut Merchants Association Kandahar
FAO	Food and Agriculture Organisation
FLO	Fairtrade Labelling Organisation
FOB	Freight on Board
FYM	Farmyard manure
GTZ	Gesellschaft fur Technische Zusammenarbeit
IFOAM	International Federation of Organic Agricultural Movements
ITDG	Intermediate Technology Development Group
MAAHF	Ministry of Agriculture, Animal Health and Food
MRRD	Ministry of Rural Rehabilitation and Development
NGO	Non Governmental Organisation
OTF	On The Frontier
RAMP	Rebuilding Agricultural Markets Programme
ROP	Roots of Peace
RRP	Recommended Retail Price

Terms

Fair trade	Producer organisations that supply fair trade products receive a minimum price that covers the cost of sustainable production and an extra premium that is invested in social or economic development projects. Products displaying the fair trade mark must meet international Fairtrade standards, which are set by the Fairtrade Labelling Organisations International (FLO).
Kishmish raisins	Traditional, shade-dried green raisins
kishmish khanas	Traditional, mud-walled, raisin drying houses
organic farming	A holistic production management system which promotes and enhances agroecosystem health, including biodiversity, biological cycles, and soil biological activity. It emphasises the use of management practices in preference to the use of off-farm inputs, taking into account that regional conditions require locally adapted systems. This is accomplished by using, where possible, agronomic, biological and mechanical methods, as opposed to using synthetic materials, to fulfil any specific function within the system.