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Analysis of the Walnut Value Chain in the Kyrgyz Republic

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The Rapid Market Appraisal (RMA) team would like to thank Mr. Rysbek Akenshaev, Head of Department of the Jalal-Abad Provincial State Department for Forestry and Ecology, for his assistance in setting up survey arrangements, and also to Mr. Orazaly Erimbetov, Head of Toskool-Ata leskhoz, for making all the local arrangements for training and local survey activities. In particular, the RMA team would like to acknowledge all the market participants who gave their time to answer questions. These include walnut leaseholders, forestry representatives, government agencies, NGOs, projects, exporters and processors, collectors, traders, and other private sector participants.

From a review of documents on walnut production and marketing, it appears that this may be one of the first reports on the walnut value chain in southern Kyrgyz Republic. As a result, much of the data could not be validated with other sources.

Finally, the researchers are grateful to Mr. Andrew Mitchell, Senior Forestry Specialist for Europe and the Central Asia region, World Bank in Washington, for his support and positive encouragement with study activities. Acknowledgment is also due to the Director of the Rural Development Fund (RDF), Mrs. Jyldyz Tabaldieva for her assistance in facilitating the study. The study team members included the following personnel:

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ABBREVIATIONS AND TERMS

AEMDP	Agro-enterprise and Market Development Process (CIAT)
CFM	Collaborative forest management
CIAT	International Center for Tropical Agriculture
CIS	Commonwealth of Independent States (former U.S.S.R.)
EUREP-GAP	Good Agricultural Practices of Europe
FAO	Food and Agriculture Organization
FINCA	Micro-credit company
GLOBAL GAP	Good Agricultural Practices in the Global arena (formerly EUREP-GAP)
Goslesfund	State forest fund
HACCP	Hazard Analysis and Critical Control Points
JAS	Japanese Organic Standard
KIRFOR	Kyrgyz–Swiss Forestry Support Program
Leskhoz	State-owned forest farm
NOP	Natural Organic Products (United States)
NTFP	Non-timber forest product
Oblast	Province
OJSC Kyrgyzstan	Open Joint Stock Company Commercial Bank Kyrgyzstan
RDF	Rural Development Fund
RMA	Rapid market appraisal
soms	Kyrgyz som (currency)
USAID	United States Agency for International Development
VAT	Value-added tax
WTO	World Trade Organization

EXECUTIVE SUMMARY

This analysis was prepared by Willie Bournei, an international value chain and marketing specialist, as background documentation for an overall study on The Development Potential of Forests in the Kyrgyz Republic. It presents findings from a rapid appraisal and field study of the walnut value chain in Jalal-Abad province between March 28 and April 1, 2011. Thereafter, the Rural Development Fund research team devoted considerable time and effort to checking data and producing graphs and market maps for the report. The report was revised at the end of September 2011 following comments from stakeholders.

The study methodology used was based on an Agro-enterprise and Market Development Process developed by the International Center for Tropical Agriculture (CIAT). The data analysis and structure was based on a Market and Value Chain Framework developed by the United States Agency for International Development (USAID). The study work began in walnut forest areas of the Toskool-Ata leskhoz (upstream); then surveys were undertaken of key walnut (in-shell) and kernel wholesale, retail, and export markets (downstream) to understand the actors in the supply chain, their functions, and value added. A review is made of support sectors (finance, cross-cutting, and sector support) government policies, and the legal framework and finally a review is made of global trade arrangements with the Kyrgyz Republic and the ability of Kyrgyz producers and entrepreneurs to apply bioorganic standards for product differentiation to compete more fully in overseas markets.

WALNUT FORESTS AND MANAGEMENT

The natural walnut–fruit forests in the Fergana and Chatkal mountain ridges of the Tien Shan mountain system are unique in the world. The main species of walnut is Juglans Regia. The actual area of walnut forests has been debated over the past 100 years. In 1989, the area was estimated at 28,279 hectares. In 2008, it was estimated between 33,400 and 43,800 hectares. The economic value of walnut forests is extremely high, including important soil and water protection, valuable “burl” timber, and recognized health and nutritional benefits of walnuts. Walnut production varies considerably, with many climatic factors influencing yields. It is very likely that estimates of peak production yields in exceptional years (of 3,200 tonnes) are underestimates. Custom data for walnut and kernel exports in 2010 show that yields may be more than double this figure.

Since 1990, the Kyrgyz Republic has transition from a centrally planned forest management system to a collaborative forest management system. Forest lease arrangements were legalized through the approval of Decree No. 482 in 2007. The legislation hopes to improve local ownership of walnut forests, leading to more sustainable forest management. A single leaseholder can lease up to 5 hectares for an initial period of 5 years, later extended to 50 years. Cash or labor maybe exchanged

as a form of lease payment to the leskhoz (state forest enterprise) instead of a share of the walnut harvest. There is still concern regarding access issues, lack of investment in the forestry sector, and little or no emphasis on market development for leaseholders.

Of particular concern, Decree of the President of the Kyrgyz Republic No. 331 (2006) imposed a moratorium on cutting wild walnut trees, even diseased limbs, with the aim of curbing rapid deforestation. Offenders would be subject to serious fines or imprisonment, if caught. The result is that walnut trees do not receive proper care and maintenance to trim broken or diseased branches, which are left to rot. This policy may inadvertently cause a decrease in the stock of walnut trees as older trees become diseased and die off quicker than anticipated.

UPSTREAM PRODUCER FINDINGS

The study reviewed production and marketing conditions in the pilot Toskool-Ata leskhoz. A large proportion of income for middle- to high-income families is derived from livestock farming, with the remainder from pistachio and walnut leases. The poorest households have little or no livestock. The sales of walnuts provide these households a significant source of cash income.

Post-harvest facilities at the leskhoz for cleaning, drying, and storage are very dilapidated. Many farmers sell walnuts wet, immediately after harvest, losing an opportunity to store or process them later into kernels, but getting compensation for heavy walnuts, even when the price is low (30-35 Kyrgyz soms per kilogram). Many farmers need to sell immediately due to debt.

Economic analysis of gross margins taken from a sample of three leaseholders farming different areas of walnuts for the 2011 harvest showed wide-ranging net income, between som 10,000 and 15,500. Much depended on the area leased (0.5 to 3 hectares), age of trees, and management. Gross margin per labor day was perhaps a more reliable indicator, as each leaseholder would receive between som 450 and 550 per day worked, mainly harvesting.

The main market outlet is Massy market. Leaseholders transport goods there and sell directly to traders, or collectors from Massy come to buy in the villages. Leaseholders lack market information and are unable to negotiate with collectors. The poorest leaseholders sell immediately due to cash shortages and therefore miss the opportunity to store and sell later at higher prices. Poorer households, especially women, could gain income in winter months when there is less to do, if they cracked walnuts to sell the kernels, but leaseholders do not process or “crack” any walnuts.

Peak annual production recorded in the Toskool-Ata leskhoz in the past six seasons was in 2008/9 (100 tonnes). The lowest was in 2005/6 (20 tonnes). Other years were between 70 and 90 tonnes. The highest prices per season since 2005/6 have almost doubled from som 50 to 90 per kilogram. There was a sharp dip in farm gate prices in 2009 (som 40/kg) due to a drop in demand from exporters purchasing kernels from other countries.

Seasonal farm gate prices in 2010/11 increased from som 30/kg in September to a peak of som 100–105/kg in March and April. Sales from Toskool-Ata peaked in January (20 tonnes).

DOWNSTREAM MARKET CHAIN

1. Market chain: The walnut and kernel value chain is both large and complex, engaging many actors. These include collectors, traders, walnut crackers, processors, exporters, retailers, and a limited number of manufactures for cakes and confectionery (see figure 23, summary map).

The walnut and kernel market chain generates a significant amount of employment, especially for poor households and women. It is estimated that there are between 3,000 to 5,000 poor people employed in Bazaar Korgon to crack walnuts (many may be migrants, but this is not confirmed). Jalal-Abad has 1,000 walnut crackers. Some 20 medium to large companies employ teams of women to process and grade kernels ready for export. Some 400–500 collectors and traders supply and sell walnuts and kernels during the high season in Massy, Bazaar Korgon, and Jalal-Abad wholesale markets. It is estimated that 8,000–10,000 people may be employed in the downstream walnut and kernel value chain in the high season (between September and December) in years of good harvests.

Walnuts from Toskool-Ata and Achy leskhozes are supplied through Massy market. Jai-Terek leskhoz sells its own walnuts through the small Jai-Terek walnut market in Bazaar Korgon. The products from eight other leskhozes, some of which are major producers (e.g., Kara-Alma leskhoz), are sent directly to Bazaar Korgon, and Jalal-Abad walnut wholesale markets.

Most of the walnuts in wholesale markets are purchased by walnut crackers, who crack the nuts and sell the kernels in the kernel wholesale markets in Bazaar Korgon and Jalal-Abad. The majority of kernels are purchased by exporters for further processing, grading, and export, mainly to Turkey, Iran, Iraq, and Syria. Some walnuts are sent for illegal cracking to Uzbekistan, where labor is cheaper. Exactly how many tonnes is unknown, but it could be 10 percent of the total crop. The kernels produced are probably exported as Uzbek products, not Kyrgyz.

Kernels and some walnuts are sent from Jalal-Abad to retailers in Bishkek at Osh Bazaar market. There are very few Kyrgyz walnut products in Bishkek supermarkets. It is estimated that 75 percent of the walnuts sold in Massy wholesale market are stored for resale later or transported to Bazaar Korgon or Jalal-Abad for sale. There are only 15 traders who buy and sell both walnuts and kernels.
The Bazaar Korgon wholesale market is the largest in Jalal-Abad province, with more than 300 traders in the high season. The market facilities are considered poor and access roads are dilapidated and in need of repair. The design of the Bazaar Korgon market does not facilitate easy vehicle access in and out of the covered area.

The Jalal-Abad market is smaller than the Bazaar Korgon market, with about 100 traders engaged in walnut marketing and 65 traders buying and selling kernels in the high season. Market conditions are basic, with most traders exposed to the harsh winter weather conditions.

2. Walnut supply, demand, and price trends: An attempt was made during this rapid assessment to quantify wholesale market volumes for both the season and long-term trends. However, given the

complexity and size of the markets and the short survey duration, it was not possible to obtain reasonable estimates in some cases.

Walnut production is highly variable. The supply in markets was exceptional in the 2008 season and poor in 2006. Demand was generally good, except in the 2009 season, when exporters purchased elsewhere. The wholesale price of walnuts almost doubled from 2005/6 to 2010/2011, from som 60/kg to som 110/kg. The mark-up by traders in different markets is som 5/kg. Grade A walnuts are larger and have a higher percentage crack-out rate than grades B and C. Supply in the high-season months, October and November, is significantly higher than the low season. The majority of walnuts are cracked to make kernels for export.

3. Kernel supply, demand, and price trends: Most recent years reported strong demand, except 2009. The demand for kernels in the 2010/11 season was very robust. Prices have increased dramatically since the 2005/6 season, when the best price for kernels jumped from about som 130/kg to som 335/kg. Kernels sold to traders by walnut crackers were 40 percent grade A, 20 percent B mixed, 20 percent C mixed, 10 percent D dark/reddish pieces, and 10 percent E black small bits. Wholesale prices closely reflected different grades, from a peak of som 325/kg for grade A butterfly to som 20/kg for grade E. Obtaining meaningful estimates for seasonal volumes of kernels traded at Bazar-Korgon or Jalal-Abad markets proved difficult. The Massy market is not important for kernel trading.

4. Walnut and kernel retailing: Traditionally, consumers shop in bazaars in the main cities of Bishkek, Osh, and Jalal-Abad, although the market share for retail is starting to shift slowly toward shopping malls and supermarkets (30 percent in Bishkek). In the Jalal-Abad Garden Pavilion area in the bazaar, 22 tonnes of kitchen grade kernels are sold each year with a peak between September and December, when kernels are cheaper. Walnuts and kernels are easily stored, so many consumers purchase a lot at cheaper prices to consume over time, rather than purchasing as a daily necessity.
In Osh market in Bishkek, the main bazaar, there are 50 or so regular vendors, 5–6 medium and 45 small. Mark-ups on buy and sell prices are about som 25/kg. Medium-sized traders source walnuts and kernels directly from Jalal-Abad and sell them wholesale in the market. Walnut sales in the 2010/11 season are estimated at about 9 tonnes with peaks in the high season. The volume of kernels sold is estimated at 71 tonnes between August 2010 and July 2011. Volumes are slightly higher between August and December (more than 6 tonnes per month) compared with 5 tonnes in other months. Retail prices in the Bishkek market are significantly higher than the wholesale price (som 325/kg) between March and July, retailing at about som 400/kg.

A review of walnut and kernel products on sale in major supermarkets chains revealed that only a few processed products were available, which indicates that consumers mainly shop for walnuts or kernels in retail bazaars; there is limited growth or diversification of manufactured walnut products for domestic consumption. The opportunity to exploit a niche market for particular products aimed at middle- or high income-groups is not being developed. No organic products for kernels were offered.

5. Walnut and kernel processing and export: There are 20 medium to large kernel exporters, 4 of which are based in Bishkek. These companies purchase high volumes at Bazar-Korgon and Jalal-Abad wholesale markets, grade and pack them for export in 22-tonne containers sent to Turkey and

Iran via Uzbekistan, Tajikistan, Turkmenistan, and Iran. A couple of companies help exporters to process documentation for $2,000 per shipment.

Great opportunity exists to develop a processing base to add value to local walnut kernels through the manufacture of processed foods as walnut oil, kernel and honey mix, vacuum-packed kernels, beer nuts, etc. In spite of having access to good-quality wild and, if certified, organic raw materials, it has proved difficult to gain access to export markets for processed walnut products. Lack of support services and local suppliers severely restrict the growth of the manufacturing base.

6. Economic analysis of margins by different actors:

The margins and return on investment were assessed in the report.

Storage: Sensitivity analysis was undertaken for the scenario of selling walnuts "wet" immediately after harvest compared with storage and sale after 60 or 90 days, factoring in assumptions related to weight loss (25 percent) and increased prices over time. The 90-day scenario showed an increase in profit of som 1,400 per 100 kilograms stored, equivalent to a 40 percent return on investment. This was considered more than sufficient to cover the 7.5–9 percent interest payment for the three-month period (assuming the person borrowed to finance his investment). As walnut and kernel prices increase each month to a peak in February and March, the "storage to sell later" option is an attractive investment.

Walnut cracking: It is most common, in the walnut cracking business, for people to buy walnuts one day, crack them, and return kernels to the market the next day. Crack-out rates were better in the high season (45–50 percent) than in the low (35–45 percent) because walnuts are easier to crack when they are relatively fresh. A team of six persons could crack 35 kilograms of walnuts in September as compared with 10 kilograms in March or April when the nuts are dryer and tougher. The daily income per person was calculated together with assumptions on crack-out rates, walnut and kernel prices by month. A walnut cracker could earn som 200 per day in the high season compared with som 25–45 per day in the low season. All cracking is done by hand.

Collector/traders: A small collector using a small secondhand car traveling from Massy to Toskool-Ata villages, may earn som 4,750 from one trip to collect 400 kilograms of walnuts. This is about a 12 percent return on an investment of som 35,100 to buy walnuts and fuel, which is considered a reasonable mark up. Large collectors, who collect 2–3 tonnes of walnuts, transport them, and sell them at wholesale markets, have a similar return on investment of 10–12 percent, which is considered a competitive return on the service provided.

Exporter margins: An assessment of returns on capital invested per container exported was calculated for kernels purchased in the 2010 high season compared with kernels purchased during the 2011 low season. With an export price of $7/kg for 22 tonnes of grade A butterfly kernels sold f.o.b. (free on board) from Jalal-Abad, the margin (excluding fixed costs) for one container exported was $33,900 in the high season (26 percent return on investment of $130,000) compared with $3,360 in the low season (2 percent return on investment of $160,600).

The most critical variable on margins gained is the cost of the purchase of kernels from the wholesale market as kernel prices gradually increase from som 150–200 in the high season to som 240–325 per kilogram in the low season, when kernels are in shorter supply. Points worthy of note are:
Mark-up and value added by most actors along the walnut and kernel chain are reasonable, for the service that is provided.

Margins are better during the high season than the low season (low volumes, poorer quality, demand is less, prices are significantly higher, and crack-out rates are worse).

Exporters are able to benefit the most of all market chain participants, in terms of value added, particularly in the high season, if they are able to purchase high volumes of kernel at prices lower than the export price of $7/kg (or som 315/kg). Assuming kernels purchased between January and April are also exported at that time, margins may be slim.

In order to redistribute the economic benefits from the exporters, who may be considered wealthier actors, to the poorer participants along the chain (leaseholders, collectors, walnut crackers), the poor must be given better access to short-term microfinance facilities, so that they too can purchase walnuts and kernels to store for sale later at a higher price.

7. Official export figures: The volume of walnuts exported is generally less than the volume of kernels exported. For the years 2006, 2007, 2010, and 2011 the volume of walnuts was between 7 and 12 percent of the total volume of kernels exported. There was a big increase in the ratio in 2008 (23 percent) and 2009 (32 percent). Prices in soms of exported walnuts have gradually increased over the years, influenced to some degree by the depreciation of the som. In 2006, US$1 was worth about som 38, but in 2010 it was valued at about som 47 – a depreciation of approximately 25 percent.
Of significance, the recorded value per kilogram of kernels and walnuts sold that exporters declared to the customs office is highly undervalued. The current export price is between $5 and $7/kg but the declared value by exporters was $1.47/kg. Because each container is subject to a 1 percent income tax of the whole value, one can only assume that the Inland Revenue is losing a lot of tax revenue as a result.

The main countries importing Kyrgyz walnuts are Iran, Turkey, China, and Iraq. The main kernel markets are Iran, Turkey, Iraq, and Syria.

8. Government support for business development: The political unrest and ethnic violence that erupted in June 2010 in the major southern Kyrgyz Republic cities of Osh and Jalal-Abad, between ethnic Kyrgyz and Uzbek people, have affected the investment environment. All of the walnut export companies interviewed in Jalal-Abad provided evidence that the ethnic troubles had caused overseas buyers to cancel orders. Orders have picked up recently, though.

Since independence in the early 1990s, legislation has centered on the liberalization from state ownership to the development of a more market-driven economy. More recent legislation has started to promote good business development practices through business promotion, increased consumer protection, and support for small business development.

Although the provincial government has ongoing programs for economic development in its 2010–2014 plan, there are no special programs developed and implemented to address ethnic tensions and economic fallout following recent events. Apart from a small Food and Agriculture Organization (FAO)-funded project focusing on production technologies, there are no other special support projects for non-timber forest products (NTFPs) from the fruit-nut forests of Jalal-Abad. The Provincial Chamber of Commerce tries to assist with business promotion, but it is severely constrained by funds.

It takes the Jalal-Abad customs office two to three days to process a container, which may be considered slow. However, if the exporter pays the customs office 0.3 percent of total value instead of the normal 0.15 percent as a service charge, then paperwork may be processed in one day. The Bishkek customs office is apparently more efficient, as the volume of containers going through the border is much higher, so delays are not tolerated. Seventy percent of kernel shipments go through the Osh border crossing.

In terms of governance, the competitiveness of the kernel export industry is undermined by coercion and corruption. The result is that transaction costs of exporters are forced higher, which ultimately has an effect on profits and the competitiveness of the Kyrgyz Republic walnut products in the global market.

Labor costs in Uzbekistan are 50 percent cheaper than in the Kyrgyz Republic. It was estimated that 10 percent of the walnuts harvested in Jalal-Abad are smuggled across to Uzbekistan for cracking. It is not known if the kernels are re-imported, but more likely, they are exported as Uzbekistan produce. Export policies between Uzbekistan and the Kyrgyz Republic need review.

9. Support industries and services: Studies show that there are very few companies and firms engaged in providing support services to the walnut industry. Almost all products important to support food processing and manufacturing of Kyrgyz kernels are imported from Bishkek or from overseas. There is no particular firm or company in Jalal-Abad that provides equipment for the nut industry. Most processors and exporters want to further develop walnut products, but are seriously constrained by the lack of support services. It is almost impossible, for example, to have simple supplies like boxes made to specification in Jalal-Abad in the quantity, quality, and timeframe required. This makes processing and value added of kernels expensive and noncompetitive in the global market.

Many processors and manufactures in Jalal-Abad find it difficult to secure markets for their goods. Market promotion and development of entrepreneurial skills should be strengthened, to help potential businesses effectively find markets for their products.

Technical services to assist the export industry in terms of certification for conformity, hygiene, phytosanitary, and other documents are adequate, but improvements could be made in government facilities and timeliness.

The Kyrgyz Republic is exporting the value added out of the country. Produce exported out of the country is being repackaged or sold as the produce of another country. White kernels produced in the Kyrgyz Republic are highly admired the world over. Without further processing into vacuum-packed bags, directly targeting end-consumers in import countries, and labeled as a product of the Kyrgyz Republic, the national identity of wild Kyrgyz walnuts in a sense is lost.

10. Microfinance and access to credit for the poor: Inadequate access to affordable loans is a key constraint for many poor leaseholders, collectors, traders, and walnut crackers to develop their business. Many participants in the value chain are simply not bankable, or cannot afford the interest rates, or lack assets needed to secure the loan. Three finance institutions were reviewed representing state, commercial, and microfinanceinstitutions. The state bank lacked capital and resources; the micro-credit company FINCA has great potential to assist with short-term lending to women, but will not consider a loan term shorter than three months. Only the Open Joint Stock Company (OJSC) bank offered a "sprint capital" scheme for 10 days to 6 months, but at high interest (4 percent per month). Linking poor walnut value chain participants in *leskhoz* and urban areas to affordable short-term credit is deemed critical. How to do so should be examined.

GLOBAL ENABLING ENVIRONMENT

A review was made of the factors that influence global trade and policies of the Kyrgyz Republic (World Trade Organization (WTO), Free Trade Agreements, Good Agricultural Practices of Europe, Hazard Analysis and Critical Control Points (HACCP), organic certification, and fair trade). In the early 1990s, the Commonwealth of Independent States countries formulated a Free Trade Agreement for zero import tariffs, which although never signed has been followed. The Kyrgyz Republic joined the WTO in 1998.

Some progress was made for the certification of Kyrgyz products using organic/bio standards for walnut products, this but has proved difficult to sustain. Certification for organically produced products from different countries (e.g., International Federation of Organic Agriculture Movements, Natural Organic Products, International Organic Accreditation Service, and Japanese Organic Standard) applies slightly different standards that are both rigorous and demanding. Gaining certification is complicated, which is why this practice is not well developed yet in the Kyrgyz Republic. The Bio Service Foundation, an organization based in Jalal-Abad since 2003 established by a Helvetes project, has investigated the potential of certifying walnut products. It has to check varieties, forest areas, and calibration of products. Other problems include dust, drying on pavements, washing standards, cracking methods (cleanliness and hygiene, as well as criteria related to underage workers), and HACCP standards. Gaining organic certification brings many benefits. A review of walnut products in the United Kingdom that compared the prices of organic and non-organic walnuts demonstrated a mark-up of 169 percent.

FINAL CONCLUSIONS AND RECOMMENDATIONS

Survey findings have shown that improvements to the efficiency of the walnut value chain in Jalal-Abad could improve the income and livelihoods of many participants, increase employment through value added, and increase the national gross domestic product through exports. Regional economic growth, if equitably distributed, could also serve to reduce ethnic tensions and division. Support to improve the efficiency of value chains of walnuts and other NTFPs would also help to promote sustainable walnut-fruit forestry management practices, currently under threat from increased population pressure, deforestation, and livestock farming.

A number of specific conclusions and recommendations are given in this report. It is now recommended that these findings are shared with a broad group of stakeholders to discuss possible solutions to overcome constraints and improve the flow of benefits to value chain participants.

I STUDY INTRODUCTION AND METHODOLOGY

1. INTRODUCTION

1.1 BACKGROUND

A study on forests and rural livelihoods in the Kyrgyz Republic, to analyze structural and institutional hindrances to maximizing the benefits that forest resources provide to poor rural communities, was identified in February 2009.1 The Program on Forests (PROFOR) project is funded by the World Bank and implemented by the Rural Development Fund (RDF).

Under Track 2 of the project, a market assessment survey is undertaken in order to identify key constraints and opportunities in the current institutional governance and access situations related to value chains for walnuts and other non-timber forest products (NTFP).

Findings and recommendations, generated through information-sharing exercises at community, provincial, and national levels, can serve as a platform for future studies and activities to improve the efficiency and effectiveness of the market chain. In the process, government and nongovernment organization (NGO) staff would be trained to undertake rapid market assessments and use market information to benefit the livelihoods of poor marginalized households in remote areas reliant on NTFPs.

This rapid market appraisal (RMA) for walnuts was undertaken in Jalal-Abad province in late March 2011 by a small team composed of leskhoz staff, local farmers, and RDF staff assisted by a national and international value chain and market specialists.

The objective of the study was to understand the marketing of walnuts within the region in order to provide essential market-related information to assist decision making to improve the efficiency of the walnut market and value chain.

1.2 METHODOLOGY

Two training courses were developed and delivered. One was held in Bishkek for RDF staff March 22–23 and one was held in the Toskool-Ata *leskhoz* office March 25–26 for staff from the *leskhoz*, Provincial Department of Forestry and Ecology, and local farmers.[2] Three of the five trainees were further deployed to assist the RMA team.

The RMA study team used survey tools developed in an Agro-enterprise and Market Development Process (AEMD)[3] to understand the different actors in a market chain, their functions, and their interrelationships. These include farmers, collectors, traders, wholesalers, processors, exporters, and retailers. The RMA survey team then collected different market-related parameters, including:

What is demanded by each actor in the market chain

[1] See the PROFOR paper, "Forests and Rural Livelihoods in the Kyrgyz Republic - Development Potentials," February 5, 2009.
[2] See Report 2: Training Completion Report for details.
[3] See Connell, J.G. & Pathammavong, O. 2006. Starting an Agro-Enterprise Development Process, Field Facilitator's Guide supported by CIAT Asia Regional Office and the National Agriculture and Forestry Research Institute (NAFRI), Ministry of Agriculture and Forestry, Lao PDR

Type of product, condition, and price
Seasonal supply, demand, and price
Regional supply conditions (products imported from different countries or provinces)
Support services required by the product for efficient marketing

Detailed methodology and forms used for the RMA survey are given in Annex A.1. More details on approaches used are given in Report 2: Walnut Value Chain Study Methodology.

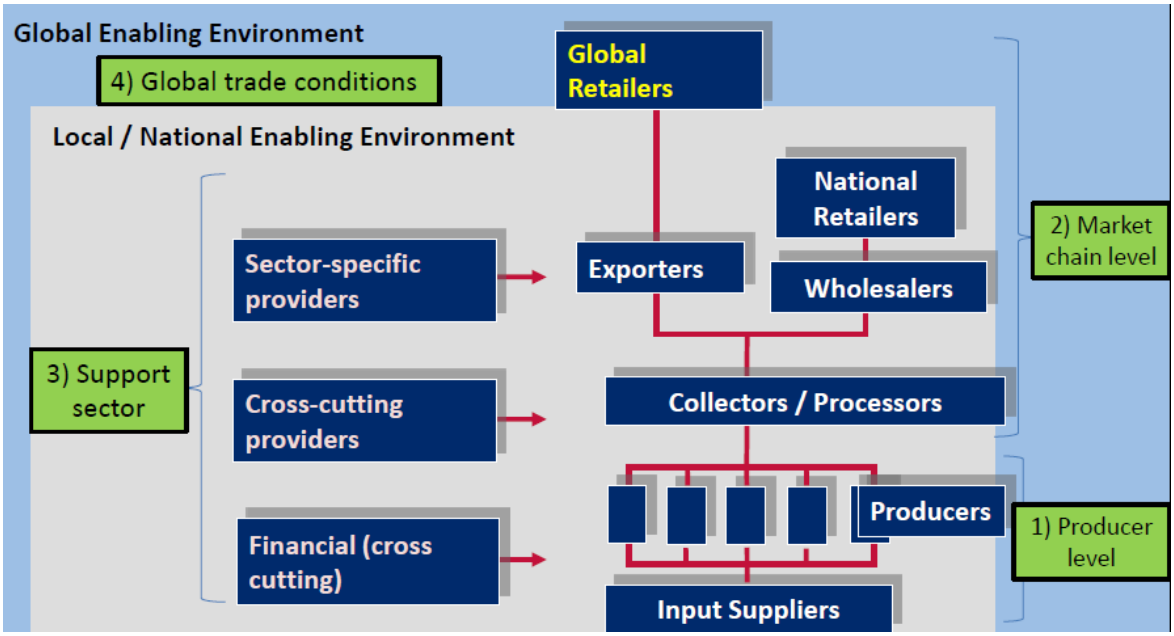
1.3 DATA ANALYSIS WITHIN A MARKET AND VALUE CHAIN FRAMEWORK

In this report, data are analyzed within a Market and Value Chain Framework[4] developed by the United States Agency for International Development (USAID). The importance of value chain analysis is to understand the participants in the subsector, the structure and function of their relationships, and the factors influencing the competitiveness of the industry. The framework depicted in figure 1 identifies four broad areas of intervention on two levels:

Level 1: The Local/National Enabling Environment (points 1, 2, and 3) that governs conditions existing and influenced within country.

Level 2: The Global Enabling Environment (point 4) that includes external or global factors that influence in-country market and value chain development.

Figure 1 The Market and Value Chain Framework



Source: "Globalization & the Small Firm: A Value Chain Approach to Economic Growth with Poverty Reduction," USAID.

Level 1: Local/National Enabling Environment

The national enabling environment affects all firms in the value chain in that country, including the support markets. It includes the regulatory and legal framework and laws that are enacted and implemented. Policies may vary at the

[4] Adapted from "Globalization & the Small Firm: A Value Chain Approach to Economic Growth with Poverty Reduction," USAID publication.

national and regional or local levels and can affect ways governments work with the private sector or attract investment. This environment also includes property rights, duties, tariffs, business licensing, monetary and fiscal policies (both national and local), and public infrastructure to enhance market efficiency (quality, appropriate, and strategically placed infrastructure like markets, roads, communications, etc.).

Good governance and transparency in legal and policy implementation and service provision are vital for efficient value chains. Corruption adds costs and reduces competitiveness of firms in global markets (both domestic and export markets) and affects the ability to cover costs at a local level. All these factors influence to some degree the efficiency of a value chain at the local and national levels.

Within the national enabling environment, three key aspects may be identified:

Upstream market chain: producer and input supply level: This relates to production, input supply, and harvest and post-harvest management at the community/farm level.

Downstream market chain level: This covers the collection, processing, wholesaling, retailing, and exporting functions within the market chain that enable the flow of products from village areas to final consumers in-country and beyond.

Support sectors are vital elements of value chains that enhance their competitiveness and efficiency. These fall into three broad categories:
Sector-specific: Spare parts for walnut processing, land, equipment (e.g., processing equipment), input providers (e.g., boxes, jars, vacuum-packaging etc), training, technical services, new technologies, and innovation (research).
Cross-cutting: Legal services, export management, market information, business training. These apply to different product value chains in general.

Financial: Banks, microfinance institutions, credit unions, financial companies that provide affordable loans and credit facilities to different actors along the chain (farmers, collectors, processors, industry, etc.). Credit is important, because it is difficult for actors to grow their businesses without it.

The importance of support services should not be understated because they enable existing firms and small businesses directly linked to the product to improve, upgrade, and become more efficient. Firms depend on each other for business and can assist each other through improved “horizontal linkages” between firms that lead to improved economies of scale, or through “vertical linkages” in which one firm may take on two linked functions by itself (e.g., processing, packaging, and distribution).

Level 2: Global Enabling Environment

The global enabling environment defines the boundaries of what is possible. It is global, but affects the performance of local value chains.

Global Trade: Factors that may influence the ability of one country or region to compete effectively within global trade include:
World Trade Organization and multilateral agreements made between countries, end markets, and producer countries
Free Trade Agreements between countries for products or finished goods that receive preferential treatment with regard to tariffs and import duties
Standards (e.g., Good Agricultural Practices of Europe, International Standards Organization (ISO))
Organic or fair trade certification of products

Each of these factors can influence the competiveness of products at end markets in terms of sale price, profits, and market share.

The findings and recommendations in this report should be used by national and provincial policymakers, NGOs, projects, walnut industry stakeholders, and producers to improve the efficiency, employment opportunities, and income generated in the walnut industry.

1.4 METHODOLOGY LIMITATIONS

As the title of the survey team implies, this study is a rapid assessment in order to obtain an overall impression of the walnut market situation and to at least understand how walnuts are marketed and how value is added within the global and national enabling environments. Estimates presented in this report for demand, supply, and price conditions in different markets should only be treated as estimates. More detailed studies should be undertaken in the future to gain more detailed insights into this market and value chain.

The team was unable to find any reference documents or reports on the Kyrgyz walnut value chain, even when they consulted many of the leading authorities on walnuts. It was therefore difficult to validate and cross-check findings with other sources. The result is that this work may be considered the first of its kind in pioneering market and value chain development of the Jalal-Abad walnut industry.

1.5 WALNUT RMA SCHEDULE

The timeframe followed by the RMA survey team is as follows:

Day	Morning	Afternoon
Fri March 25	Training at Toskool-Ata *leskhoz*	Training (continued)
Sat March 26	Field survey of Massy walnut/kernel market	Preparation of findings and flip charts
Sun March 27	Walnut forest visit	Farmer feedback meeting for pistachio and walnut farmers
Mon March 28	Survey of Bazar-Korgon walnut and kernel markets; visit exporters	Visit exporters in Jalal-Abad
Tues March 29	Survey Jalal-Abad walnut and kernel markets; Jalal-Abad kitchen and nut retail markets	Visit processor; review of data sets with the team; visit Jalal-Abad customs office
Wed March 30	Second survey of Bazar-Korgon market in more detail	Visit border check point to Uzbekistan
Thursday March 31	Visit microfinance providers; chamber of commerce; government laboratory	Visit Bio Service Foundation, exporters, and processors
Friday April 1	Final survey of Jalal-Abad wholesale market; meet with provincial government	Fly back to Bishkek

II RMA FINDINGS

2 WALNUT VALUE CHAIN BACKGROUND

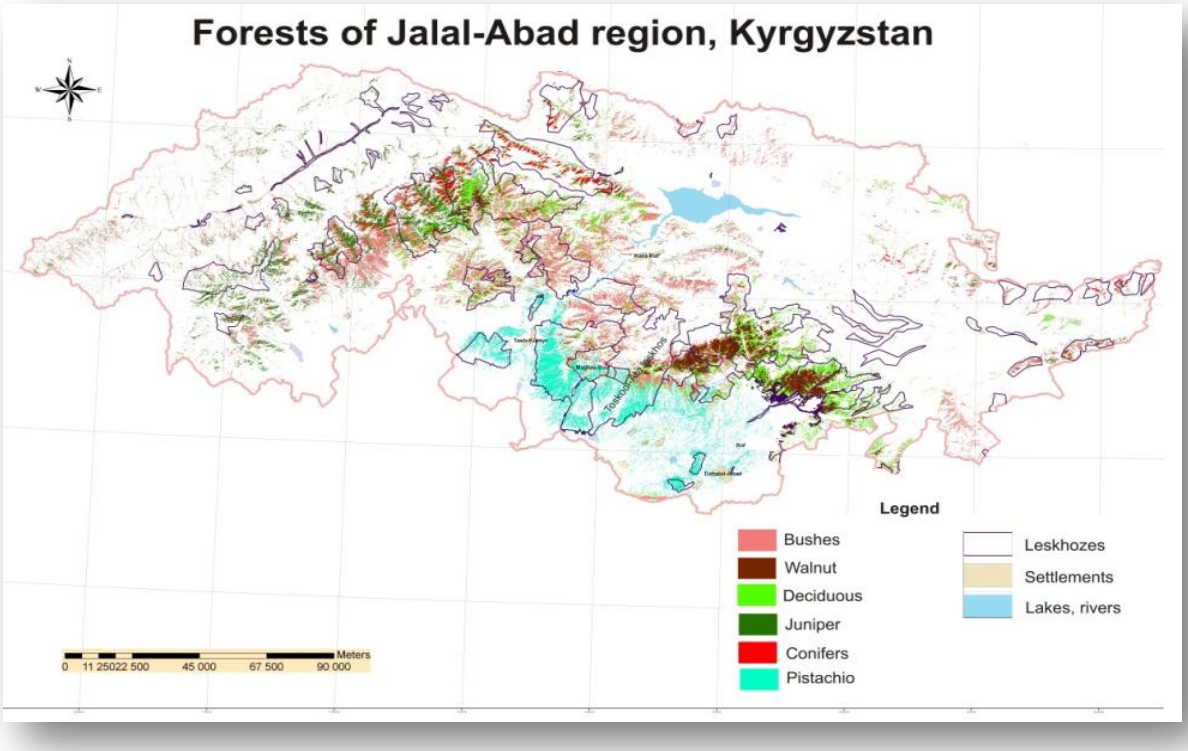
This section provides a brief background on the walnut forests in Jalal-Abad province, including yield and production data, a review of important nut characteristics and grades, and a description of forest management and institutional arrangements within a framework of important government decisions and decrees.

2.1 WALNUT FORESTS OF JALAL-ABAD

The Kyrgyz Republic has only a small area of forests covering about 4–5 percent of the total land area. These forests are, however, rich in biodiversity and perform important environmental roles. On the slopes of the Fergana and Chatkal mountain ridges of the Tien Shan mountain system grow natural walnut–fruit forests, considered unique in the world. This area, mainly represented by two forest tracts of Arslanbob-Kugart and Hoja-Ata in the Jalal-Abad province, have a vast diversity of tree and shrub species including walnut, apple, pear, plum, almond, and pistachio. Scientists believe that this region is one of the centers of origin of cultivated fruit plants. The walnut-fruit forests are considered a valuable gene pool of many plants. Almonds and pistachios occupy the lower slope areas.

Figure 2 provides a map of natural walnut-fruit forest areas in the Jalal-Abad region.

Figure 2: Map of Forest Areas in Jalal-Abad Province



Source: The State Department of Forestry and Ecology.

The main species is the Persian walnut (*Juglans Regia,* meaning "Royal Walnut"). The total area of walnut forests in the Kyrgyz Republic is not clear. Indeed there has been much debate since the first surveys were undertaken in the late 1890s until now, as to the area of walnut forests. The range was from 33,400 hectares to 43,800 hectares.[5] One reference estimates that there are 47,300 hectares of walnut, of which 47,200 hectares are in the Fergano-Chatkal region,[6] whereas a leading authority on walnuts estimates that there are 28,279 hectares based on data collected by the state forest in 1989. It is likely that areas were lost to timber cutting and increased cattle and sheep grazing, particularly on more gentle slopes. Walnut plantations in walnut-forest areas represent 2,800 hectares. Survival rates for planted seedlings are considered low at about 30–40 percent.[7]

Walnut forests occupy the lower mountain slopes at an altitude of between 1,200 to 2,000 meters above sea level.[8] Some 81 percent of walnut forests lie between 1,400 and 1,800 meters above sea level. Most walnut stands are located on slopes ranging from 11 to 35 degrees. Some 58 percent of the walnut trees grow on northern facing slopes.

About 41 percent of walnut forests are mature stands between 101 to 140 years old and 24 percent are between 81 and 100 years old. Natural regeneration of walnuts is a slow process, hindered to an extent by human activity in nut collection and damage of young seedlings by livestock through uncontrolled grazing.

2.2 ECONOMIC VALUE OF WALNUT FORESTS

Walnut forests have extremely high economic value. From an environmental perspective, walnut forests that grow on steep slopes are important for soil and water protection and regulation. Soil runoff from deforested slopes was calculated to be 10.5 tonnes per hectare compared with virtually no runoff in areas covered by walnut forest.[9]

Walnut timber is extremely valuable, particularly the "walnut burl." The burl is formed on the tree stems at the base of the tree, and the veneer cut from burls is highly valued by furniture makers and famous for its use in dashboards in luxury cars. Walnut wood was the timber of choice for gun makers (e.g., Lee Enfield rifles in WWI) due to its resistance to compression along the grain. Exploitation of burls has impacted the size of the forest. An assessment in 1928 estimated that 417 tonnes of mature burls in the Arslanbob-Kugart forest tract were extracted. In 1938 alone, 100 tonnes of burl timber was harvested.[10]

Walnuts are now recognized as having many health benefits. The nuts are rich in fiber, B vitamins, magnesium, and antioxidants like vitamin E. Kernels are high in plant sterols and fats including omega-3 fatty acids and alpha-linolenic acid that lowers LDL cholesterol. Walnuts are used in traditional Chinese medicine as they are said to positively affect kidney functions, strengthen the back and knees, and relieve constipation.

Walnut kernels are rich in oil (62–73 percent). Walnut oil is expensive and used mainly with salads. It is light colored, delicate in flavor and scent, with a nutty essence.

Walnut husks are used to create a rich yellow-brown to dark brown dye. Walnuts picked without gloves readily stain the hand.

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[5] "Bio-ecological Peculiarities of Renewal and Development of Walnut Forests in KR," by Dr. B.I Venglovskii, p. 11.
[6] See Typology of Forests of the Kyrgyz Republic, Bishkek, 2008.
[7] Personal communication with Mr. Kamil Ashimov, Department of Forest Planning and Inventory, State Agency on Environmental Protection and Forestry KR.
[8] See Venglovskii p. 13.
[9] Ibid p. 18.
[10] Ibid.

Walnut shells, particularly those from the hardest varieties, for example Easter Black walnut (*J. Nigra*) were once used in cleaning and polishing of soft metals, fiberglass, plastics, wood and stone, as an environmentally friendly soft-grit abrasive suited for air blasting, de-burring, de-scaling, and polishing operations. Flour made from the shell is used in the plastics industry as filler for paints and dynamite.[11]

2.3 WALNUT YEILD AND PRODUCTION INFORMATION

Generally, an average of between 800 and 1,000 tonnes of walnuts are collected each year, up to a maximum of about 3,000 to 3,200 tonnes in exceptional years. Walnut yields vary considerably year on year, and production depends on a range of factors including (and not limited to) the following[12]:
Early, mid-, or late-yielding trees
Flowering and incidence of frost damage in April and May
Climatic variations, especially temperature, rainfall, humidity
Elevation (most trees are 1200–2000 meters above sea level)
Crown density and light penetration

During the Russian era, walnut yield data were collected fairly rigorously, but since the collapse of the Soviet Union in 1991, production statistics have not been collected on a systematic basis.

Indeed, it is difficult to identify the main factors that lead to a good harvest and a poor harvest. Some years, yields are almost nonexistent and other years they are good. Venglovskii[13] presents time series data for individual *leskhozes* from 1948 to 1990. Some years there was no harvest at all (1952, 1955). An example of production variance by year is given for one *leskhoz*. Eighteen out of 50 years (38 percent) had very poor yields for the Kaba *leskhoz*. Only three years had very good harvests (1954, 1976, and 1986) and the rest were poor, medium, or good.

The average yield in natural walnut forest stand is 20–25 kilograms per hectare, but this maybe higher in cultivated walnut stands, under more intensive cultivation. Yields seem to follow a cyclical pattern, with one good harvest every four to five years, poor harvests in maybe two or three years, and an average harvest in one or two years.

Yields per tree can be under 10 kilograms, and in good years up to 20 kilograms. Some exceptional trees may yield 40–45 kilograms in a good year.[14]

2.4 WALNUT AND KERNEL GRADING CRITERIA FOR VARIETY SELECTION

A number of important criteria are used in the selection of good walnut varieties. These are also important factors for grading walnuts and kernels. Table 1 describes important walnut grading criteria apart from the importance of the bomb (size of the walnut fruit), the paper (thickness of the shell), and the cluster (number of fruits on a fruit stem).[15]

Table 1: Criteria Used in Walnut Variety Selection

Grading Criteria	Details

[11] See Juglans-wikipedia website.
[12] Bio-ecological Peculiarities of renewal and development of walnut forests in KR by Dr B.I Venglovskii
[13] See page 51.**[[specify section instead of page number]]**
[14] Personal communication with Mr. Altenbek Nazirov, Deputy Director Toskool-Ata.
[15] See "Study of Varieties and Diversity of Walnut Forms in KR," by Davlet Mamadjanov, 2006.

Nut mass	5-point scale: High = 14.1 grams or more per fruit. Poor = less than 7.9 grams per fruit.
Fruit size	5 point scale: Large nut = 41.1 mm high, 34 mm wide, and 34 mm thick. Small nut = less than 32 mm high and 28 mm wide and thick.
Shell surface	4-point scale: High = smooth nut surface with barely visible seams (ribs). Poor = very wrinkled and uneven nut surface, strongly ribbed.
Shell color	5-point scale: High = light yellow shell color. Poor = very dark brown shell color.
Shell thickness	3-point scale: Thin = less than 1.2 mm; medium = 1.3 to 1.6 mm; thick = 1.7 mm or more.
Ease of extraction of kernel from shell	4-point scale: High = kernel easily extracted. Poor = kernel extracted but with difficulty, split into many pieces.
Dry kernel yield	5-point scale: Very high yield = kernel approximately 55 percent or more of total nut weight. Very low yield = kernel 35 percent or less of total nut weight.
Color of skin of kernel	5-point scale: High = light yellow color. Poor = dark brown coloring.
Kernel taste and smell	5-point scale: High = very good taste and sweetish smell. Poor = very bad taste, bitter flavor, and a smell of rot or mold.

Source: Mamadjanov 2006.

Grades also reflect how kernels may be extracted from the nut intact without breakage. Walnuts with soft shells are easier to crack; those with hard shells are more difficult, leading to damage as kernels are split into many pieces. Walnuts with a higher "crack-out rate" (50 percent kernel:50 percent shell and skin) are more valuable. Poorer grade walnuts have a crack-out rate of only about 35–40 percent kernel–to-shell ratio.

2.5 FOREST INSTITUTIONAL AND MANAGEMENT SYSTEMS

Kyrgyz forests were state owned in the 1930s. Total forest cover in the Kyrgyz Republic was estimated at 7 percent, but overexploitation in the 1940s caused it to rapidly decline,[16] and it is now about 4–5 percent. The forest sector was reorganized in the late 1940s to halt the decline in forest cover, with some success. Since the Soviet Union collapse in 1991, the country's forests have again started to deteriorate through ineffective forest management linked to the lack of funding and subsidies; increased human pressure on forest resources, particularly fuel wood; increased livestock grazing; and a relapse into subsistence agriculture in remote forest areas. During Soviet times, the forest sector was subsidized, and there was insurance and assistance after natural disasters.[17]

The State Agency on Environmental Protection and Forestry, headquartered in Bishkek, is responsible for national forest policy, forest management, management of national parks and other protected areas, and biodiversity conservation. Provincial (*Oblast*) forest administration units (called Territorial Departments on Environmental Protection and Development of Forest Ecosystems) are in charge of forest management. Locally, more than 40 state-owned Forest Farms (*leskhozes*) protect and manage forests and non-forest land in *leskhoz* territory. The entirety of the forested and non-forested land on *leskhozes* forms the state forest fund *(Goslesfund*), all of which is reserved for forestry use in the long term.

Leskhozes report to the oblast forest administration. The *leskhoz* is made up of a central office with technical and administrative staff and several forest rangers under its management. During Soviet times, *leskhozes* were organized like cooperatives, covering all basic needs of the local community including health care, schooling, and social amenities.[18] The *leskhoz* was a centralized, highly hierarchical structure in a top-down planning process. It relied heavily on subsidies. It followed a protection-oriented forest policy, such that conservation of forest resources and increased forest cover were

[16] "Poverty and Forestry—A Case Study of Kyrgyzstan with Reference to Other Countries in West and Central Asia," FAO.
[17] Personal communication with Mr. Ibraev Emil (SAEPF).
[18] "Collaborative Forest Management in Kyrgyzstan—Moving from Top-Down to Bottom-Up Decision Making," Carter et al.: IIED, 2003.

core policies. Policy had a distinct technical orientation with little elements of the concept of sustainable forest management (including social, economic, and ecological aspects).

In terms of forest tenure and access to forests and pastures within *leskhoz* estates, leases were allowed, with variable periods and different lease conditions. For example, in walnut-fruit areas, leases allowed people access to a defined forest area for fruits and nuts, fuel wood, grazing, and other NTFPs. In exchange for access and use, leaseholders would pay 40–60 percent of the walnut harvest to the *leskhoz*, in cash or in-kind (a set amount of walnuts, 100–400 kilograms). Another type of lease is the collaborative forest management (CFM), in which the leaseholder undertakes all forest-related activities in exchange for the benefit of the harvest. Usually, leases were seasonal (annual).

In cases where a share of the walnut crop was paid to the *leskhoz*, leaseholders would grade their harvest and give the *leskhoz* the worst grades and keep the best walnuts for themselves for sale.[19] As a result of lease payments through a share in the walnut harvest, *leskhozes* became one of the main actors in the walnut market chain. Currently, the Toskool-Ata *leskhoz* prefers to receive lease payments in cash.

In 1995, steps were taken to introduce CFM. The Swiss funded Kyrgyz-Swiss Forestry Support Program (KIRFOR; 1995–2009) assisted the government in implementing a program of forest policy and sector reform. Work was piloted in two *leskhozes* (Ortok and Usgen) to develop a lease model for CFM. It was quickly expanded into a national program that soon became national policy (National CFM Regulations Decree No. 377, July 7, 2001).

Decree No. 482 (dated October 19, 2007) approved regulation regarding forest lease arrangements. It established procedures for the leasing of forest lands, forms and terms of the forest lease contract, rights and obligations of leaseholders and lesser, procedures for the alteration of forest lease contracts. Forest lease arrangements for plots should be carried out openly, taking into account all relevant local community interests. Forest plots should be allocated through an auction system managed by the leskhoz and approved by the state agency. Forest fund plots may be leased by associations and organizations with the participation of local and foreign legal entities and international organizations, foreign citizens, and stateless persons at the discretion of the government of the Kyrgyz Republic. Buy-outs and subleases of leased forest plots are prohibited. The regulation limits area of leased forest fund plots by forest type (walnut forest – up to 5 hectares, flood-plain forest – up to 2 hectares, other forest – up to 10 hectares).

One of the main features of the regulations was that CMF leases were to be issued for five years to start with and then extended for an additional 50 years. The tenant receives 100 percent of all income and products from the lease. Lease fees vary from som 450 to som 780 per hectare.[20] According to the regulation on CFM, leaseholders pay lease fees through provision of labor to produce seedlings or plant trees (or both). The labor and the benefit from the CFM site should be proportionate to each other.

Some seasonal leases and other lease arrangements still exist in parallel with the new 5 + 50 year lease system. The lease system was changed to encourage leaseholders to take a long-term interest in forest rejuvenation and increased forest planting.[21] All three *leskhoz* head rangers indicated to the RMA team[22] that they preferred the new system because it was more transparent. It was now clearer what leaseholders were expected to pay.

[19] Personal communication with Dr. Venglovskii.
[20] Information gathered at inception meeting in Jalal-Abad on March 24, 2011,**[[year ok?]]** at the provincial forest office.
[21] Personal communication with Mr. Kysanov Askat, Head of Department of Forest Ecosystems Development, SAEPF KR.
[22] See inception meeting minutes, Jalal-Abad March 24, 2011.

A number of issues remain. First, decision-making is still largely made by the *leskhoz*. Equitable distribution of plots is questionable, as influential and well-connected households leased the more productive forest land. Poverty targeting was not a key criterion in allocation of leaseholds. Another outcome was that there was little interest in community participation through organized groups for production and marketing. This was a legacy of the negative attitude arising from forced collectivization during the Soviet era. Households preferred to work independently.

Other issues raised during meetings with key informants during the study included:

Concern about the gradual reduction in forest quality and its effects on biodiversity. The forestry industry lacks investment in the Kyrgyz Republic. Increased population pressure and related forest utilization dim the distinction between forests and forest microreserves.23

Issues of access to walnut forests and production discussed in CFM. Lack of emphasis on market development for leaseholders.

There are no special projects for 2010 to 2015 in the forestry sector. There is however, a proposed framework for forest sector development in the Kyrgyz Republic through 2025. The objective of this framework is to develop the National Forest Program from 2005 to 2015.24

Decree No. 331 dated 2006 imposed a moratorium on cutting walnut trees, with heavy fines (som 398 per cubic centimeter of wood cut and utilized + som 1,500 administration fine) or imprisonment. The decree was aimed at curbing the rapid rate of deforestation in walnut forests. The justification is that if people are allowed to prune trees, then walnut timber will start to be harvested and sold, increasing deforestation. The leskhoz has the onus and responsibility to impose fines on offenders who cut walnut trees, even if these trees are dying or in need of pruning and maintenance.

The photos in figures 3 and 4 were taken on the field trip and demonstrate the effects of this decree: many trees in the forest now appear shabby as diseased and dying limbs are left to rot. However, poor maintenance of standing trees will mean that these will soon die and decompose in the forest with little economic benefit.

Figure 3 Diseased tree, with snapped limbs

Figure 4 Branch splitting off tree at apex, resulting in disease. Tree may die in three to five years.

[23] Personal communication with BIOM, Mr. Ilya Domashev.
[24] Approved by Governmental Decree No. 858, November 25, 2004.

In contrast, permission may be sought to prune and manage kitchen garden walnut trees, after which maintenance work may be undertaken legitimately.

The effects of Decree 331 on the state of the walnut forests should be reviewed to determine the impact on the health of trees and the degree to which forest areas may be managed sustainably.

3.0 UPSTREAM: PRODUCER LEVEL

This section presents findings of survey work undertaken at the pilot *leskhoz* of Toskool-Ata, with regard to production and marketing practices for walnuts by local leaseholders. Information was gathered during a practical market assessment session linked to RMA training on March 26, 2011, and a field visit to walnut forest areas the next day. The section includes a brief profile of Toskool-Ata, walnut production, post-harvest and economic return, and the main features of the market town for Toskool-Ata walnuts at Massy.

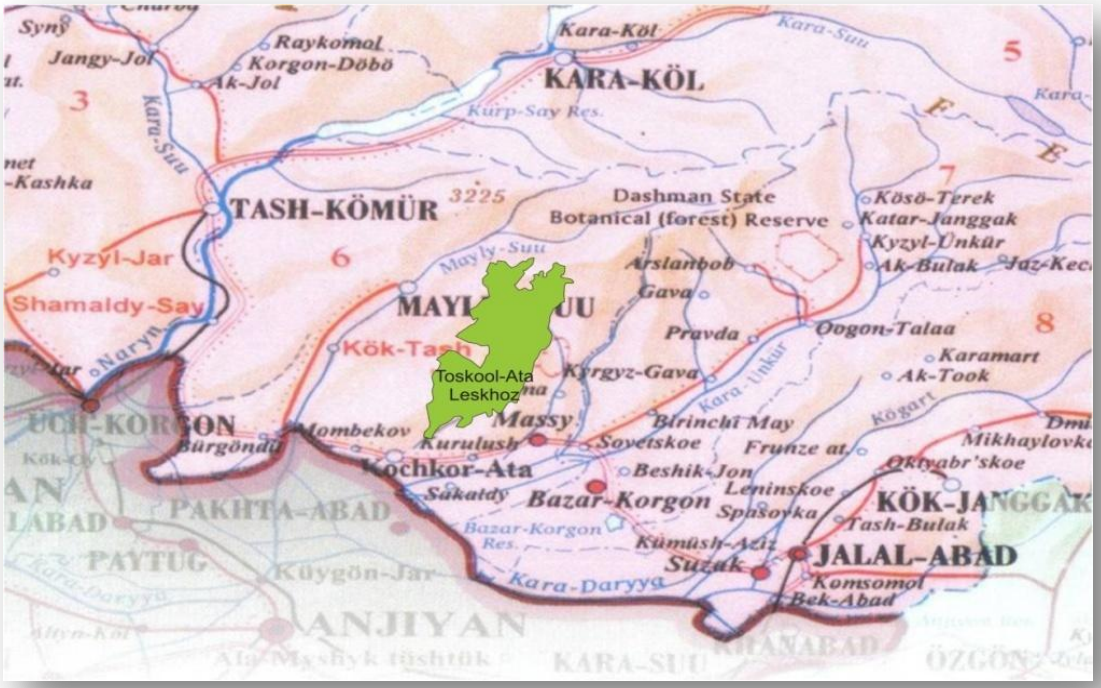
3.1 TOSHKOOL-ATA LESKHOZ PROFILE

Toskool-Ata *leskhoz* was selected as the focus for the upstream production level investigation in this study of production and markets. Although its walnut forest is relatively small compared with other *leskhozes* (e.g., Kara-Alma), it was selected on the basis of its inclusion in the PROFOR study as a pilot site.

Toskool-Ata *leskhoz* is located in the Nooken Rayon of the Jalal-Abad Oblast. Its center is at Toskool village, 90 kilometers from Jalal-Abad. The *leskhoz* has a population of 1,885 individuals from 301 households.[25] Altitude ranges from 700 to 3,700 meters above sea level. The total area of the *leskhoz* is 71,723 hectares, of which 40.7 percent is forest land. Of note, there are 1,348 hectares of walnut, 8,953 hectares of pistachio, 349 hectares of wild apple, and 64 h hectares a of almond.

Figure 5 shows the location of the Toskool-Ata *leskhoz* in relation to Jalal-Abad and major market centers for walnuts. Of particular importance are Massy and Bazar Korgon. The town of Kochkor-Ata is important as a market for pistachios.

Figure 5: Detailed Map Showing Toskool-Ata *lezkhoz*



[25] Data as for 2009, according to the village profile of ARIS (the Community Development and Investment Agency).

In terms of forest use, leases have been given as follows: pasture (200), arable land (150), hayfields (120), commercial orchards (12), walnut forest (340), and pistachios (230). The *leskhoz* employs 42 staff, notably, a chief forest ranger, accountant, three engineers, other administration staff, five forest wardens, 21 forestry officers, and a nursery manager and worker. There are also four firemen on guard during periods of high risk of forest fires.

The *leskhoz* is connected by a 17-kilometer dirt road in reasonable repair. Small roads in various parts of the forest are in general disrepair. Many parts of the walnut forests are in remote locations with poor access. Other infrastructure includes two first aid points, two secondary schools, two primary schools, one kindergarten, one club, and a small library.

The main source of income is from farming and use of forest resources. The poorest households rely on walnuts and pistachios for income as well as day labor. They tend to have little livestock. Medium-income households would have some livestock including perhaps a horse, three cattle and up to 10 sheep. High-income families would own up to 10 horses, 10–15 cattle, and up to 100 sheep. The value of sheep is som 5,000–10,000, cattle som 20,000–50,000 per head, and horses som 50,000–100,000 per head.[26]

For middle- to high-income families in the *leskhoz*, a large proportion of their income is derived from livestock farming (60–70 percent) and the remainder from walnut and pistachio collection. For poorer households, walnut and pistachio production and harvesting provide a significant portion of their household income.

3.2 WALNUT PRODUCTION

3.2.1 WALNUT FOREST PRODUCTION

This section covers a brief description of the walnut forest, gross margins and production figures for three sampled farmers, and an analysis of economic and farm data. Figures 6–8 provide a visual impression of walnut forests in the Toskool-Ata *leskhoz*.

Figure 6: Five-year-old planted walnut, spaced 5 x 5 meters (125 trees per hectare. First yield estimated 13–15 years after planting.

Figure 7: Walnut stand at about 1600 meters above sea level. Tightly spaced, tall trees; 5–8 kgs per tree, with a dense crown.

Figure 8: High-producing walnut tree, with several main limbs from a solid base. Estimated production of 30–40 kgs in a good harvest year.

[26] Personal communication from Mr. Nazirov Altynbek (deputy head forester, Toskool-Ata *leskhoz*).

Figure 6 shows a five-year old seedling in a small plantation. Figure 7 shows a natural walnut forest; note the tight spacing between trees. A mature high-yield tree is shown in figure 8. Wide crown coverage is important, resulting in higher yields than trees that are more closely spaced.

Table 2 provides information on the gross margins of three sample farmers in the Toskool-Ata *leskhoz* on their walnut production in the 2010/11 season:

Harvesting: Walnuts are harvested between August and September and involve family and neighbors helping each other. It is considered a major social event, as villagers camp out in the forests during this time. The walnuts either fall to the ground naturally or are beaten by sticks until they drop, or trees are shaken.

Harvest yields: These depend on many different factors as described in section 2.1. Most critical is whether there was a late frost in late April or May that would cause walnut shoots to die off. Age, crown density, and location also influence yields. In the 2010/11 season, sampled farmers produced 250–400 kilograms from different plots of land and numbers of trees. It is quite difficult to generalize about how good walnut harvests will be. Farmers retain a small amount of produce for consumption.

Post-harvest management: It appears that the sampled farmers dried their walnuts only for two to three days in the sun before sale. During this time, the outside husk will dry and flake off. It may be necessary to clean the walnuts with a knife or brush them dry. Farmers sampled did not make any effort to grade nuts into large, medium, or small sizes, preferring instead to sell as "mixed wet grade." Normally, post-harvest management would involve collection, pre-cleaning and shell removal, brushing, sorting, cleaning, grading, storing, and packaging.

Previously, when the *leskhoz* was paid rent through a share of the walnut harvest, walnuts were dried on a large drying pavement (figure 9) or in a "drying race" (figure 10) over several days. Both these post-harvest facilities are rarely used. After drying, the walnuts were stored in a large warehouse (figure 11) close to the office for sale later in the season at higher prices. After drying, there is some weight loss. Some walnuts are also discarded due to poor grade or size.

Figure 9: **Drying pavement now little used.**

Figure 10: "Drying race" now dilapidated. Used to dry 100 tonnes per season.

Figure 11: *Leskhoz* storage building (in background).

Table 2: Gross Margin Data for Three Sampled Farmers in Toskool-Ata *Leskhoz*

Leaseholder name:	**(1) Mr. Mavlanov**			**(2) Mr. Altenbek Ergeshev**			**(3) Mr. Ibraimov Kubat**		
Place	Shyngymat, Toskool-Ata			Shyngymat, Toskool-Ata			Toskool village		
No. trees	60			110 not so mature			150		
Production area	0.5 hectare			1.0 hectare			3 hectares (mainly new planting)		
Harvest conditions	Good (700 kgs); med (400 kgs); poor (100kgs)			Good (500 kgs); med (250 kgs); poor (50kgs)			High (500 kgs) in 2008		
Market strategy	Sell immediately at harvest, transport to Massy			Sell at harvest, transport to Massy			Sell immediately at harvest, transport to Massy		
Grades	Mixed grade 40% small; 60% medium sold			Markets mixed grade					
Lease conditions	5 year now 49 year lease			5 year now, 49 year lease			If 60% planted survive, a 49 yr lease issued		
Income 2010	**QTY kgs**	**Price**	**Total (soms)**	**QTY kgs**	**Price**	**Total (soms)**	**QTY kgs**	**Price**	**Total (soms)**
Grade A	0	0	0	0	0	0	0	0	0
Grade B	0	0	0	0	0	0	0	0	0
Walnuts sold wet	370	40	14,800	250	40	10,000	290	40	11,600
Consumed	20	35	700	0	0	0	10	35	350
GROSS OUTPUT	**390**		**15,500**	**250**		**10,000**	**300**		**11,950**
Variable Costs									
Lease	1	480	480	works for Leskhoze	0	0	0	0	0
Transport cost (trips)	2	300	600	1	300	300	1	300	300
Others			0			0			0
TOTAL COSTS (soms)			**1,080**			**300**			**300**
GROSS MARGIN (soms)			**14,420**			**9,700**			**11,650**
Labor Days									
Harvest			30			20			20
Market			2			1			1
Total Labour Days			**32**			**21**			**21**
GM per day (soms)			**451**			**462**			**555**
Notes:	Sells immediately wet, better weight. Some trees close to river, walnuts reddish, not so good grade.			Works for leskhoz planting new areas; gets land rent free; trees close together, yield not so good.			Has planted new trees within his 5-year lease. Planting is very high altitude and cold.		

Source: Field data.

Sales strategy: All three farmers preferred to market walnuts wet without storage. For farmers (2) and (3), this was because they needed cash quickly. For farmer (1), the reason was that he lacked storage space, but also that part of his harvest was from trees on low-lying land prone to water-logging and flooding, which affected the grade and color of the kernel.

It was found that about 50 percent of the walnut leaseholders sold their produce wet,[27] immediately after harvest. As walnuts dry out, they lose up to 30 percent of their weight and therefore, in the short run (one to two months) the nuts also lose value until the price increases in a higher proportion than the weight lost. Only those farmers with adequate space could store walnuts until such time that prices went up.

Prices: These farmers transported their walnuts in 30–32 kilogram sacks by car to Massy market and sold directly to walnut traders for som 30–50/kg between August and September. Collectors from Massy market also drive up to *leskhoz* villages to buy from leaseholders. Slightly lower prices are paid at the village by collectors to cover transport costs (about som 4–5 less per kilogram than market rates).

Input costs: No inputs are applied to walnut trees in existing forests. However, new plantings require investment in inputs. The main cost to the leaseholder is the cost of the lease. One sampled farmer worked directly for the *leskhoz* and received the land rent free under the CFM lease conditions; the other was considered a seasonal leaseholder and paid rent by giving a percentage of the harvest to the *leskhoz*. Marketing costs include an expenditure of som 300 for fuel per return trip to market.

Margins: Gross margins for the three farmers are quite similar, from som 10,000 ($212) to som 15,000 ($320). This is a significant proportion of total annual cash income for poorer leaseholders.

Margins per labor day: The main labor input is for harvesting. If it takes 20–30 days to harvest a leaseholders plot (much depends on the size of the area, number of productive trees, crown size, year of production), then the return per person per day worked may be in about som 450–550.

3.3 MARKET CHAIN DESCRIPTION FROM FARM GATE TO MASSY MARKET

The section covers the main details in regard to the Massy walnut and kernel market, the main market servicing walnut farmers from the Toskool-Ata *leskhoz*.

3.3.1 MARKET CHAIN DESCRIPTION FROM LESKHOZ

A summary of key market chain actors and their roles and functions is given in Table 3.

Table 3: Key Market Chain Actors' Roles And Functions

Actors	Roles and Functions
Walnut Farmers	Farmers collect walnuts and ready them for sale (dry, de-husk, grade by discarding rotten or bad walnuts). Depending on individual farmer circumstances, walnuts are either sold immediately "wet" or stored for sale later. No further processing is done at the village level (i.e., no walnut cracking). Some farmers transport to Massy themselves and sell to traders. Others wait for collectors to buy at the village
Collectors from Massy	The RMA team found 4–5 small collectors or traders that collect walnuts in the Toskool-Ata *leskhoz*, all based in Massy. Most had cars or small trucks and could pick up 250–300 kgs (8–10 sacks) of walnuts in one trip. No large collectors using a big truck serviced Toskool Ata.

[27] Personal communication from Mr. Nazirov Altynbek (Toskool-Ata *leskhoz*).

The key features of the marketing arrangements were as follows:

Payment is made in cash. Occasionally, some collectors loan money to leaseholders and buy walnuts later at a negotiated price, normally at considerably lower prices.

Farmers accept prices offered by collectors. There seems to be little negotiation, as leaseholders lack access to market information at the village level.

Some leaseholders (30–50 percent) transport and sell to traders directly at Massy and the remainder store and sell to collectors mainly in November and December. Only a few store longer and sell in January to March, when prices are much higher.

No special arrangements are made to buy walnuts. Collectors visit on an itinerant basis, hoping to buy from leaseholders without prior arrangement. No arrangements are made for product bulking collectively. This means that an opportunity to sell large quantities to bigger buyers resulting in better prices through negotiation is lost.

There is no processing in the village to crack walnuts to sell kernels instead. This could benefit poorer households in winter months, when there is little local employment.

No leskhoz-based leaseholders have tried to set up a stall in Massy market themselves to sell Toskool-Ata walnuts.

3.3.2 LONG-TERM SUPPLY AND PRICE DATA AT THE LESKHOZ

Table 4 (together with figure 12) shows the long-term production and price trend at Toskool-Ata over the past six years.

Table 4: Long-term Production Supply and Average Farm Gate and Market Price Trend

Years	Volume sold from *leskhoz*, tonnes	Average buying price at *leskhoz* (soms/kg)	Average selling price at Massy market, (soms/kg)
2005	20	50	60
2006	70	50	60
2007	90	55	60
2008	100	60	70
2009	70	40	40
2010	80	90	100

Source: *Leskhoz* data.

There was a poor harvest in 2005 with a production of only 20 tonnes.

There was a good harvest in the autumn of 2008, both in terms of quantity and quality.

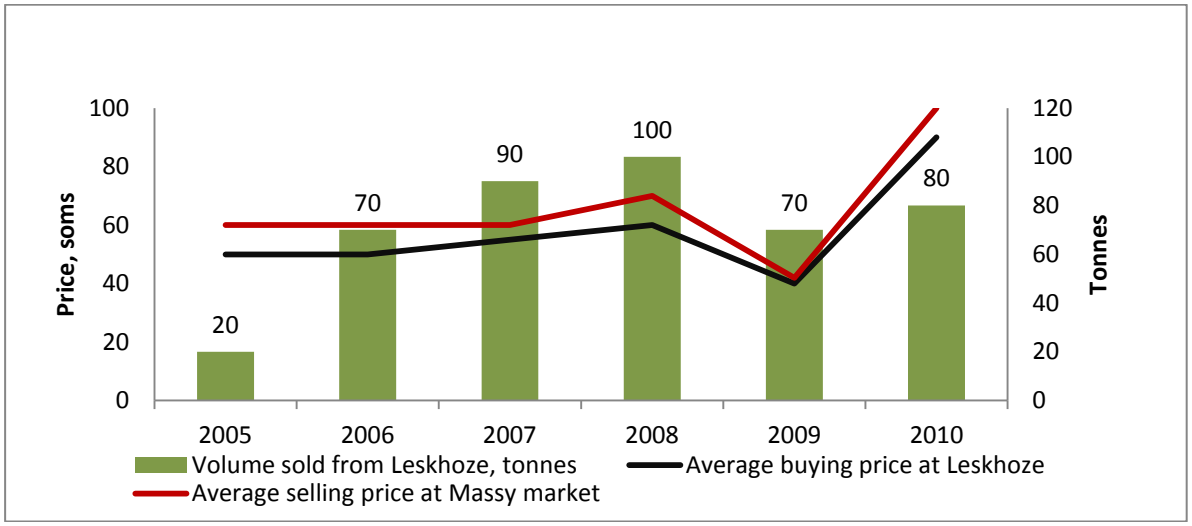
Production in 2009 was reasonable, although walnut quality was not so good, but the demand for kernels was poor in the market place. Prices and production in other countries were found to be more competitive, and exporter demand was reduced causing a downward movement in market prices.

The walnut quality in 2010 was not good, as kernels were smaller and more reddish in color. The taste was not so good. Production levels were reasonable.

Prices have almost doubled from 2005 to 2010, from som 50/kg to som 90/kg.

Figure 12 depicts the effect of reduced demand in the 2009 season on prices. The difference in farm gate and market price in Massy is about som 5–10 per kilogram of walnuts.

Figure 12: Long-term Production Supply and Average Farm Gate and Market Price Trends



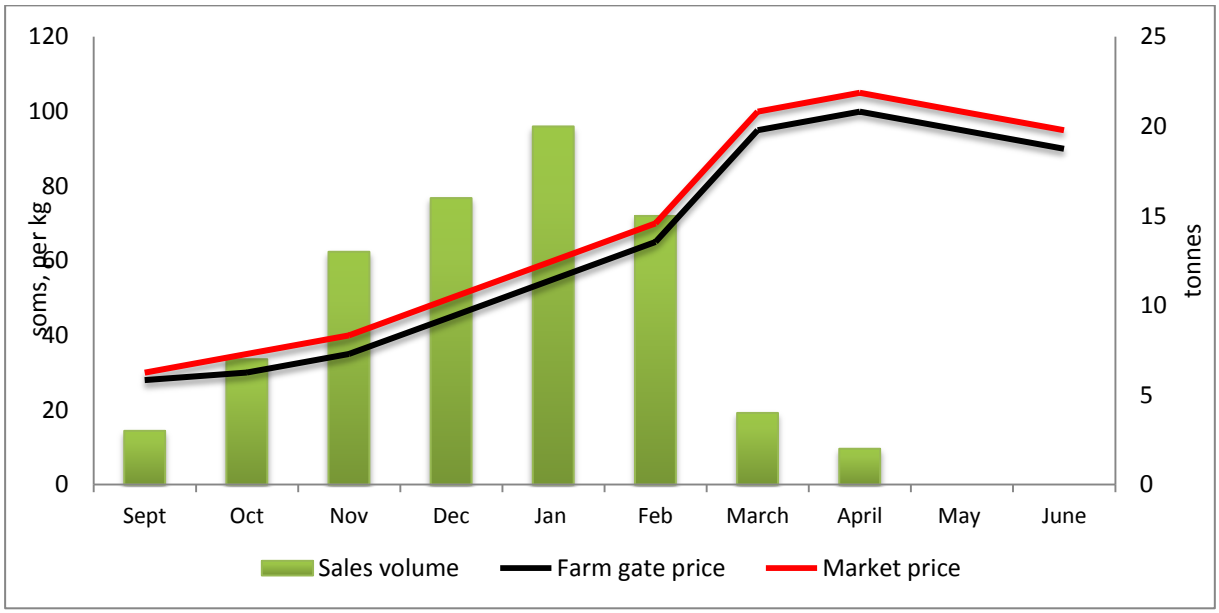
3.3.3 SEASONAL WALNUT SUPPLY AND PRICE DATA AT THE LESKHOZ IN 2010

Table 5, together with figure 13, presents seasonal data for sales of walnut from the leskhoz. Walnut prices peaked in March and April, although there was very low volume (2–4 tonnes). Prices slowly increased between September and February, from som 28 to 65/kg.

Table 5: Seasonal Walnut Sale Volume from *Leskhoz* with Average Farm Gate and Market Price in 2010

Month	Volume sold from leskhoz (tonnes)	Farm gate sale price (soms/kg)	Massy market buy price (soms/kg)
September	3	28	30
October	7	30	35
November	13	35	40
December	16	45	50
January	20	55	60
February	15	65	70
March	4	95	100
April	2	100	105
May	0	95	100
June	0	90	95
TOTAL	**80**		

Figure 13: Seasonal Walnut Sale Volume and Average Farm Gate and Market Price in 2010/11



3.3.4 STRENGTH, WEAKNESSES, OPPORTUNITY, AND THREATS (SWOT) ANALYSIS

Strengths: 1. Walnuts grow well. 2. Income and profit are good, with little expenditure on production except labor in harvesting. 3. Good for forest environment in retaining water, reduced runoff, environmental conditions. 4. Reduces seasonal rural unemployment. 5. Medicinal properties as a food. 6. Organic and chemical free. 7. All products and byproducts used (nuts eaten and sold, nut shell is used for fuel wood). 8. Local people know and understand skills.	**Weaknesses:** 1. Labor intensive for picking. 2. Remoteness in higher locations, poor access. 3. Trees tend to be high (30 meters), difficult to harvest. 4. No credit facilities to fund enterprises. 5. Leaseholders do not negotiate; accept trader prices. 6. Leaseholders lack market information. 7. No processing equipment. Dilapidated drying facilities. 8. Most sell early to get money. 9. High losses during the drying process. 10. Walnut productivity heavily depends on weather conditions.
Opportunities: 1. Opportunity to plant more walnuts in the forest. 2. Value added and processing opportunities exist for poor households to earn money during winter months. 3. Possible to open a stall at Massy to sell walnuts. 4. Organizational development at *leskhoz* to process, store, and market produce. 5. Microfinance provision in village developed. 6. Develop road system in *leskhoz* to improve access. 7. Improved market infrastructure in *leskhoz* for post-harvest treatment and storage. 8. Improved promotion for Kyrgyz walnut products by the government. 9. Organic certification could open up new markets.	**Threats:** 1. Leasehold conditions for seasonal leases result in insecurity and reduced incentive to invest in new plantations. 2. Walnut production unreliable, depending on cold snaps in late April and May. 3. Deforestation issues and illegal logging. 4. Production in other competitor countries affects prices and demand.

3.3.5 CONCLUDING REMARKS

The post-harvest systems and market-related infrastructure for walnuts in the Toskool-Ata leskhoz is not well developed. Farmers lack drying and storage facilities. Access roads to remote forest areas are lacking. Selling walnuts sold "wet" immediately after harvest means losing an opportunity to dry, store, and process walnuts into kernels. Poor households could gain much income and employment during winter months. Marketing arrangements are limited. Farmers sell

individually to local traders in Massy. More complex arrangements for bulking, sales in volume, and negotiated sale prices with larger traders could be developed, if farmers were to sell collectively.

4.0 DOWNSTREAM MARKET CHAIN: WHOLESALE MARKETS

This section covers the walnut and kernel wholesale markets of Massy, Bazar Korgon, and Jalal-Abad.

4.1 GENERAL WHOLESALE MARKET CHARACTERISTICS

All three wholesale markets share the same general characteristics, as follows:

1. Markets have a walnut trading section and a section for sale of kernels. The main export product is kernels to Turkey and Iran.

2. Wholesale markets behave as "traditional" markets in the sense that there are many buyers and sellers. Margins tend to be slim given the level of competition for collection, trading, and processing.

3. Collectors and traders bring walnuts to market. Some farmers transport and sell their walnuts to market traders directly. Local people provide a shelling service. They buy walnuts, process or "crack" them, and sell kernels back to the market. Such shelling processors in this report are termed "walnut crackers." Teams of walnut crackers are usually family based, work together at home, and buy walnuts that they shell and sell back to traders as kernels within one to three days. Thousands of people and families from poorer sectors of market towns engage in walnut cracking for low returns. Many cannot expand their business because they lack finance or capital sources.

4. Collectors and traders of walnuts can be characterized by their size: small (use family car to collect between 200–300 kgs of walnuts per trip); medium (larger six-wheel truck collection of 2–3 tonnes per trip); and large (either a 10-wheel truck or a number of six-wheeled trucks operating several trips per day).

5. Traders in kernel markets buy kernels from walnut crackers and sell to medium or large traders (generally companies or individuals that grade and prepare kernels for export or for resale to Bishkek for retail or export). Small kernel traders buy and sell small volumes (100–200 kgs per day), medium-sized traders up to one tonne per day, and large collectors/traders one to three tonnes per day.

6. The two defined seasons for walnuts are "high season" (between September and February) and "low season" (March to May). The high season is characterized by high volumes of mainly "wet" walnuts, heavier in weight in September and October, and increasingly dry in later months. Walnut and kernel prices are lower in the high season. The low season has significantly lower volumes entering the market with less weight, but higher prices for walnuts and kernels prevail.

7. There is a distinction between forest walnuts (wild or naturally grown) and "kitchen" walnuts grown in people's back gardens. The later are usually selected varieties that have better taste; are of better grades, being larger and with better crack-out rates (i.e., shell-to-kernel ratio); and are sold to specialist retail vendors. Otherwise, wild forest walnuts are more favored in terms of quality.

8. In the larger wholesale kernel markets (Bazar-Korgon and Jalal-Abad), the buyers are mainly exporters or exporter agents, who buy large volumes daily for storage, processing, and final export.

4.2 MAIN MARKET ACTORS AND FUNCTIONS

The main actors in the walnut market chain and their functions are as follows:

Figure 14: Small Walnut Collectors/Traders: These collectors provide a service picking up small amounts (200–300 kgs) of walnuts from farmers and sending them to walnut wholesale markets. Their main customers are walnut crackers. Often on arrival, buyers will rush to the car and put their hand on the goods signaling that they are first in line to negotiate with the collector/trader. Some collectors will store walnuts at their house, buying wet walnuts in the early part of the season, storing and selling later when the price increases. It is estimated that there are 50–60 small collectors serving Massy, Bazar-Korgon, and Jalal-Abad walnut markets. Some small collectors also use passenger buses to bring their nuts to market.

Figure 15: Medium Walnut Collector/ Trader: Buy at leskhoz level and transport to walnut markets in small trucks with a capacity of 1–1.5 tonnes. Often family enterprises, with some storage capacity, with one or two trucks. These traders are often better connected with exporters and some will sell the better grades directly to them. They take samples first for inspection by the exporter who checks the crack-out rate. If it is about 50 percent, they will buy large volumes and crack themselves. It seems likely that the better grades are sold directly to exporters and that lower-quality graded walnuts, with crack rates of 35–45 percent are sold to local walnut crackers at the wholesale markets of Massy, Bazar-Korgon, and Jalal-Abad. There are 70–100 of these traders supplying Massy, Bazar-Korgon, and Jalal-Abad.

Figure 16: Large Walnut Collector/ Trader: **These traders have two to four larger trucks and transport 1–3 tonnes per trip.[28] They operate often in partnerships with family or friends. In busy periods, they may transport 5–10 tonnes per day from those leskhozes with large walnut production (e.g., Kara Alma leskhoz). If necessary, they may hire a truck for som 1,500–2,000 per day; new Hyundai trucks cost about $7,000. The trader marks up about som 3–5 per kilogram, which given large volumes allows for a reasonable margin. Their network also includes large export processors and buyers.**

Figure 17: Walnut Cracking: **There are thousands of people, usually in family groups, engaged in walnut cracking or walnut shelling in Jalal-Abad province. It is a slow and tedious job done by hand with a hammer or stone. No machines are available. Cracking is easier and faster when walnuts are wet, slower when dry and older. Usually walnuts are purchased at wholesale markets, cracked over one to two days and resold back to the kernel wholesale market. People are selective when buying walnuts, looking for softer skin, higher crack-out rates, and better grades. Margins are better in the high season and lower in the low season (as walnut grades are not so good and walnuts are tougher). One family can crack 30–40 kilograms of walnuts in the high season, when walnuts are wet compared with only 7–10 kilograms in the low season, when walnut skins are drier and tougher to crack. Most of these families lack credit facilities so they cannot buy and store kernels for sale later. Payment is in cash. Some credit arrangements exist between traders and walnut cracker families.**

[28] Personal communication with Mr. Mairamber Toktobaev.

Figure 18: Small to Medium Kernel Traders at Kernel Wholesale Market: **These traders rent tables in Bazar-Korgon or Jalal-Abad kernel wholesale markets on a daily basis. They buy from walnut crackers, re-grade or sort grades, and sell to large export buyers or traders (who distribute to Bishkek or other buyers). They commonly buy and sell 200–500 kilograms per day, with slightly varied prices (som 5–10 per kg). Medium-size traders will handle more than one tonne each day. These traders deal mainly in cash with walnut crackers. Some credit arrangements are forged between small traders and export companies who may settle after a few days.**

Figure 19: Large Kernel Buyers Mainly for Export: **Large Kyrgyz companies or individuals, some of whom are of Turkish origin, are active in the Bazar-Korgon and Jalal-Abad kernel markets, buying huge volumes (2–3 tonnes daily). They buy and prepare containers for shipment to Turkey by road, mainly through Osh. They have large storage areas, so they can buy large quantities in the high season when kernels are plentiful and prices lower. Produce is transported to the exporter's warehouse where it is dried, sorted into grades, cleaned of shell and skin, and boxed ready for shipment. The companies employ many staff mainly for grading and sorting. Some also buy walnuts to crack themselves. Many use export agents who provide a service to process paperwork and deal with the bureaucracy ($2,000 per shipment). Containers hold 22–23 tonnes and one container is worth about $125,000 ($5–$7 per kg).**

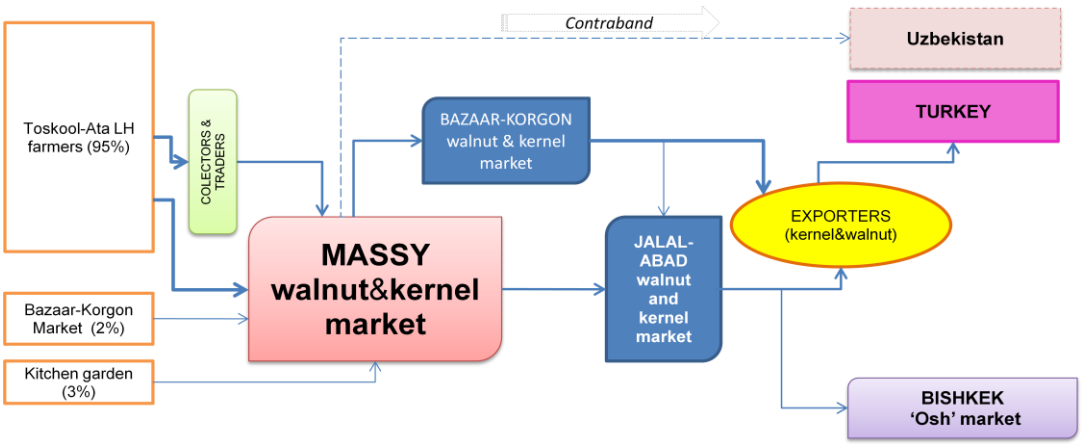
4.3 WALNUT AND KERNEL WHOLESALE MARKETS

This section provides a market map for Massy, Bazar-Korgon, and Jalal-Abad wholesale markets together with a description of the actors, their functions, market size, volumes, and management.

4.3.1 MASSY MARKET IN NOOKEN DISTRICT

Massy ("*aiyl okrug" or* rural municipality) has a population of about 20,307 persons and 4,000 households. Massy village has a small wholesale market privately owned, which provides a service to production areas in Toskool-Ata and Achy *leskhoze*s. Figure 14 shows the map for Massy market.

Figure 20: Outline of Walnut Market Chain for Massy Market



Collection and trading: Walnuts are transported and sold to traders by some local farmers from these two leskhozes, or collectors travel to buy directly from individual farmers. It appears that some walnuts are sent to Uzbekistan for cracking without going through official export channels.

Kernel making: A proportion of walnuts are purchased from traders for cracking locally: in the high season about three to five tonnes per month and in the low season about 750–1,000 kilograms per month. The majority of walnuts are sold to local traders who either transport to Bazar-Korgon or Jalal-Abad walnut wholesale markets for sale or store them for sale later at higher prices. Some sell directly to exporters.

Market structure and management: The market is privately owned and relatively small with an area of about 100 square meters under a covered roof with tables. The access road to the market is in poor condition and vehicle access is considered cramped, but functional, as long as the volume of vehicles is low. Trading areas are rented out to traders at som 100 per day per table. A service charge of som 10 per bag is levied for weighing sacks.

Relationship between actors in the market: Often the trader buys walnuts that are sold to walnut crackers who return kernels the next day to the same trader, who sells the kernels to buyers. In this market, walnut and kernel traders are most often the same persons. The walnut crackers have a close relationship with the traders. See section 4.6.2 on walnut cracking for more details.

Market size and volumes: Summary details of the market size, traders, and average monthly volumes are given in table 6. The market involves mainly small traders: 10 in the high season and 5 in the low season, trading both walnuts and kernels. Most of the walnuts purchased in the high season are for storage or for transport to other walnut wholesale markets.

Table 6: Summary of Trader Information for Massy Walnut and Kernel Markets by Season

Traders	Massy walnut market		Massy kernel market	
	HIGH season	LOW season	HIGH season	LOW season
Medium buyer	5 traders	1–2 traders	5 traders	1–2 traders
Small trader	10 traders about 30 tonnes per month: about 75 percent walnuts purchased for storage or sale to other walnut markets	5 traders 10 tonnes per month: majority of walnuts transported and sold in other markets	10 traders about 2 tonnes kernel sold per month	5 traders 450–700 kgs kernel per month
Walnut crackers	100 people	20–25 people		

***Please note*: For tables 6, 7, and 8 - a range is given for the number of traders by type as reported during the survey. Volumes by size of traders are estimates. The number of traders that participate in the market fluctuates from day to day, as do volumes traded in the market.**

The volume of kernels from Massy market is not so large, with just a small proportion of kernels relative to the volume of walnuts traded (only two tonnes of kernels traded in the high season compared with 30 tonnes of walnuts each month). This means just four to five tonnes of walnuts (15 percent of total walnut sales) are processed into kernels locally each month.

There are 100 people involved in walnut cracking in the high season and 25 in the low season.

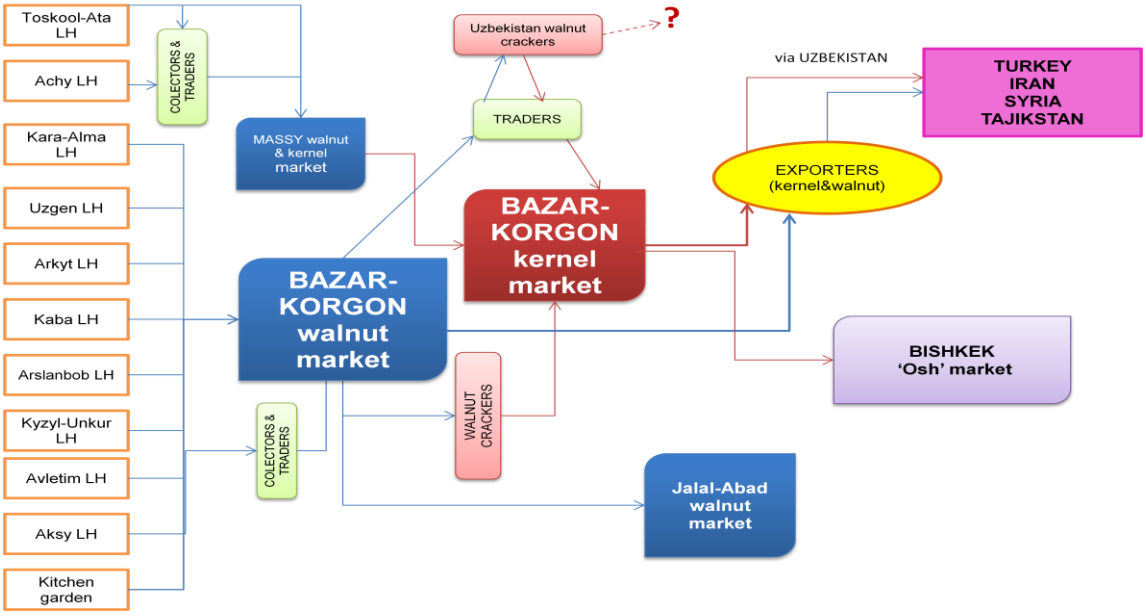
Altogether, 15 traders regularly trade in the Massy market and 100 walnut crackers work in Massy town.

4.3.2 BAZAR-KORGON WALNUT AND KERNEL WHOLESALE MARKETS

The population in Bazar-Korgon district is about 135,000, of which 35,000 people live in Bazar-Korgon village. Bazar-Korgon village contains the largest walnut and kernel wholesale market in Jalal-Abad province. It is home to an estimated 5,000 kernel crackers, collectors, and traders and firms or individuals purchasing kernels for export. There is little doubt that the

walnut industry provides a significant amount of employment to the people of Bazar Korgon, in particular those households from poorer sectors, who process walnuts into kernels. The market map for Bazar-Korgon is given in Figure 21.

Figure 21: Market Chain Map for Bazar-Korgon Walnut and Kernel Wholesale Markets



The main production areas supplying walnuts to Bazar-Korgon wholesale market include eight *leskhoz* walnut producers and local suppliers of kitchen walnuts.

There are two walnut wholesale markets, both of similar size (200 square meters), close together, and within working distance of the kernel market. The first is the Bazar-Korgon walnut market, which is serviced by general collectors and traders. The second market is a market for leaseholders from the Jai-Terek *leskhoz* who come to sell their own walnuts in this market.

The Bazar-Korgon kernel market is possibly the largest trading market for kernels in Jalal-Abad. Walnut crackers buy walnuts from the two walnut wholesale markets then sell kernels to the Bazaar Korgon kernel market. Large buyers are mainly exporters or their agents. It was estimated that 98 percent of kernels were sold for export and 2 percent for domestic retail markets.

The traders and volumes processed by market by season are given in table 7.

Table 7: Summary of Trader Information for Bazar-Korgon Walnut and Kernel Markets by Season

Traders and participants involved in the walnut wholesale business	Bazar-Korgon walnut market		Jai-Terek walnut market		Bazar-Korgon kernel market	
	HIGH season	LOW season	HIGH season	LOW season	HIGH season	LOW season
Export buyer (company or individual)	None	None	None	None	10–12 exporters purchase 1–2 tonnes per day	2–3 exporters buy 600–800 kgs per day
Large trader	10–15 traders: 1–2 tonnes per day each	10 traders: 600– 800 kgs per day	2 buyers: 500 kgs–1 tonne per day	2 buyers: 300–500 kgs per day	N/A	N/A
Medium-sized trader	100 traders: 500 kg–1 tonne	50–70 traders:	4 traders: 300–500 kg	3 traders: 100–200 kg	10 traders: 500 kgs–1 tonne	5 traders: 300–500 kgs

	per day each	300–500 kgs per day	per day each	each per day	per day	per day
Small trader (who buys and sells walnut in market	50–60 traders: 300– 500 kg each per day	40–50 traders: 100–200 kgs per day	4 traders: 100– 200 kg each per day	3 traders: 100 kgs per day	70–100 traders: buy and sell 300–400 kgs per day	30 –50 traders: trade 100–200 kgs per day
Number of walnut crackers servicing Bazar-Korgon markets	There are an estimated 3,000–5,000 persons cracking walnuts in the high season and about 1,000 in the low season. It is not known if migrant workers come to Bazar-Korgon during peak periods – either from other towns or rural areas, or from Uzbekistan.					

Market structure and management: The market is approximately 2,500 square meters and is privately owned by one owner. The access road to the market is in poor condition and vehicle access is considered cramped, but functional, as long as the volume of vehicles is low. Trading areas are rented out to small traders at som 35 per day. A service charge of som 10 is levied for weighing each sack.

Traders: Small traders usually have just one table and deal mainly in cash. One trader estimated that the start-up capital needed to trade was about som 60,000 to 120,000 for small kernel traders. The majority of kernel traders are notably women assisted by family members.

Medium sized traders occupied three or four tables and bought and sold larger volumes. Most have accounts with export buyers, so that books are usually balanced on a weekly basis.

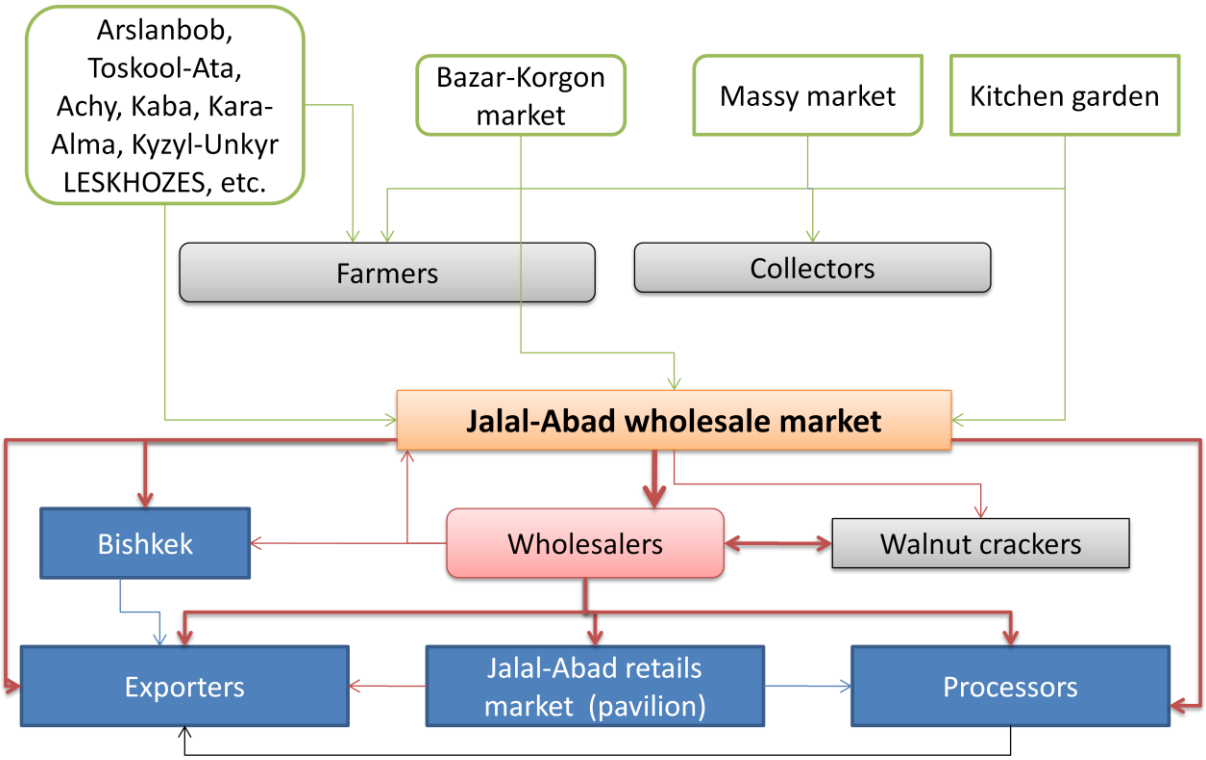
The Bazaar-Korgon walnut market and kernel market are the largest in Jalal-Abad province, with more than 300 traders.

Walnut cracking: It is estimated that in the high season there are 3,000–5,000 people in the town crack walnuts. Some of these people in peak periods may be migrants. The cracking business provides much needed employment to local people, especially women from the poorest sectors.

4.3.3 JALAL-ABAD WALNUT AND KERNEL WHOLESALE MARKETS

The market map for the Jalal-Abad walnut and kernel market is given in figure 22.

Figure 22: Walnut and Kernel Market Chain for Jalal-Abad Market



The map shows the market chain of the Jalal-Abad wholesale market. Walnuts are supplied by many *leskhozes* in the Jalal-Abad province, and by farmers from Bazar-Korgon and Massy markets, but mainly by traders and collectors. A small proportion of walnuts are from household kitchen gardens. From Jalal-Abad wholesale market, some walnut and kernels are sent to Bishkek retail markets and to Jalal-Abad retail markets. The main volume of kernels, however, are sent to processors for export to other countries.

Table 8: Summary of Trader Information for Jalal-Abad Walnut and Kernel Markets by Season

Traders	**Jalal-Abad walnut market**		**Jalal-Abad kernel market**	
	HIGH season	**LOW season**	**HIGH season**	**LOW season**
Large buyer	50 traders buying 3 tonnes each per day	20 traders 300–500 kgs per day	35 buyers volumes unknown	15 buyers volumes unknown
Medium-sized trader	30 traders dealing in 1 tonne per day	10 traders up to 100 kgs per day	20–25 traders volumes unknown	10–15 traders volumes unknown
Small trader	20 persons 200–300 kgs per day	10 persons dealing in 30–40 kgs per day	5–10 traders volumes unknown	3–5 traders volumes unknown
Number of walnut crackers servicing Jalal-Abad market	There may be 500–1,000 people in Jalal-Abad city who crack walnuts and return them to the Jalal-Abad kernel market in the high season.			

In the high season, 100 traders operate in the Jalal-Abad walnut market and 70 traders engage in kernel buying and selling. The market is not as large as Bazar-Korgon.

Market structure and management: The market is approximately one to two hectares and is privately owned.[29] The owner charges som 10 per car, som 20 per truck, and som 10 per sack weighed. The owner (possibly afraid of revealing too much business information) was unable to give the RMA team a breakdown of numbers of cars, trucks, and passenger buses that arrived each day or month. This information would have been useful to check volumes of walnuts traded each month.

Kernel traders paid som 800 for 9 square meters each month. Some 35 regular kernel traders were registered during high season, and about 15 traders work during the low season. Walnut collectors and traders did not have to rent space; rather they would sell directly from their car or truck.

The condition of the market was considered run down, with limited covered areas for trading. This is important given that the high season is during the tough winter months.

4.3.4 SUMMARY JALAL-ABAD WALNUT AND KERNEL MARKET CHAIN MAP

The complexity of the market chain; the relationships between walnut and kernel wholesale markets; and linkages among wholesale, retail, processing and export, and other manufacturing are summarized in the market chain map in Figure 23.

Many actors provide services in the market chain. These include collectors, traders, walnut crackers, processors and exporters, retailers, and a limited number of manufactures of cakes and confectionery.

The walnut and kernel market chain generates a significant amount of employment, especially for poor households and women. It is estimated that 3,000 to 5,000 poor people are employed in Bazar-Korgon to crack walnuts. Many may be migrants but this is not confirmed. Jalal-Abad has 1,000 walnut crackers. Twenty medium to large companies employ teams of women to process and grade kernels ready for export. There are 400–500 collectors and traders supplying and selling walnuts and kernels during the high season in Massy, Bazar Korgon, and Jalal-Abad wholesale markets. It is estimated that there may be 8,000 to 10,000 people employed in the downstream walnut and kernel value chain in the high season months of September to December in years with good harvests.

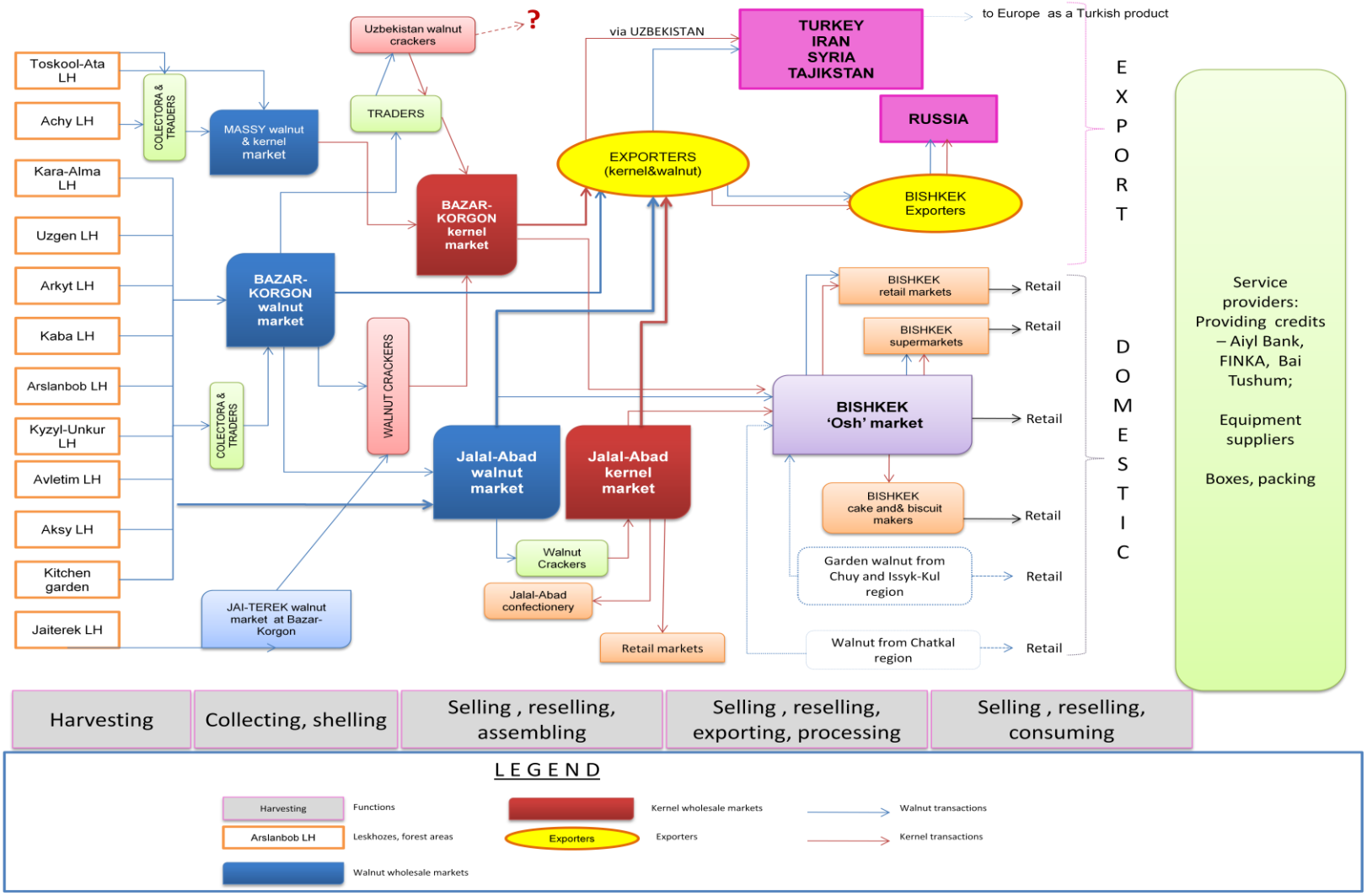
Walnuts from Toskool-Ata and Achy are supplied through the Massy market. Jai-Terek *leskhoz* sells its walnuts through the small Bazar-Korgon Jai Terek walnut market. The other eight *leskhozes*, some of which are major producers (e.g., Kara-Alma) are sent to Bazar-Korgon and Jalal-Abad walnut wholesale markets.

Most of the walnuts in wholesale markets are purchased by walnut crackers, who crack the nuts and sell the kernels in the kernel wholesale markets in Bazar-Korgon and Jalal-Abad. The majority of kernels are purchased by exporters for further processing, grading, and export, mainly to Turkey, Iran, Iraq, and Syria. Some walnuts are sent to Uzbekistan for cracking illegally, where labor is cheaper. It is not know exactly how many tonnes go there, but it could be 10 percent of the total crop. The kernels produced are probably exported as Uzbek products, not Kyrgyz.

Kernels and some walnuts are sent from Jalal-Abad to retailers in Bishkek at Osh Bazaar market. There are very few Kyrgyz walnut products in Bishkek supermarkets.

[29] Mr. Erkin Murzabekov.

Figure 23: Overall summary market map for walnut and kernel value chain



4.4 INCOME AND COST ANALYSIS FOR DIFFERENT ACTORS

An assessment of the costs and returns for different actors engaged in the market chain is given in this section.

4.4.1 BREAKEVEN PONT FOR STORAGE OPTIONS

Many collectors buy walnuts wet, store them, and sell them two months later, once they have dried and prices have increased. The analysis in table 9 summarizes the amount of mark-up storage provides over time, together with an indication of breakeven price (i.e., how low would the price have to drop before the collector would just break even). It is assumed that during storage, walnuts' weight is reduced by 25–30 percent.

Table 9: Breakeven Price Analysis and Income Gained from Storage

Item	Buy month	Amount (kgs)	Price (soms)	Total (soms)	Storage time	Weight loss	Sell month	Amount (kgs)	Price (somS)	Total (soms)	Profit (soms)	Breakeven price (soms)
Walnut	October	100	35	3500	60 days	25 percent	December	75	60	4500	1000	46.7
Walnut	October	100	35	3500	90 days	30 percent	January	70	70	4900	1400	50.0

In this analysis, two storage periods are assessed; one 60 days and the other 90 days. The profit margin for 60-day storage (at 2010/11 prices) is about som 1,000 for 100 kilograms (about three sacks of walnuts) and for 90 days is som 1,400 per 100 kilograms. The breakeven prices are som 46.7 and som 50 per kilogram, respectively. This implies that for the 90-day storage scenario, if the collector stored 100 kilograms purchased at som 35/kg in October for 90 days, during which time the weight reduced by 30 percent leaving 70 kilograms for sale in January, the breakeven price would be som 50/kg. If he sells the 70 kilograms at any price higher than som 50/kg, he will make a profit.

The som 1,400 margin over som 3,500 cash outlay is a 40 percent return on investment, which is considered very good. If correct, it would pay a person well to borrow from the bank (say at 30 percent per year, or 2.5 percent per month) to finance the purchase of wet walnuts for storage. After three months, he would pay 7.5 percent interest on capital borrowed.

4.4.2 COST AND RETURNS FOR WALNUT CRACKING OR SHELLING SERVICES

Different trading scenarios for walnut crackers were identified during the survey:

No cash exchange cracking service: If trusted, the cracker takes the walnuts, cracks them, and gives them back to the trader. No cash exchanged, only a fee for the shelling service.

Buy walnuts and sell kernels: Walnut crackers buy walnuts, take them home, crack them, and bring kernels back to sell. Profit margins depend on walnut quality. Walnuts get tougher to crack the longer they are kept, and are easier when wet because the skins are softer.

In the low season, cracking is harder, shells are tough, and crackers put walnuts in water for an hour to soften them, but not drying them correctly degrades the quality of kernels and causes mold and aflatoxins.

In table 10, the cost and returns for a walnut cracker team is calculated under conditions in the high season, when walnuts are wet and easier to crack; and under conditions in the low season, when walnuts are dry and hard to crack.

Table 10: Cost and Returns for a Team of Walnut Crackers by Month (one daily cycle)

Month	Daily volume cracked by kernel makers	Cost Walnut per kg	Purchase cost (soms)	average percentage crack out rate (%)	Kernals produced (kg)	Price of sold kernals (soms)	Value of kernal (soms)	Profit (soms)	Income per person day (soms per day)
September	35	35	1,225	45%	16	150	2,363	1,138	190
October	35	40	1,400	45%	16	170	2,678	1,278	213
November	30	50	1,500	45%	14	200	2,700	1,200	200

December	30	60	1,800	45%	14	220	2,970	1,170	195
January	20	70	1,400	40%	8	250	2,000	600	100
February	15	90	1,350	40%	6	270	1,620	270	45
March	10	100	1,000	37%	4	320	1,184	184	31
April	10	100	1,000	37%	4	320	1,184	184	31
May	10	100	1,000	37%	4	310	1,147	147	25

It is assumed that a team of six can crack 35 kilograms of walnuts in the high season and only 10 kilograms in the low season. A crack-out rate of 37–45 percent is assumed depending on the month. Lower crack-out rates are normal in the low season. Apart from kernels, the team can sell shells for cooking fuel (at som 5/kg). Usually they sell 20-kilograms sacks for som 100. However, when burnt, the shells cause the fire to crackle and spit.

Kernel making is a more lucrative in the high season when walnuts are easier to crack, but even then the return per labor day (assuming six workers) is low: som 190–210 per person per day from September to December and som 25–45 per person per day in the low season.

Walnut crackers are from the poorest sectors of society. They could earn more money if they were able to borrow from the bank to fund a walnut or kernel storage business. The RMA team did not find any kernel makers who had access to credit, as they either were "not bankable," could not find short-term lending (see section 5.4 for more details), or could not afford high interest rates, as banks charge in the region of 29–30 percent interest per year. Private lenders charge even higher rates than this.

4.4.3 COST AND RETURNS FOR SMALL COLLECTOR TRADER

One collector interviewed[30] has collected walnuts for four years. He collects about three to four tonnes per year. In March 2011, he purchased about 380–400 kilograms of walnuts at the village for som 90/kg and transported them to Massy. He sorts and grades by nuts by size and color and sells grade A at soms115–120/kg and B at som 95/kg. He has storage space for two tonnes at his house. His profit margin for each collection cycle (i.e., drive to *leskhoz* village, buy 380 kg of nuts, and sell in Massy market after grading) is given in table 11.

The profit margin for the collector, including the value added from grading walnuts, is about som 4,740 per collection trip or cycle. This is about a 12 percent margin on costs, which is considered to be a normal return or mark-up for provision of the service. His main fixed cost would be the investment in his car. Other running costs for repair and maintenance were not considered in this calculation.

Table 11: Income and Cost Assessment for Massy Collector for One Collection Cycle (excluding fixed costs)

	Amount (kgs)	**Price (soms)**	**Total (soms)**
Income			
Walnuts graded A	250	110	27,500
Walnuts graded B	130	95	12,350
TOTAL	**380**		**39,850**
Cost Item			
Walnuts from village	400	87	34,800
Fuel	1	300	300
TOTAL			**35,100**
Margin	**12 percent**		**4,750**

[30] Mr. Turdumamat Samiev, Massy.

Fixed cost items (to run business)			
Secondhand car	Som 200,000–300,000		

4.4.4 COST AND RETURNS FOR SMALL KERNEL TRADER IN BAZAR-KORGON

The cost and return for a small kernel trader in Bazar-Korgon kernel market for daily trading is given in table 12.

Table 12: Cost and Return for Small Kernel Trader in Bazar-Korgon Kernel Market (excluding fixed costs)

	Amount (kgs) purchased	Purchase price (soms) by grade	Capital outlay to purchase kernels (soms)	Mark Up: difference between buy and sale price (soms)	Total Profit for the day trading (soms)
Income *					
Kernel grade A	125	280	35,000	30	3,750
Kernel grade B	75	240	18,000	20	1,500
Kernel grade C	70	220	15,400	20	1,400
Kernel grade D	15	110	1,650	10	150
Kernel grade E	15	15	225	5	75
TOTAL	**300**		**70,275**		**6,875**
Cost Item	**Amount**	**cost (KGS)**	**Amount**	**cost (KGS)**	
Table rental cost	1		1	35	35
Weighing cost	8		8	15	120
TOTAL					**155**
Margin	**9.6%**	**margin on capital**		**Total Daily profit (soms)**	**6,720**

It is assumed that the trader buys 300 kilograms of different grades of kernel. The trader undertakes further grading to add value. Mark-up between the buy and sell price varies depending on the grade. If the trader buys 300 kilograms of kernels in a day, the investment cost is about som 70,000. After mark-up, the trader will earn som 6,875 from sales less som 155 for costs, making a trading profit of about som 6,720. This is a return of 9.6 percent on capital invested. It is likely that a medium-sized trader mark-up may be less, given the larger volumes bought and sold. However, the RMA team was unable to check this detail.

4.5 WALNUT SUPPLY, DEMAND AND PRICE TRENDS

The RMA team asked different small, medium, and large walnut and kernel traders questions regarding demand, supply, and price trends over time for walnuts and kernels based on their experience. Through a rough calculation, based on the number of traders or collectors of that nature operating, it is possible to project an estimate by year for these variables in each market.

The RMA team was reasonably successful at documenting price trends, both long term and seasonal, but it has struggled to find meaningful market volume estimates, particularly for the larger markets of Bazar-Korgon and Jalal-Abad:

1. The RMA spent just a short period of time in each market (two days total in all three markets).

2. Bazar-Korgon and Jalal-Abad are huge markets with many different participants performing different roles.

3. Traders purchase walnuts and kernels in one market and re-sell in another, so there is a degree of double-counting.

The term N/A in the following tables means "Not Available," either because the RMA could not get sufficient data or, if data were available, there were doubts over the degree of accuracy.

More detailed study over a longer duration should be undertaken to fully understand the dynamics of these markets.

4.5.1 LONG-TERM SUPPLY, DEMAND, AND PRICE TREND FOR WALNUTS

Annual supply trend: Supply in different years is closely linked to production volumes of walnut forests, which varies considerably. Table 13 provides estimates of supply in each walnut wholesale market by year.

Table 13: Estimated Supply of Walnuts to Different Markets Surveyed by Year (tonnes)

Markets	2005/6	2006/7	2007/8	2008/9	2009/10	2010/11
Massy walnut market	80	170	220	215	110	203
Bazar-Korgon walnut market	N/A	N/A	N/A	N/A	N/A	2220
Bazar-Korgon Jai-Terek walnut market	N/A	N/A	N/A	N/A	N/A	525
Jalal-Abad walnut market	N/A	N/A	N/A	N/A	N/A	N/A
Total:						

The volumes passing through the Massy market in different years are quite similar to the trend given in section 4.7.6.

Annual demand trend: As a general rule, the demand for walnuts to make kernels for export may be considered robust over the years. Only in the 2008/9 season did the demand drop off due to exporters buying in other countries. Traders mentioned that it would take four to six days and sometimes longer to sell all of their walnuts from one car or truckload. Trading in the 2010/11 season was notably brisk, particularly in the high season. However, some traders in Jalal-Abad commented that it would take two to three days to sell two to three tonnes in February or March, especially if the crack-out grade was low. Kernel makers buy walnuts with higher crack-out percentages.

Annual highest price trend: The highest annual price recorded by year for different wholesale markets is given in table 14.

Table 14: Estimated Highest Annual Price for Walnuts by Year (soms/kg)

Market	2005/6	2006/7	2007/8	2008/9	2009/10	2010/11
Massy walnut market	60	65	80	75	60	110
Bazar-Korgon walnut market	N/A	N/A	N/A	N/A	N/A	110
Bazar-Korgon Jai-Terek walnut market	N/A	N/A	N/A	N/A	N/A	110
Jalal-Abad walnut market	N/A	47–65	65–80	70–95	95–100	100–110

The wholesale price of walnuts has almost doubled from 2005/6 to 2010/11, from som 60/kg to som 110/kg. Prices dropped in the 2008/9 and 2009/10 seasons due to exporters buying in other countries (such as Albania), for reasons mentioned above. Another contributing factor is that the Kyrgyz som has depreciated by about 25 percent since 2005, from about som 35/US$1 to som 47/US$1. This slide in value would also be linked to the rising price trend over the past five years, as walnuts and kernels are exported at dollar prices.

4.5.2 WALNUT GRADES

As described in section 2.4 above, walnut grades depend on a range of factors including size, toughness of skin, color. Taste is also an important criterion. The easier walnuts can be cracked or shelled, the better the grade of kernel produced. The crack-out rate—the percentage of shell to kernel—is a key grade criteria.

Kitchen garden nuts are supposed to have a better taste and tend to be bigger. Crack out is about 50 percent compared with 40–45 percent for wild walnuts. Table 15 provides information on the number of walnuts per kilogram by grade, the crack-out rate, and the approximate price per kilogram. One nut weights about 5–7 grams, up to 10 grams.

Table 15: Summary of Walnut Grades and Characteristics

Grade	Grade characteristics	Crack-out rate	Average price (March 2011)

		(percent)	
A	Large, 125–135 nuts per kg, good color, white/yellow, good taste	45–50 percent	som 110/kg
B	Medium, 140–150 nuts per kg, color ok, reddish, taste good	40-45 percent	som 80-90/kg
C	Small, 160–170 nuts per kg, darker in color, and poorer taste	35-40 percent	som 70–80/kg

4.5.3 SEASONAL TRENDS FOR WALNUTS

Seasonal market supply volume estimated at different wholesale markets for walnuts during the 2010/11 season is given in table 16.

Table 16: Seasonal Average Market Volume (tonnes per month) for Walnuts at Different Markets (2010/11)

	Aug	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Apr	Total
Massy walnut market	10	30	30	30	30	30	20	13	10	**203**
Bazar-Korgon walnut market	50	300	600	450	300	300	210	30	30	**2220**
Bazar-Korgon Jai-Terek walnut market	20	70	130	110	110	50	20	10	5	**525**
Jalal-Abad walnut market	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

It is estimated that the volume of walnuts traded at the Massy walnut wholesale market was 203 tonnes in 2010/11, with 100 tonnes each from Toskool-Ata *leskhoz* and Achy *leskhoz*.

A rough estimate of the volume of walnuts passing through the Bazar-Korgon walnut market was 2,220 tonnes. The Jai-Terek walnut market is significantly smaller at 525 tonnes in the 2010/11 season. Reliable figures for the Jalal-Abad walnut market were difficult to obtain.

Seasonal walnut prices by month: Buy and sell prices at the Massy market were slightly lower than the other three walnut markets each month (see table 17). Traders added a small mark-up of som 5–7 /kg was added to the buy price.

Table 17: Seasonal Average Market Prices for Walnuts at Different Markets (2010/11) by Month

Walnut Average prices (soms/kg)		August	Sept	Oct	Nov	Dec	Jan	Feb	March	April
Massy Market	BUY	30	35	40	50	60	80	90	100	100
	SELL	35	45	50	53	70	85	95	105	105
Bazar-Korgon Market	BUY	30	40	50	55	70	85	90	100	105
	SELL	35	45	55	60	75	90	95	105	110
Jai-Terek market	BUY	30	40	50	55	70	85	90	100	105
	SELL	35	45	55	60	75	90	95	105	110
Jalal-Abad market	BUY	30	40	51	58	73	79	86	104	104
	SELL	35	46	55	65	81	85	92	110	110
Average buy price	**BUY**	**30**	**39**	**48**	**55**	**68**	**82**	**89**	**101**	**104**
Average sell price	**SELL**	**35**	**45**	**54**	**60**	**75**	**88**	**94**	**106**	**109**

Walnut prices increase from a low of som 30–35/kg in August to a high of som 100–110/kg in the shortage months of March and April.

4.5.4 CONCLUDING REMARKS FOR WALNUT TRENDS

Massy walnut market is mainly a transit market between two *leskhoz* forest areas and the Bazar-Korgon and Jalal-Abad walnut markets. Only a small proportion of walnuts traded are cracked to make kernels locally.

Bazar-Korgon is the largest wholesale market for walnuts in Jalal-Abad province, supplying walnuts to a large number of people employed in walnut cracking. There are 175 traders engaged in the Bazar-Korgon walnut market and 10 traders in the Jai-Terek market.

The Jalal-Abad walnut market is smaller than Bazar-Korgon market, with 100 traders buying and selling.

4.6 KERNEL PRICE, SUPPLY, AND DEMAND TRENDS

4.6.1 LONG-TERM SUPPLY, DEMAND, AND PRICE TREND FOR KERNELS

Annual supply trend: Supply in different years is obviously closely linked to production volumes of walnut forests in individual years and fluctuates accordingly.

Annual demand trend: The main demand from exporters is for kernels. Traders reported strong demand from exporters in the 2010/11 season, forcing prices to a high of som 325/kg in February and March 2011. Demand had fallen off in 2008/9 and 2009/10 due to exporters buying in other countries and difficulties experienced in doing business in the Kyrgyz Republic.

Annual highest price trend: The highest annual price recorded by year for different wholesale kernel markets is given in table 18.

Table 18: Estimated Highest Annual Price for Kernels by Year (soms/kg)

Market	2005/6	2006/7	2007/8	2008/9	2009/10	2010/11
Massy kernel market	N/A	N/A	N/A	N/A	N/A	300–325
Bazar-Korgon kernel market	130	150	180	220	280	325–335
Jalal-Abad kernel market	N/A	N/A	N/A	N/A	N/A	325–335

The RMA team managed to obtain price estimates over the past years from the Bazar-Korgon kernel market. Prices have increased dramatically since the 2005/6 season, when the best price kernels sold at was about soms130/kg, to som 335/kg. This reflects both the 25 percent devaluation of the Kyrgyz som in the same period and rising commodity and walnut prices in global markets.

4.6.2 KERNEL GRADES AND SEASONAL PRICES FOR 2011

Good kernel grades reflect the quality of the walnut as mentioned above. The grade would also reflect the skill of the walnut cracker to make sure that during shelling the butterfly kernel is kept intact. This is hard to do when the walnut is dry. Walnut crackers often soak the walnuts in water prior to cracking to soften them up. Kernel buyers complain that kernels are too moist following cracking after soaking, which leads to fungus and mold outbreaks as kernels are not dried sufficiently. A summary of grade characteristics is given in Table 19.

Table 19: Summary of Kernel Grade Characteristic, Crack-Out Rate, and Average Price

Grade	Grade description	Percentage grade obtained from 100 kgs of kernels	Average price (March 2011)
A	Butterfly white	40	som 325/kg
B	Butterfly cracked and mixed	20	som 270/kg
C	Large whole kernel, mixed with other pieces	20	som 230/kg
D	Leftover dark pieces, no butterflies cracked and reddish – used for cakes and cooking	10	som 50/kg
E	Dark, black, and sometimes moldy small pieces	10	som 40/kg

Source: Kernel trader at Bazar-Korgon.

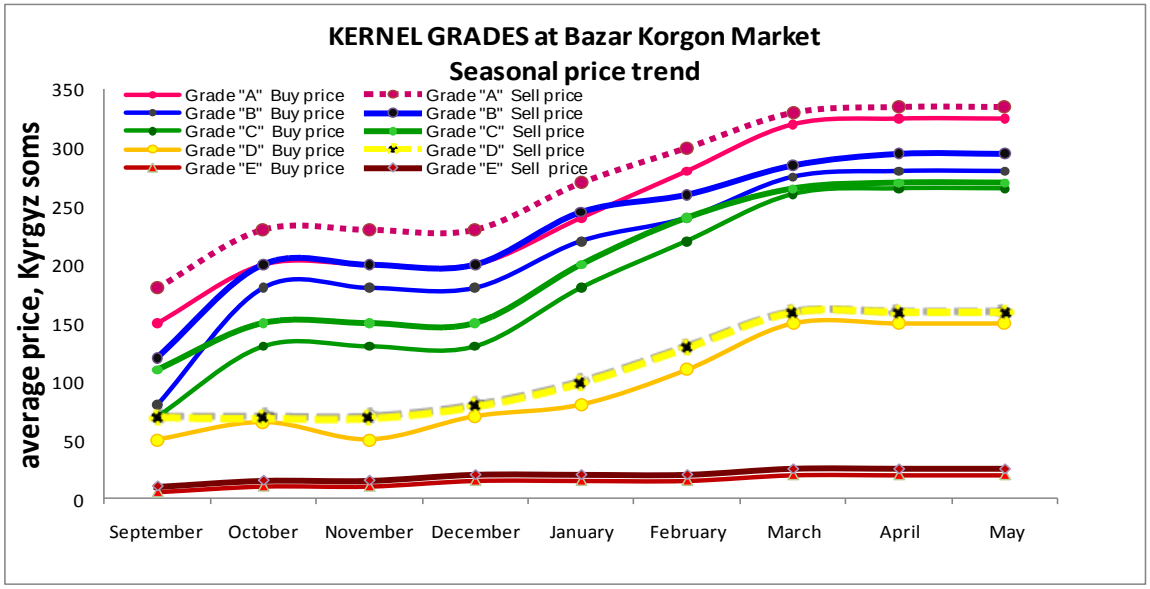
Table 20 presents detailed seasonal buy and sell prices for different grades in Bazar-Korgon kernel market by month. Note that the mark-up by the trader is about som 20–30/kg for grades A and B and less for lower quality. Price trends for different kernel grades are illustrated in figure 24.

Table 20: Detailed Monthly Prices for Kernels by Grade in Bazar-Korgon, 2010/11

Month	Grade "A" Buy price	Grade "A" Sell price	Grade "B" Buy price	Grade "B" Sell price	Grade "C" Buy price	Grade "C" Sell price	Grade "D" Buy price	Grade "D" Sell price	Grade "E" Buy price	Grade "E" Sell price
September	150	180	80	120	70	110	50	70	5	10
October	200	230	180	200	130	150	65	70	10	15
November	200	230	180	200	130	150	50	70	10	15
December	200	230	180	200	130	150	70	80	15	20
January	240	270	220	245	180	200	80	100	15	20
February	280	300	240	260	220	240	110	130	15	20
March	320	330	275	285	260	265	150	160	20	25
April	325	335	280	295	265	270	150	160	20	25
May	325	335	280	295	265	270	150	160	20	25

Source: Small trader in Bazar-Korgon.

Figure 24: Kernel Grade Prices by Month at Bazar-Korgon, 2010/11



4.6.3 SEASONAL VOLUME TREND FOR KERNELS IN 2010/11

Seasonal market supply volume estimated at different wholesale markets for kernels during the 2010/11 season is given in table 21.

Table 21: Seasonal Average Market Volume (tonnes per month) for Kernels at Different Markets (2010/11)

	Aug	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Apr	Total
Massy kernel market	2	8	10	12	10	8	4	2	2	**58**
Bazar-Korgon kernel market	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	**N/A**
Jalal-Abad kernel market	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	**N/A**
Total:										**N/A**

The volumes of kernels traded through the Massy market is estimated to be much lower because there are not many walnut crackers shelling walnuts in Massy town. The kernel market may shift about 58 tonnes of kernels between September and May.

4.6.4 CONCLUDING REMARKS FOR KERNEL TRENDS

The kernel market in Bazar-Korgon is the largest in Jalal-Abad province, with all the major exporters buying kernels directly

from the market. Volumes are significant and 100–120 traders rent space in the market in the high season.

The Jalal-Abad kernel market is smaller, with 35 regular traders in the high season and 10–25 traders in the low season.

Unfortunately, in this survey, it proved difficult to obtain a meaningful estimate of volumes traded in the market, for reasons previously mentioned.

4.7 WALNUT AND KERNEL PROCESSING AND EXPORT

This section covers walnut kernel processing ready for export, other processing and manufacturing, the walnut and kernel export industry, and export figures.

4.7.1 BACKGROUND OF EXPORT COMPANIES

The RMA team visited five export companies and businesses in Jalal-Abad engaged primarily in the processing and grading of kernels for export. These included Sky Ltd (Mr. Abdikapar Kayipov); Vega Plus Ltd. (Mr. Kanybek Aitakalov); Golden Walnut Ltd and Earth Food Ltd (Mr. Anarbek Malabaev); and Semety Company Ltd (Mr. Aidarov Semety). It was not possible to meet any of the four main Bishkek-based exporters. A full list of exporters with contact details is given in annex A.2, together with a list of exporters who sent walnut products overseas by year obtained from the customs department.

Sky Ltd: This is one of the largest exporters in the Kyrgyz Republic. The company exports a range of products to Turkey, including capers, pistachios (nuts only), bitter almonds, mushrooms, and kernels. It began exporting in 1995 and registered in 1999. There are several elements to the business: (1) Turkish traders collect and ship through the company. (2) Sky has six collection warehouses in Suzak, Bishkek, and Oktiabrsk, from which least one to two containers are exported each month. Orders can be supplied within 15 days. Packing and export in summer is preferred, as conditions are easier. The company employs seven specialist collectors and up to 30 regular staff. Extra staff are employed for grading and packing as required on temporary basis.

Vega Plus Ltd: The company has existed for 10 years (2001) and exports to Iran, Iraq, Turkey, and Syria. It provides a service to other exporters and charges $2000 to process documentation per 22–23 tonne container. Some 30 companies and individuals use its services. In 2010, the company also exported 500 tonnes of kernels.

Earth Food Ltd: The company has been business since 2005. In 2011, the company exported 100 tonnes of kernels to Turkey. It has used a machine to vacuum -pack walnuts in five-kilogram bags. The result was not successful, as the Turkish buyer wanted the kernels packed in boxes. There is interest to produce 300-gram bags of kernels, but Jalal-Abad lacks the manufacturing skills for labeling bags locally. The main route is via Turkey, but there is potential to open up new markets via Germany and Holland. It is more difficult to comply with standards for European Union countries compared with Turkey.

Golden Walnut Ltd: This company exports kernels to Turkey. In 2010–11, the company exported two containers to Turkey (44 tonnes). It has capacity to export more but is waiting for orders. The company's website attracts a lot of interest from foreign buyers.

Semety Ltd: This is a family-run business. In 2010, the company exported 15 containers to Turkey. The warehouse is close to the Bazar-Korgon kernel market. The company employs 60 women to grade kernels into Butterfly, Red, Black, and Chaff (pieces) grades. The women receive som 5 per kilogram sorted. Two staff are employed to pack 10-kilogram boxes for export (for a monthly salary of som 10,000). After grading the kernels are dried on homemade dryers. Semety has three dryers, two with capacity to dry 500 kilograms per day and a larger drier that can dry 1000 kilograms per day. Drying takes one hour per batch. One container of kernels (23 tons) may be valued at about $160,000. The company uses the services of Vega Plus Company to process its documents for export at $2,000 per shipment; other costs include white boxes costing som 45 each.

Turkish trader (Mr. Farrukh): The trader has been based in Bazar-Korgon for six years and rents a warehouse area for $200 per month. In 2011, 300 tonnes of kernels were exported to Turkey. One shipment takes 20–25 days to prepare. Documents are processed by Vega Plus. Kernels are exported at $7/kg and sold in Turkey for $10/kg. In Turkey, the kernels are re-graded and sorted. The high-value white kernel butterflies from the Kyrgyz Republic are repacked into small bags for export to Europe, particularly France and Germany. The darker grades are exported to Iraq for use in confectionery, sweets, and cakes, Machines are used in Turkey to crack walnuts, but they are not suitable for the Kyrgyz walnut, due to the shell thickness. Walnuts in Turkey are cultivated, not wild. Turkey produces 20,000–30,000 tonnes of kernels every year.

4.7.2 PROCESSING, GRADING, DRYING, AND PACKAGING FOR EXPORT

Most processing/export businesses buy in kernels. Only a few (e.g., Sky) buy walnuts and employ labor to crack walnuts. The main processing involves grading and sorting (figure 25). Women pick through kernels and select by grade, remove skin or membranes or bits of shell, and sort according to color and quality. Kernels are then laid out on large racks and dried with hot air (figure 26). The kernels are allowed to cool and then are packed into white boxes ready for shipment (figure 27).

Figure 25: Women Sort Kernels into Different Grades.

Figure 26: Drying Machine

Figure 27: Ten-kg Boxes Ready for Shipment

Different export businesses have different grades for export, but the most common is Butterfly grade A (white color; figure 28), Mixed A and B grades (figure 29), and Reddish kernel and black kernels (figure 30).

Figure 28: Butterfly Sample

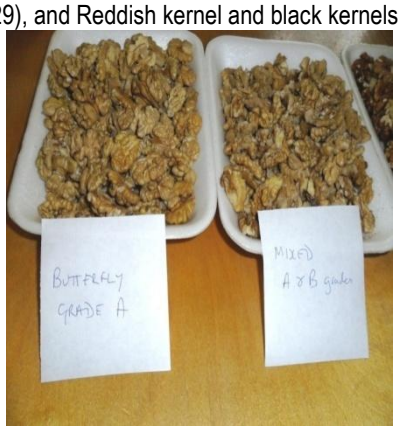


Figure 29: Grade A Kernels (left) and Mixed A and B Kernels (right)

Figure 30: Red Butterfly (left) and Dark Color Kernels for Oil Processing (right)

The graders have to check carefully for aflotoxin and mold, which are likely when walnut crackers soak walnuts in water to make them easier to crack, particularly in the low season, and sometimes kernels are not dried properly before storage. According to one exporter[31] kernel makers dipped walnuts in water to obtain butterflies. Aflatoxin is most common in reddish and black kernels. Black kernels are often sold to confectionery and cake manufacturing companies[32] because they are cheap.

4.7.3 COST AND RETURN FOR EXPORTERS

The estimated margin for one 22-tonne container of grade A butterfly kernels exported f.o.b.[33] is given in table 22 with a breakdown for the high season (when kernels are slightly cheaper) and the low season (when kernel prices are more expensive).

[31] Earth Food Ltd.
[32] Shirin Co Ltd, Nazik Co Ltd, and Bagheri Co Ltd in Jalal-Abad buy from Earth Food Ltd.
[33] Free on board means that transport and customs costs are paid for by the importer in Turkey.

Table 22: Cost and Returns for One Container Exported from Jalal-Abad in the High and Low Seasons

	HIGH season				LOW season			
	Amount (soms)	**Price (soms)**	**Total (soms)**	**Total (US$)**	**Amount (soms)**	**Price (soms)**	**Total (soms)**	**Total (US$)**
Income								
Container grade A kernels	22,000	315	6,930,000	154,000	22,000	315	6,930,000	154,000
Walnut (other grades)	3,000	150	450,000	10,000	3,000	150	450,000	10,000
TOTAL	**25,000**		**7,380,000**	**164,000**	**25,000**		**7,380,000**	**164,000**
Cost Item								
Kernels (grade A)	25,000	220	5,500,000	122,222	25,000	275	6,875,000	152,778
Labor grading cost (som 5/kg)	25,000	5	125,000	2,778	25,000	5	125,000	2,778
Labor packing cost per container	1	10,000	10,000	222	1	10,000	10,000	222
Boxes and tape	2,200	50	110,000	2,444	2,200	50	110,000	2,444
Drying cost (500 kgs/time)	44	200	8,800	196	44	200	8,800	196
Other overheads (electricity, rent etc)	1	10,000	10,000	222	1	10,000	10,000	222
Export documents	1	90,000	90,000	2,000	1	90,000	90,000	2,000
TOTAL			**5,853,800**	**130,084**			**7,228,800**	**160,640**
Margin (excluding fixed costs)			**1,526,200**	**33,916**			**151,200**	**3,360**
Return on capital			**26%**		**Return**		**2%**	

Assumptions:
1. To obtain 22 tonnes of grade A kernels, 25 tonnes of grade A kernels are purchased.
2. Some 3,000 kilograms are graded out and sold at a different price (som 150/kg) compared with the export price of $7/kg (som 315/kg).
3. Purchase prices are different in the high season (som 220/kg) and low season (som 275/kg).
4. Other costs include grading, packaging, packaging equipment, drying costs, and export documentation. Fixed costs are not included in the calculation.

The overall margins are considered higher per container in the high season (between September and December) because the purchase cost of kernels is lower (see section 4.6.2). Margins per shipment in the high season are about $33,900 (26 percent return on investment) compared with just $3,360 (2 percent return on investment) in the low season. The most significant cost item is the purchase of kernels. The exporter will make more money if he can purchase kernels at a cheaper price between September to December. If the export price of grade A kernels drops from $7 to $6 per kilogram, then the exporter's margins will be considerably reduced.

4.7.4 DOCUMENTATION, SHIPPING, AND IMPORTATION

The detailed process of documentation is covered in section 5.1.5.

The common practice for exporting to the main export markets in Turkey, Iran, and Iraq is for the buyers/importers to handle the logistics of transportation from the Kyrgyz Republic to their country. The role of the Kyrgyz exporter is to prepare the container and process the paperwork.[34] Trucks are sent from Turkey, often bringing other goods for import into the Kyrgyz Republic. The truck will pick up the container then take about 9–13 days to drive through Uzbekistan, Tajikistan, Turkmenistan, and Iran before it reaches Turkey. There are often delays of up to six hours at Dostuk in Osh prior to entry into Uzbekistan, to get documents processed even though the container will only transit the country.

The contract for transport between the Turkish shipping company and the importer often includes details of the route and time of delivery. Transportation costs from the Kyrgyz Republic to Turkey used to be $3,000–$4,000. However after the

[34] Personal communication from the manager of Sky Co Ltd.

ethnic unrest in June 2010, transportation costs have risen (up to $8,000 per shipment) as less goods are imported to the Kyrgyz Republic and fewer trucks come.

4.7.5 OTHER WALNUT PROCESSING AND MANUFACTURED GOODS

Great opportunities remain in Jalal-Abad to develop a processing industry based on walnuts and other NTFP products. One processor, Dary Lesa, was supported by the KIRFOR project to develop processed and finished products from raw materials gathered in the nut-fruit forests.

Some of the products developed are shown below: Figure 31 shows a walnut oil pressing machine that can produce top-quality oil (figure 32). Walnut kernels can be mixed with wild honey (figure 33).

Figure 31: Walnut Oil Press (Dary Lesa products)

Figure 32: Walnut Oil (Dary Lesa products)

Figure 33: Walnut Kernels with Wild Honey (Dary Lesa products)

An attempt was made to vacuum-pack quality kernels for export (figure 34), but it has been difficult to find markets overseas as well as to find a local firm that can provide the service together with labeling. Green walnuts (figure 35) can be made into delicious jam, but it is difficult to persuade leaseholders to harvest walnuts early, as prices are not high enough.

Figure 34: Vacuum-Packed Kernels with Labeling (Dary Lesa products)

Figure 35: Green Walnut Jam (Dary Lesa products)

In spite of having access to good-quality wild and, if certified, organic raw materials, it has proved difficult to gain access to export markets for processed walnut products. Lack of support services and local suppliers also restrict the manufacturing base.

4.7.6 OFFICIAL KYRGYZ REPUBLIC EXPORT FIGURES FOR WALNUTS AND KERNELS

Export figures for walnuts and kernels were sourced from the customs office in Bishkek from 2006 to 2011 and are summarized in table 23.

The volume of walnuts exported is small compared with the volume of kernels exported. For the years 2006, 2007, 2010, and 2011 the volume of walnuts was 7–12 percent of the total volume of kernels exported. There was a big increase in the ratio

in 2008 (23 percent) and 2009 (32 percent). It was in these years that demand for kernels for export dropped, as buyers purchased from other countries.

Table 23: Official Export Figures of Kyrgyz Republic Walnut and Kernel Products

Walnuts	weight MT	Value US$	Value soms	Exchange rate KGS per $1	Value US$/ 1 kg exported
2006	214.98	181,890	7,073,400	38.9	0.85
2007	277.33	267,430	9,442,220	35.3	0.96
2008	1,041.49	1,072,810	39,246,920	36.6	1.03
2009	945.50	426,340	17,956,880	42.1	0.45
2010	315.42	218,680	10,169,980	46.5	0.69
2011 *	45.72	35,460	1,683,030	47.5	0.78
Kernels	**weight MT**	**Value US$**	**Value soms**	**Exchange rate**	**Value US$/ 1 kg exported**
2006	1,792.34	3,507,540	137,521,460	39.2	1.96
2007	3,169.24	6,505,900	241,358,050	37.1	2.05
2008	4,574.68	9,147,550	335,216,360	36.6	2.00
2009	2,962.97	4,781,260	203,336,240	42.5	1.61
2010	2,923.50	4,307,860	200,608,770	46.6	1.47
2011 *	618.75	964,780	45,728,390	47.4	1.56

source: Kyrgyzstan customs department Bishkek 19 March 2011

Note: 2011 is an estimate for the period of January to March 2011.

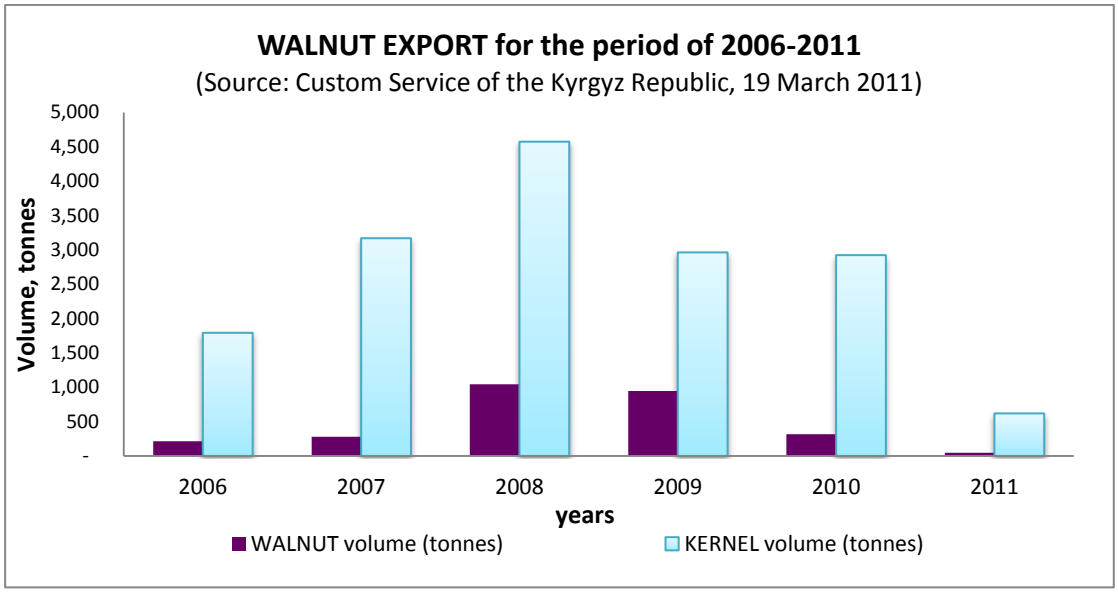
The export figures correspond closely with other findings in this report regarding walnut production. There was a bumper harvest in 2008 and moderate production yields in 2007, 2009, and 2010. A low harvest was reported in 2006.

It appears that walnut production has exceeded historic estimates from the literature review (see section 2.3). A maximum yield of 3,200 tonnes was estimated in exceptional years. For example, in 2008, 4,574 tonnes of kernel were exported. With an average crack-out rate of 45 percent, this would mean that a harvest of 10,000 tonnes would be needed for processing. It seems that walnut yield data are somewhat unreliable.

Prices exported walnuts in som have gradually increased over the years, influenced to some degree by the depreciation of the som. In 2006, the U.S. dollar was worth about som 38 but in 2010 it was valued at about som 47— a depreciation of approximately 25 percent.

Of significance, the recorded value per kilogram of kernels and walnuts sold that exporters declared to the customs office is highly undervalued. The current export price is $5–$7/kg for kernels in the 2010/11 season. By dividing the weight exported by the declared U.S. dollar value, the declared value is $1.47/kilogram, far below the real export value. Because each container is subject to a 1 percent income tax of the whole value, one can only assume that the Inland Revenue is losing a lot of tax revenue as a result. (See figure 36.)

Figure 36: Graph Showing Official Export Figures of Kyrgyz Walnuts and Kernel Products



The customs authorities also provided information regarding final export destination for walnuts (table 24) and kernels (table 25). The main markets for walnut exports were Iran, Turkey, China, and Iraq. Exports in 2008 were particularly high (1,041 tonnes). Other than these four countries, there were exports to other countries, including Uzbekistan, Syria, Turkmenistan, Korea, Russia, Kazakhstan, and Germany.

Table 24: Volume and Value of Exports of Walnuts by Country, 2008–10

	2008		2009		2010	
	Volume (tonnes)	US$	Volume (tonnes)	US$	Volume (tonnes)	US$
Iran	287.2	292,234	682.4	201,208	143.1	87,432
Turkey	585.4	636,951	75.9	99,576	0	
China	3	4,310	181.3	120,708	121.8	87,845
Iraq	112.4	109,500	6	4,800	0	-
others	12.1	29,800	0	0	50.7	43,401
Total	**1,041.5**	**1,072,795.0**	**945.6**	**426,343.0**	**315.6**	**218,678.0**

Source: Customs authority.

The main export markets for kernels were found in the Iran, Turkey, Iraq, and Syria. The demand from Iran remained steady and robust between 2008 and 2010, but orders from Turkey dropped off in 2010 due to the effects of the ethnic and political violence.

Table 25: Volume and Value of Exports of Kernels by Country, 2008–10

	2008		2009		2010	
	Volume (tonnes)	US$	Volume (tonnes)	US$	Volume (tonnes)	US$

Iran	1,412.8	2,775,285	1,408.0	2,294,869	2,206.4	3,218,442
Turkey	2,571.9	4,853,778	669.2	1,087,633	112.7	197,157
Iraq	244.1	442,851	676.7	1,059,835	504.8	782,413
Syria	88.2	164,825	66.0	75,342		
China			48.6	25,839	48.2	19,551
Moldova	81.2	537,357				
Netherlands	17.0	35,786	33.3	148,236		
United Arabian Emirates			22.0	33,000	46.4	72,943
Russia	45.6	78,156	3.7	5,737	4.0	16,244
Lebanon	42.0	64,350				
Azerbaijan	22.9	91,440				
Uzbekistan	22.3	49,936	-	-		
Others *	26.9	53,869	35.5	50,061	1.0	1,121
Total	**4,574.9**	**9,147,633**	**2,963.0**	**4,781,274**	**2,923.5**	**4,307,871**

*Others include Bosnia.
Source: Customs Authority

Apart from the main countries shown in these two tables, exporters were able to ship only small volumes to other countries.

There should be opportunities to market directly to other countries, particularly in Europe and Asia. To do so competitively needs to be explored.

4.7.7 SUMMARY OF EXPORT ISSUES

A number of issues and concerns were raised by exporters:

- Exporters have had a difficult time in the past couple of years. Kernel prices **fell** in 2009 as overseas buyers purchased walnuts elsewhere. The ethnic riots in June 2010 had a major impact on exporters, as many buyers pulled out and dropped their orders.

- The Kyrgyz Republic is exporting the value added out of the country. Kyrgyz walnuts and kernels exported or smuggled out of the country are being repackaged or sold as produce of another country. White kernels produced in the Kyrgyz Republic are highly admired the world over. Without further processing into vacuum-packed bags, directly targeting end-consumers in import countries, and labeled as a product of the Kyrgyz Republic, the national identity of wild Kyrgyz walnuts in a sense is lost.

- Most processors and exporters wanted to further develop walnut products, but are seriously constrained by the lack of support services for any manufacturing industry. It is almost impossible, for example, to have simple supplies like boxes made to specification in Jalal-Abad in the quantity, quality, and timeframe required.

- Many processors and manufactures in Jalal-Abad find it difficult to secure markets for their goods. Market promotion and development of entrepreneurial skills should be strengthened, to help potential businesses effectively find markets for their products.

- There is a lack of government support for the private sector in terms of product promotion, industrialization, and an enabling policy and legal framework. A capitalist and investment culture needs to be promoted in the country. Several exporters indicated that it was difficult to do business in the Kyrgyz Republic. Linked to this is the sensitive issue of corruption and coercion.

- Labor costs in Uzbekistan are 50 percent cheaper than in the Kyrgyz Republic. It was estimated that 10 percent of the walnuts harvested in Jalal-Abad are smuggled across to Uzbekistan for cracking. It is not known if the kernels are re-imported, but it is more likely that they are exported as Uzbekistan produce. Export policies between Uzbekistan and the Kyrgyz Republic need review and revision.

- Exporters are required to pay for the using of natural resources. Leaseholders at the forest level are supposed to pay this tax of about som 2,800 per tonne (som 2.8/kg), but instead, exporters pay.

- Turkish Airlines have offered a cheap price of $1/kg to airfreight kernels from Bishkek to Istanbul, but the cost is still too expensive

4.8 WALNUT AND KERNEL RETAIL MARKETS

The RMA team surveyed the Osh Bazaar in Bishkek and Jalal-Abad Bazaar in Jalal-Abad. It also reviewed some of the walnut kernel products sold in supermarkets in Bishkek.

4.8.1 BACKGROUND TO RETAIL MARKETS IN BISHKEK AND JALAL-ABAD

Traditionally, people in the Kyrgyz Republic shop in retail bazaars. However, the role of large supermarkets and grocery stores has increased particularly since 2000. There are four main markets/ bazaars in Bishkek:

1. Dor-Doi Bazaar, which employs 25,000 employees and offers all sorts of goods, apparel (shoes and clothing) as well as food products. The market covers 55 hectares.

2. Osh Bazaar, an open market that offers mainly food and agricultural products.

3. Orto-Sai Market: mainly food, fruits and vegetables, as well as clothing.

4. Alamedin Market: this covers 7.5 hectares and sells general goods.

The biggest and most popular grocery stores include the those in Bishkek shown in table 26. Narodny is the biggest (28 stores).

Table 26: Grocery Store Chains

Grocery Store Chains	Number of stores
Narodny	28
Stolichny	3
7 Days	3
Ramstore	1
Beta Stores	1
Total	**36**

Source: U.S. Embassy report, 2006.

Narodny rents out space at $200 a month and on sale or return basis, rather than buying produce directly from its suppliers. It has shops in Jalalabad, Osh, and other cities.

In 2006, 73 percent of the retail share was controlled by bazaars and 27 percent by stores and supermarkets. The dominance of bazaars in the country has gradually declined since 2002. The market share of retail bazaars[35] has fallen from 78 percent in 2002 to 73 percent by 2006. It is likely that by 2011, the share of supermarkets and grocery stores may have risen from 22 percent in 2002 to an estimated 30 percent. This trend is likely to continue.

4.8.2 WALNUT AND KERNEL RETAIL MARKETS IN JALAL-ABAD RETAIL BAZAAR

Walnuts, kernels, and other nuts and fruits are retailed in two areas in the Jalal-Abad retail bazaar. The kitchen walnut retail area is a small room or pavilion of about 50 square meters with three or four vendors, who specialize in kitchen walnuts and walnut kernels.

The second selling area is next door where fruits and nuts are sold in small trays or boxes by 20 vendors. Very few of these vendors sell walnuts or kernels. The reason given was that most buyers purchased kitchen walnuts next door. Market demand for walnuts was also considered quite limited. Some vendors specialize in the retail of imported processed walnuts from California.

Figure 37 shows a small vendor in the Kitchen Garden Pavilion area. Figure 38 shows the quality of kitchen walnut kernels, which have a strong reddish hue and large size. Figure 39 shows imported Californian processed walnuts, fried and salted with the shell of each nut cracked for easy shelling. The nuts were a hybrid variety and were imported via China. The taste was very good and they had soft thin shells and large kernels. These sell at som 600/kg, with a mark-up of som 80–90/kg. These were quite tasty.

[35] Kyrgyz Republic retail market, focus on Bishkek, U.S. Embassy report.

Figure 37: Kitchen Kernel Retail Vendor in One Section of the *Jalal-Abad* Retail Bazaar

Figure 38: Kitchen Kernels with a Dark Red Color

Figure 39: Imported California Walnuts Processed Fried in Oil and Salted. Walnuts are hybrid plantation varieties. Note the thin shell.

Volumes in the Kitchen Garden Pavilion are slight, at about 20–40 kilograms per day. Kernels are graded A, B, or C. The B/C grades are sold for cakes and other uses. Table 27 gives the purchase and sale prices per kilogram of kernels, together with monthly volumes sold for the market. Peak sales are between September to December, with 3.6–5.1 tonnes sold each month. A total of 22 tonnes are sold each year. Prices rise from a low in August to a peak in May–July. The mark-up between buy and sell price was quite high, som 50–70/kg.

Table 27: Average Monthly Prices and Volumes of Kitchen Walnut Kernels in the Jalal-Abad Retail Market

	Aug	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul
Buy price (som/kg)	110	150	160	170	180	255	265	270	275	300	300	300
Sale price (som/kg)	200	220	220	220	250	300	300	320	320	350	350	350
Total monthly volume (kg)	900	3,600	5,100	4,350	3,600	825	825	825	450	600	600	600
										Total (kg)		**22,275**

If stored correctly, walnuts and kernels keep for a long time. Consumers buy a lot of kernels when the price is cheaper during the high season between October and December. It is likely that many consumers buy walnuts or kernels only several times a year. Walnuts are not considered a main component of the daily diet for most people, despite their well-known nutritional values.

4.8.3 OSH RETAIL BAZAAR IN BISHKEK FOR WALNUTS AND KERNELS

There are many small fruit and nut retailers in Osh market with a wide range of products on display. There are about 45 to 50 small vendors and about five or six medium-sized traders. Small vendors buy kernels and walnuts direct from wholesalers in Jalal-Abad province. Some of the larger vendors wholesale kernels to supermarket chains or to Turkish buyers or other export companies in Bishkek. Volumes are modest and demand is steady. It may take three to four days to sell one box of nuts. A small mark-up of about som 25–30/kg is levied on both walnuts and kernels.

Figure 40 shows a medium-sized vendor with sacks of walnuts and kernels of different grades. Figure 41 shows the goods of several vendors in a row, who sell similar products and prices. These smaller vendors did not sell walnuts, but some had kernels for sale.

Figure 40: Medium-Sized Walnut Retailers in Osh Mmrket, Bishkek

Figure 41: Small Fruit and Nut Retailers in Osh Market, Bishkek

Medium-sized vendors mentioned that there had been a surge of demand in 2010/11 from Turkish and Iranian exporters seeking to buy kernels, compared with the demand in the 2009/10 season, which was notably quiet.

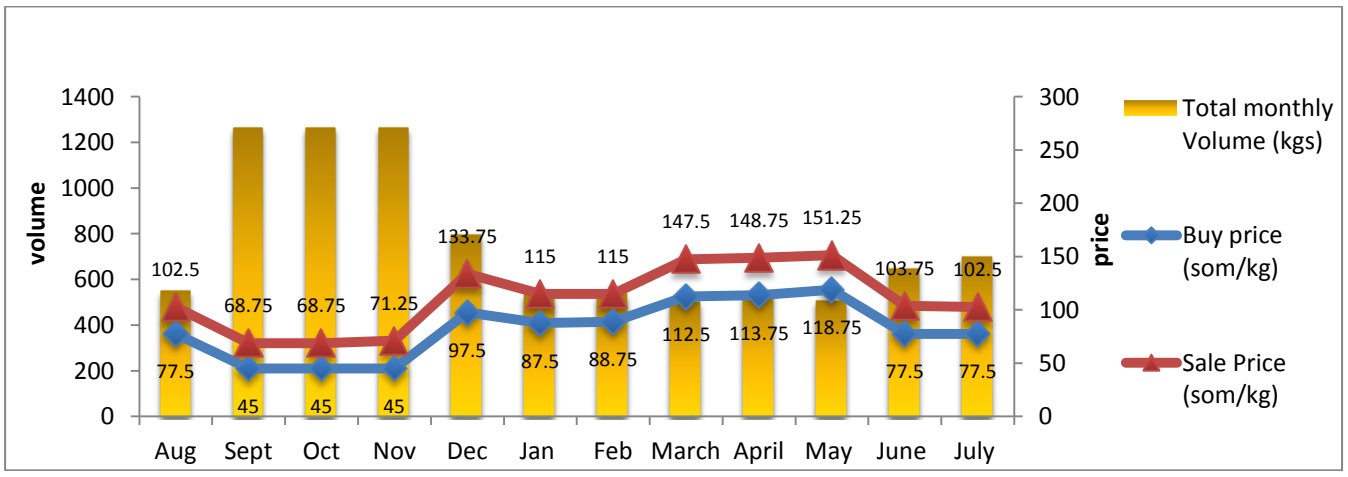
Walnuts: Table 28 shows that the total estimated sale at Osh retail market for walnuts was about 9 tonnes. The peak volumes were from September to December when prices were lowest. The main traders were the three to five medium-sized traders in the market. The difference between buy and sell prices is about som 25–30/kg. Purchase prices are slightly higher than those found in Jalal-Abad and Bazar-Korgon wholesale markets for walnuts, reflecting a small mark-up.

Table 28: Seasonal Average Price (soms/kg) and Volume by Month for Walnuts at Osh market, Bishkek

Retail walnuts	Aug	Sept	Oct	Nov	Dec	Jan	Feb	Mar	April	May	June	July
Buy price (som/kg)	78	45	45	45	98	88	89	113	114	119	78	78
Sale Price (som/kg)	103	69	69	71	134	115	115	148	149	151	104	103
Total monthly volume (kg)	544	1,263	1,263	1,263	790	533	533	500	540	503	644	694
										Total (kg)		9,066

Figure 42 is generated using data from table 28.

Figure 42: Seasonal Graph of Average Price and Supply for Walnuts in Osh Market, Bishkek

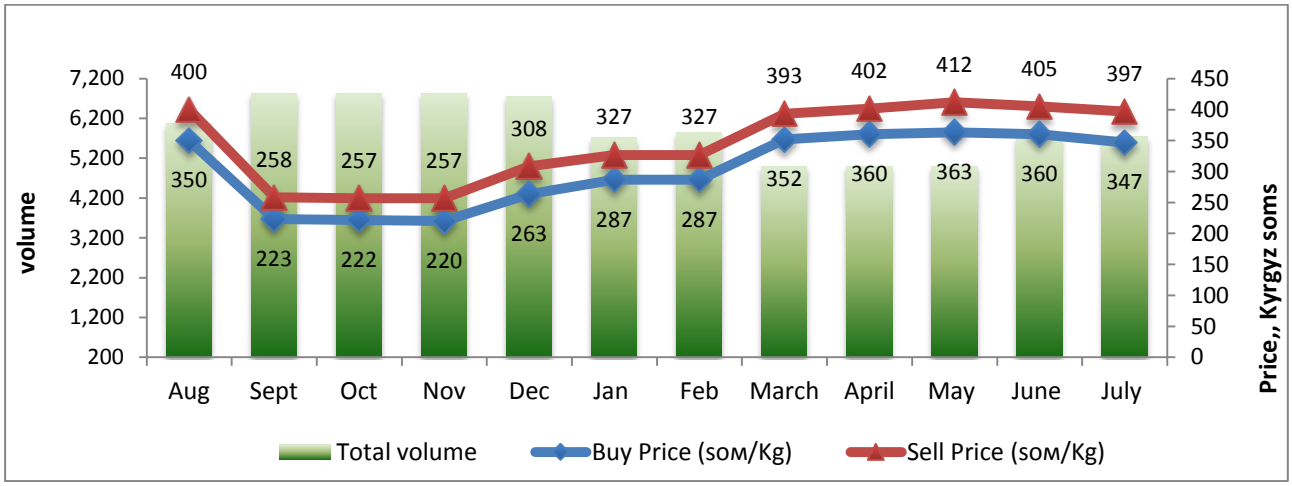


Kernels: Almost all of the small vendors in Osh retail market sell small volumes of kernels each day. Large vendors sold both retail and wholesale. From data collected, it is estimated that in the past year, 71 tonnes of kernels were retailed in the Osh market. See table 29 and figure 42.

Table 29: Seasonal Average Price (soms/kg) and Volume by Month for Kernels at Osh Market, Bishkek

	Aug	Sept	Oct	Nov	Dec	Jan	Feb	March	April	May	June	July
Buy Price (soms/kg)	350	223	222	220	263	287	287	352	360	363	360	347
Sell Price (soms/kg)	400	258	257	257	308	327	327	393	402	412	405	397
Total volume (kg)	6,083	6,833	6,833	6,833	6,750	5,708	5,833	5,000	5,000	5,000	5,750	5,750
Total Volume (kg)												**71,375**

Figure 43: Seasonal Graph of Average Price and Supply for Kernels in Osh Market, Bishkek



The level of demand is quite steady throughout the year although there is a small peak between September and December when retail prices are slightly lower. Monthly sales during this period are estimated at more than six tonnes. Various grades are sold. Retail prices are particularly high from March to early August, at more than som 400/kg.

4.8.4 RETAIL SUPERMARKETS AND GROCERY STORES IN BISHKEK FOR WALNUT PRODUCTS

The RMA team visited several supermarkets and grocery stores in Bishkek to gather information on the range of walnut products retailed; their findings are given in table 30.

Table 30: Walnut Products Retailed in Supermarkets in Bishkek

Product type and details	Type of nut product	Volume	Price (soms)	Store name
Jam, honey with walnuts "Lesnoy product" LTD, Jalal-Abad, Jamasheva 105, Tel: +996 3722 51864	Walnut jam with honey	430 g	250	7 days
"Mamytov" individual enterprise KR, Bishkek, Trotskaya 13, Tel 0543 914892	Kernels vacuum packed	200 g	122.5 (som 612.5/kg)	Narodnuy

Clearly, supermarkets offer a very limited range of walnut; only two stores stocked walnut products.

The lack of walnut products on the shelves indicates that:

1. People in Bishkek mainly shop for walnuts or kernels in retail bazaars.
2. There is limited growth or diversification of manufactured walnut products for domestic consumption.
3. The opportunity to exploit a niche market for particular products aimed at middle- or high-income groups is not being developed. No organic labeled products are offered.
4. It may be difficult to get walnut products on supermarket shelves because of the high cost of rental space in stores like *Narodny* that charge by space and do not purchase stock.

5.0 VALUE CHAIN SUPPORT SERVICES

This section investigates the existing situation with regard to support sectors, cross-cutting, and financial elements that support the value chain at the local and national level.

5.1 GOVERNMENT SERVICES AND SUPPORT FOR ENTERPRISE AND BUSINESS DEVELOPMENT

5.1.1 ETHNIC UNREST IN THE SOUTHERN KYRGYZ REPUBLIC

The political unrest and ethnic violence that erupted in southern Kyrgyz Republic in June 2010 in the major cites of Osh and Jalal-Abad between ethnic Kyrgyz and Uzbek people was truly horrifying, with about 470 deaths and many people displaced.[36] Jalal-Abad still carries the scars, with numerous shells of burnt out buildings all over town. People from Jalal-Abad are still trying to recover from the atrocities and put the event behind them, learn, and move on, but the symptoms of unrest remain.

All of the walnut export companies interviewed in Jalal-Abad provided evidence that the ethnic troubles had caused overseas buyers to cancel orders. All had lost potential business in 2011. Other enterprises and sectors would have lost business, too. This would result in loss of jobs, increased unemployment, lack of confidence to invest, and negative growth as the local economy contracted. The local economy in Jalal-Abad is depressed and the need for investment in industry, manufacturing, and job creation is critical. Unfortunately, the depressed economy, high unemployment rates, and household debt all contribute to a state of insecurity and tension that may be the spark that ignites further ethnic unrest.

5.1.2 RELEVANT KYRGYZ LAWS GUIDING THE BUSINESS SECTOR

A list of the most important laws guiding enterprise and business development in the Kyrgyz Republic is given in annex A.3, in chronological sequence from 1994 onward.

Most of this legislation serves to regulate the business environment. Since independence in the early 1990s, legislation has centered on the liberalization from state ownership to the development of a more market-driven economy. More recent legislation has started to promote good practice in business development through business promotion, increased protection for consumers, and support for small business development.

The trend to improve through legislation the “enabling environment” for Kyrgyz small and medium-sized businesses to help them flourish and prosper needs to be continued and accelerated.

5.1.3 RELEVANT POLICIES

The provincial government has a five-year development plan for 2010–14, which includes infra-structure projects and initiatives to spur economic growth. Based on this plan, an annual socioeconomic plan has been approved covering industry, social, agriculture, and transport sectors. National budgets cover large projects for irrigation, roads, etc., and local funds are used for agriculture and rural development. There are also policies to promote small and medium enterprises.[37] However, surprisingly, there are no special programs developed and implemented to address ethnic tensions and economic fallout following recent events.

The provincial agricultural office implements local water development projects using government funds. There are no specific government-assisted projects for walnuts, although FAO is funding a small project focusing on production technologies titled “The Pistachio and Walnut Production Development Project.” The European Union is supporting a project for livestock and tourism. The United Nations Development Programme is supporting two projects: one to promote integrated water resource management and another to develop cross-border trade with Uzbekistan. The provincial agriculture office does keep market price data for different products, but does not record any sales volume data.[38]

[36] Kyrgyz Inquiry Commission May 2011 (as reported in *The Economist*).
[37] Personal communication with Mr. Abdurashit Umarbekov, Deputy Provincial Governor.
[38] Mr. Jangbek Osmonaliev, Head of Department of Agriculture.

5.1.4 BUSINESS PROMOTION

The Jalal-Abad Chamber of Commerce is responsible for the following activities[39]:

- Issues the "Certificate of Origin" for goods and draws up documents related to export and import of goods and services
- Helps businesses with travel costs to attend trade fairs locally and abroad
- Organizes exhibitions to promote Jalal-Abad products
- Provides start-up training to small new businesses
- Gives evidence on force majeure situations in accordance with foreign trade contract terms and international agreements of the Kyrgyz Republic
- Updates a list of enterprises and organizations and checks that these businesses do engage in business

It has an annual budget of som 1 million ($21,200) and has four staff including the Director, accountant, expert/trainer, and janitor. Its resources are considered very limited; 50 percent of its budget goes for participants to attend the Bishkek trade show and 50 percent to pay staff. The chamber does charge for Certificates of Origin. It has 300 private nonmembers and 260 members, who pay som 5,000 a year for membership. Its members can get discounts on certain services.

The Department of External Economic Development in the Province tries to promote business in Jalal-Abad but also has limited resources. There are no walnut-related support sector projects at the moment.

The province organizes a networking forum chaired by the governor, for business and private sector participants including staff from *Rayon*, producers, businessmen, exporters and importers, and individuals. There are also associations (e.g., Forest and Land Use Association)—about 50 in total—that form local alliances. Such forums could be further utilized to provide a networking platform for businesses, microfinance institutions, and government organizations to improve challenges identified in the walnut value chain.

5.1.5 CUSTOMS AND EXPORT SERVICES

This section covers customs and export requirements. More detailed information is provided in annex A.4, with regard to forms and class of shipments.

According to the head of the Jalal-Abad customs office,[40] about four or five containers of kernels are shipped from his office each month (about 90 to 112 tonnes), of which about 70 percent is exported through Osh and 30 percent through Bishkek. Many of the small border crossings to Uzbekistan are closed to traffic due to the political disturbance in April 2010 and ethnic riots in June 2010. Only the main border points of Osh and Bishkek are operating.

The customs office has a register of exporters—10 firms registered for walnuts—that must have a company stamp. To export, they have to provide a written request for export and include the following forms:

- A copy of company regulation, a copy of the certificate of registration issued by the Ministry of Justice of the Kyrgyz Republic, a copy of taxpayer's identification number
- Reference on bank settlement account
- Invoice, bills
- Transportation invoices
- Certificate of Origin
- Certificate of Conformity
- Certificate of Sanitary and Hygiene
- Shipping custom declaration
- Customs service form
- Export service charge of 0.15 percent of the total value of the shipment
- HACCP certificate

It takes the office two to three days to process, which may be considered slow. However, if the exporter pays the customs office 0.3 percent of total value as a service charge, then paperwork may be processed in one day. For shipments worth $110,000, an additional 0.15 percent charge is quite significant, given that the custom's office mandate is to provide the service. The Bishkek customs office is more efficient, as the volume of containers going through the border is much higher,

[39] Personal communication with Mr. Orozbek Argeshov, Chamber of Commerce, Jalal-Abad.
[40] Mr. Davlet Arzymamatovich, head of Jalal-Abad customs office.

so delays are not tolerated. The Certificate of Sanitation takes one to two days to get and then customs has to check the produce. Prior to shipment, three customs officers check goods and stamp and process documents.

Two or three containers of nuts are imported from China each year charged at a rate of 12 percent import duty on the declared shipment value. This is paid on the journey from China to the Kyrgyz Republic but if it goes through another country and is repacked, then the import duty charge is levied twice. Section 5.2.3 provides more detail on sanitary and hygiene and related certificates.

5.1.6 MARKET INFRASTRUCTURE

All the main market centers are privately owned and managed. All three wholesale markets, at Massy, Bazar-Korgon, and Jalal-Abad, are in poor condition and could be much improved. Dirt access roads are potholed due to heavy use and poorly maintained, particularly in Bazar-Korgon. The Jalal-Abad wholesale market is located mainly outside, exposed to the elements. The conditions are harsh, bearing in mind that the main trading is in the high season in winter months. Amenities are very basic for both sellers and buyers.

Examples of the conditions in wholesale markets are presented in figures 44 to 46.

Figure 44: Jalal-Abad Kernel Wholesale Market: although access of vehicles to and from trading areas is practical, the conditions are considered basic.

Figure 45: Jalal-Abad Walnut Wholesale Market: open air, with covered sheds in the background for use in winter, but these do not provide much protection for buyers and sellers from the harsh winter elements

Figure 46: Bazar-Korgon Kernel Market: under cover, but with just one narrow access road and cars queue up to get in. In high season months, the market is very crowded and cramped. The design could be much improved to allow easier access.

It is highly likely that the state ministries related to agriculture and rural development would work to develop new or improve existing market infrastructure. However, the RMA team found no evidence of government-sponsored market infrastructure development projects specifically for walnuts.

5.1.7 GOVERNANCE ISSUES

A range of survey participants showed that the walnut export business is affected by the unofficial addition of charges levied by those who provide export-related services. As one exporter claimed, corruption could be found “at every step.” The result is that transaction costs of exporters are forced higher, which ultimately effects profits and the competitiveness of Kyrgyz walnut products in the global market.

Indeed, several traders indicated that demand for walnuts in the wholesale market had dropped significantly between 2007 and 2009, so that it took many days to sell their products at market. The reason cited was that exporters had reduced demand due to extortion from families in power, running to thousands of dollars per shipment. Exporters were apparently taking their business elsewhere, to countries where walnut products were cheaper or where business was easier, free of such encumbrances. Such accusations could not be verified, but if true, it is not certain whether there are new players running such extortion rackets in the kernel export trade now.

Exporting walnuts as contraband to Uzbekistan for cracking or shelling was found to be commonplace. Whether the kernel products were re-imported into the Kyrgyz Republic for re-export was not known but was unlikely, due to the import duties and customs-related difficulties that may be imposed. It is likely that the processed walnuts would be exported from Uzbekistan directly. Different representatives of export firms confirmed that it was easier and cheaper to export to Turkey

from Uzbekistan than from the Kyrgyz Republic. One exporter (name withheld) thought that in previous years, the volume of smuggling across to Uzbekistan for cracking was 40 percent of the total annual crop. The RMA team was unable to verify this, but this proportion does seem very high. With the recent political situation, the volumes smuggled may be less than 10 percent of the total production.

There is a need for dialogue between the Kyrgyz Republic and Uzbekistan to solve the issue of contraband goods. Apart from walnut products going to Uzbekistan, there are a lot of food imports coming back the other way.

The main conclusion is that, if such allegations are true, and Kyrgyz walnut products are exported as another country's product, the industry is less competitive in the global market due to higher transaction costs, and the overall economic benefits of the walnut industry to Jalal-Abad province is undermined.

5.2 SECTOR-SPECIFIC PROVIDERS

This section covers sector-specific service provisions for the walnut industry in Jalal-Abad and includes a review of the support industry for walnut processing and value added, cross-cutting sector support, and financial service provisions.

5.2.1 SUPPORT INDUSTRIES

A review revealed that there are very few companies and firms engaged in providing support services to the walnut industry. (See table 31.)

Table 31: Firms Engaged in Industries That Support the Walnut Sector

Company	Contact person	Type of business	Contact details	Telephone
Altyn Ajydaar LTD	Pavel Terehov-president	Cardboard box producer: only producer of boxes in the Kyrgyz Republic	Str. Isakeeva 1, Bishkek, Kyrgyz Republic	(312)632086
Private entrepreneur	Nataliya Netushilova	Packaging materials (film stretch, bags for vacuum packaging)	Str. Ahunbaeva 129 B/3, Bishkek, Kyrgyz Republic	595291
AIG SERVICE LTD	Liliya Nishuk	Delivery of jars with twist-off lids	Str. Fuchika 49, Bishkek, Kyrgyz Republic	0555288444
Glass Company SAF		Production of glass jars and bottles	Str. Gogolya, Alma-Ata, Kazakhstan	(3272)508567
Quartz Joint Stock Company		Production of glass jars and bottles	Kuva –Sai city, Fergana region, Uzbekistan	

Three are based in Bishkek (a cardboard box producer; a producer of packaging materials including plastic bags for vacuum packaging, and a bottle factory producing jars and lids), one in Kazakhstan (jars and bottles), and one in Uzbekistan (jars and bottles).

Of specific note, no support businesses are located in Jalal-Abad. This means that all products needed to support food processing and manufacturing of Kyrgyz kernels are imported from Bishkek or from overseas. This makes processing and value addition of kernels expensive and noncompetitive in the global market.

Local labor is used to crack and grade kernels for export, but no further value is added in Jalal-Abad. Opportunities include, for example, vacuum-packaging of kernels; walnut oil production; the processing of "beer nuts" using local almonds, pistachios, peanuts, and walnut kernels; and production of other walnut products.

This is a great opportunity lost for Jalal-Abad in terms of economic growth and employment. In reality, the Kyrgyz Republic is exporting its value added potential to other countries, in particular Turkey.

5.2.2 EQUIPMENT FOR POST-HARVEST MANAGEMENT AND PROCESSING

No particular firm or company in Jalal-Abad provides equipment for the nut industry. Pistachio peelers usually adapt secondhand potato peelers bought from the military or from hospitals. Drying equipment used for walnuts in processing/exporter warehouses are secondhand blowers adapted for local use.

In spite of an array of automated shelling equipment advertised on the web, none was found in the Kyrgyz Republic. There are no handheld manual machines to help people crack nuts more efficiently.

Some secondhand automatic walnut shelling equipment was imported from the United States in 1992, but it had trouble cracking the tough shells of walnut from wild forests. A manual machine imported from Sweden in 1994 met the same outcome.[41]

Pistachios are cracked by hand using pliers, although there is an automatic pistachio nutcracker machine owned by one of the Turkish exporters.

As with the support industries, no Jalal-Abad specialists can provide suitable equipment for the walnut and pistachio sectors. There is a great business development service opportunity here to help the thousands of walnut or pistachio nutcrackers who work long hours by hand with simple tools to crack small quantities of nuts.

5.2.3 TECHNICAL SERVICES

The following offices and laboratories provide export certification services in Jalal-Abad:

- Certificate of Origin is issued by the chamber of commerce and industry in Jalal-Abad –on requirement of importing country (buyer).

- The Certificate of Conformity (Certificate of Quality) is issued by the Jalal-Abad Center of Testing, Standardization and Metrology. Centers of Testing, Standardization and Metrology are self-sustained organizations, and perform laboratory tests on products as prescribed by law. These include tests of physio-chemical parameters, pesticide content, toxic content, microbiological parameters, etc. On the basis of the test record sheet, the Certificate of Conformity may be issued. The Department of State Standards[42] follows Decree 639 regarding certification of Kyrgyz food products. Two or three other private accredited laboratories provide the service in Jalal-Abad.

- The Certificate of Sanitary-Epidemiological (Hygiene) is issued by the Sanitary-Epidemiological Service (SES) under the Department of State Sanitary Epidemiological Inspectorate of the Ministry of Health of the Kyrgyz Republic in Osh.[43] This certificate is issued according to the law on sanitary-epidemiological welfare of the population of the Kyrgyz Republic and the regulation on carrying out sanitary-epidemiological expertise of products #329 (June 6, 2003). The list of goods subjected to sanitary-epidemiological expertise was approved by the Governmental Decree of the Kyrgyz Republic No. 74, dated December 3,2007. Issuing the certificate takes from five hours to four days and depends on product type and tests required.

- The phyto-sanitary certificate is issued by the Inspection on Plant Protection and Quarantine under the Ministry of Agriculture of the Kyrgyz Republic. It is required for goods exports as well as imports. A phyto-sanitary certificate is mandatory and should be prepared according to International Convention on Plant Protection requirements. In the Kyrgyz Republic, conditions applying to the phyto-sanitary certificate are guided by the law on plant quarantine of the Kyrgyz Republic. There are several Inspection Departments[44] in the southern region. Tests follow Declaration 639. Costs include som 1500 for lab analysis plus som 715 for service plus any value-added tax. It takes two to three days to test for toxic elements, three days for microbiological analysis and two days for physical and chemical analysis. On inspection, the labs were found to be in pretty poor shape and indeed, little used.

- In general, certification for EUREP–GAP, HACCP, and CODEX are not used in most cases for Kyrgyz exports, because of the costs involved for certification. Similarly, certifying agricultural products as bio or organic products has been illusive in the Kyrgyz Republic (e.g., IFOAM, NOP, IOAS, JAS certification). Although there are benefits to be gained, the process is both costly, exhaustive, and time consuming. An organization in Jalal-Abad (Bio Service Public Fund) does provide certification services, but the practice is not developed in the Kyrgyz Republic. See section 6.3.

5.3 CROSS-CUTTING PROVIDERS

Several companies specialize in providing management assistance to export companies (e.g., Vegaplus Co Ltd., and Sky Ltd), to complete and process export shipments. Sky Ltd works as a trading exporting company. See section 4.7.1 for more details.

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[41] Personal communication with Mrs. Gulmira Ismailova

[42] Personal communication with Mr. Nurmahamat Kimsanovich, head of the department of state standards.

[43] Contact phone: 03222 5-72-62.

[44] Jalal-Abad plant quarantine service, Jalal-Abad, Kurmanbek str. 11, tel.: 996 (3722) 5 27 12.

One component of the Swiss-funded KIRFOR project provided assistance to small *leskhoz*-based producer groups. This was implemented under the "Supporting private small and medium enterprisers" project between 2001and 2004. The project aimed to develop the skills of groups interested in forest product processing and supported consulting companies as well as processing enterprises.

The Eco-GIS Public Foundation was established in 2002 to develop and introduce geoinformational technologies from the base of GIS-Service Ltd. This company currently functions as GIS-Service and provides geoinformational services for interested parties.

The Lesnoy Product Company was established in 2002 as a service provider for processing and marketing non-timber forest products. The company also provides consulting services and capacity building for people interested in NTFP and agricultural product processing.

Dary Lesa Public Foundation, also established in 2002, aims to support the processing and marketing of NTFPs to improve local people's livelihoods through sustainable use of forest resources. Dary Lesa and Lesnoy Products also use the same brand name to market products that include berry jams, juices, and medicinal herbs.[45]

The South-Forest-Service Ltd was established in 2000 with the aim to implement projects on biodiversity conservation and maintaining forest regeneration through sustainable use of forest resources.

5.4 FINANCIAL INSTITUTIONS

A brief review of microfinance institutions operating in Jalal-Abad province was undertaken, with one institution sampled from each sector (state, private, or microfinance).

5.4.1 SUMMARY OF PROVIDERS IN JALAL-ABAD

Financial institutions providing services in Jalal-Abad province are listed in table 32 under state banks (2), microfinance lenders (5), and commercial (private) banks (11).

Table 32: Summary of Banks and Microfinance Institutions Providing Services in Jalal-Abad Province

Jalal-Abad	**State banks**	**Microfinance institutions**	**Commercial banks**	
Sampled banks	**AYIL bank**	**FINCA**	**OJSC Kyrgyzstan Bank**	
Similar banks operating in Jalal-Abad province	RSK	Companion Mol-Bulak Aga-Khan Bai Tushum	Ecobank Unicredit bank Halyk bank Doskredo bank Asia bank	Aman bank Zalkar bank Bakai bank KICB BTA bank

A summary of one sampled bank by sector is given below for state banks (AYIL bank), microfinance institutions (FINCA), and commercial banks (OJSC commercial bank).

5.4.2 STATE-OWNED AYIL BANK

The bank has a total of 1,520 loans valued at about soms133 million, and provides no overdraft facilities or loans to industry, which is considered the role of commercial banks. The bank requires a business plan. Interest is paid by the borrower at the end of the loan period, whereas commercial banks require monthly interest payments together with capital. One loan recently issued to a client for walnut trading was for som 500,000. The bank lacks capital to reach out to more customers. Its portfolio is small in terms of clients and loan capital.

Table 33: AYIL State Bank Conditions for Different Loan Schemes

Criteria	**AYIL state bank**				
Name of scheme	**Farmers Llan**	**Chakhon**	**Processors**	**Traders**	**Express loan**

[45] Director Ismailova Gulmira, address: Jalal-Abad town, Jamashev str, 105, tel. 996 (3722) 5 18 64; e-mail: lesaproduct@elcat2.bishkek.su.

Status in providing services (no years etc.)	NA	Pilot scheme	NA	NA	NA
Number of customers	84	658	8	49	----
Purposes of loan	Crops/livestock	Crops livestock	Production	Trading	Services/trader
Loan term duration	Min: 3 months Max: 12 month	Min: 3 months Max: 1.5 yrs	Min: 3 months Max: 5 yrs	Min: 9 months Max: 3 yrs	Min: 9 months Max: 2 yrs
Collateral required?	Car/building etc	Collateral not required	House	House	Guarantor
Interest rate per	9 percent	16.6 percent	14 percent USD$; 20 percent soms	22 percent	22 percent
Normal Loan size limits (soms)	20,000 to 200,000	5,000 to 25,000	50,000 to 500,000	100,000 to 500,000	30,000 to 100,000
Loan disbursement to date (soms)	12 million and 16.5 million (9 percent)	13 million	1.7 million	9.2 million	---
Repayment rates	(97–99 percent)				
Accepted savings	US$ 9 percent and som 13 percent per year				
Number of staff and administration	22 staff in Jalal-Abad branch; other branches include Toktogul, Aqsai, Nooken, and Alabuka. These branches have regional and rural divisions.				

5.4.3 FINCA MICRO-CREDIT COMPANY

The company has operated for more than 15 years in the Kyrgyz Republic. It originated out of a USAID project targeted to women. In the Kyrgyz Republic, FINCA has more than 110,000 customers, with 5,000 customers in Jalal-Abad province. FINCA prides itself on processing loans quickly. Group members must know each other; they need only an ID card and a business plan. The business must be running for three months already. Set-up costs are 1.7 percent of the loan amount for an agriculture loan and 1.8 percent for a group loan.

FINCA prefers som accounts over U.S. dollar accounts due to the depreciating exchange rate. Loans are repaid according to indexation especially for loans of more than som 100,000, to reduce the risk of U.S. dollar exchange rate depreciation. FINCA does not want to engage in loans with a duration under one month because of high transaction costs necessary to service such loans.

Table 34: FINCA Conditions for Different Loan Schemes

Criteria	**Individual agro loans for development of agriculture**	**Group loans for development of business**	**"Aiyl" group agro loans for development of agriculture**	**Individual loans for development of business**	
				Express loans	**Microloans**
Group		Minimum 3 persons	Minimum 3 persons		
Loan currency	soms	soms	soms	soms, $	$
Normal loan size (soms)	12,500–400,000	2,000–100,000	2,000–100,000	12,500–100,000	100,000–400,000
Loan term duration	3–24 months	12 months	12 months	3–18 months	3–36 months
Collateral required	Guarantee, movable and immovable property	Group guarantee	Group guarantee	Guarantee, movable property	Guarantee, movable and immovable property
Interest rate per month (percent)	3.25	Min 3 Max 3.7	Min 3 Max 3.7	3.5 in soms; 3.1 in $	Min 2 Max 2.25
Extra one-time rate	1.7	1.8	1.8	1.7	Min 1 Max 1.7
Purposes of loan	Increase working capital; purchase of farm animals; purchase of inventory or fixed assets; harvesting	Start business	Increase working capital; purchase of equipment; harvesting; lease equipment; purchase of farm animals		

Repayment rates	98 percent
Savings	FINCA does not accept savings
Number of staff	2 branches; 51–55 staff in Jalal-Abad city; 1 branch in Bazar-Korgon

5.4.4 OJSC COMMERCIAL BANK KYRGYSTAN

The OJSC commercial bank was founded on the basis of Jilsocbank of the Kyrgyz Soviet Socialist Republic and registered in 1990 under the name ACB "Kyrgyzstan." The name was changed in 2006 to the "Open Joint Stock Company Commercial Bank Kyrgyzstan" and it conducts business under license linked to the National Bank of the Kyrgyz Republic No. 014. The bank also owns the license for the right to carry out mining activities with precious metals, an activity considered unique among activities linked to commercial banks. The bank has 83 divisions in all regions of the Kyrgyz Republic and conducts business in the global market. The bank undertakes a wide range of banking and financial services including more than 10,000 business customers. Its loan conditions are described in table 35.

Table 35: OJSC Commercial Bank Conditions for Different Loan Schemes

Criteria	Loan "Zamat"	Loan "Express"	Loans "Bereke"	Loans "Bereke Plus"	Loans "Sprint Capital"	Loan "autocredit"
Currency	soms, $, euro	soms, $, euro	soms, $, euro	soms, $, euro	soms, $, euro	soms, $, euro
Normal loan size	2,000–50,000 soms; 50–1,000 $; 50–1,000 euros	2,000-200,000 soms; 50–4,000 $; 50–4,000 euros	2,000–750,000 soms; 50–15 000 $; 50–15,000 euros	750,001–2,500,000 soms; 15,001–50,000 $; 15001–50,000 euros	2,000–2,500,000 soms; 50–50,000 $; 50–50,000 euros	2,000-400,000 soms; 50–8,000 $; 50–8,000 euros
Loan term duration	3–12 months	3–24 months	3–36 months	3–60 months	From 10 days to 6 months	6–15 months
Collateral required	Guarantee of 2 persons	Movable property, guarantee, goods in turnover	Guarantee, movable and immovable property, savings	Guarantee, movable and immovable property, savings	Guarantee, movable and immovable property, savings	Movable property (purchased auto), guarantee of 2 persons
Interest rate per year (percent)	33 percent in soms 28 percent $ 22 percent euro	29 percent in soms 24 percent $ 19 percent euro	25 percent in soms 21 percent $ 16 percent euro	23 percent in soms 19 percent $ 15 percent euro	4 percent per month (48 percent per year)	27 percent in soms 23 percent $ 18 percent euro
Necessary condition	Acting business	Acting business	Acting business	Acting business	---	Acting business
Purposes of loan	Development of business	Development of business	Development of business	Development of business	Any	Buying car
No. branches in Jalal-Abad	4 branches in Jalal-Abad city; 1 branch in Kochkor –Ata, Massy, Kara-Kul, Tash-Kumir; 2 branches in Bazar-Korgon, Kyzyl-Kiya					

5.4.5 CONCLUSIONS FOR THE PROVISION OF MICROFINANCE IN JALAL-ABAD PROVINCE

This report has identified poor access to affordable loans as a key constraint for many poor leaseholders, collectors, traders, and walnut crackers to grow their business.

Lack of capital has hindered their ability to buy walnuts early in the high season to store them until prices increase; or to crack and sell kernels at a later date. Sensitivity analysis undertaken for different "store and sell later" scenarios showed handsome profits can be made that more than compensate for the added expense of interest payments. Many participants in the value chain are simply not bankable, or cannot afford the interest rates, or lack assets needed for security for the loan.

The AYIL Bank has introduced a "Farmers Loan" scheme with 9 percent annual interest, but the minimum duration is three months. The loan size is only som 12 million and so far only 84 farmers have taken loans. As a state bank, AYIL lacks capital for on-lending.

FINCA comes from a microfinance sector, has more than 5,000 customers in Jalal-Abad province, and has a good source of capital for on-lending. It targets women, so it has the potential to assist walnut cracking groups and collectors and traders. FINCA lends to people based on the group guarantee and joint liability approach, which means that collateral is not required to secure the loan. The drawback is that interest rates are high at more than 3 percent per month and FINCA insists that it is not interested in giving loans for less than three months.

The OJSC represents the commercial bank sector. Borrowers are required to have a more formal business set-up to access loans. Most loan schemes require assets for collateral and have high interest rates of 29–33 percent per year. The "Sprint Capital" scheme is the most interesting from the perspective of reaching out to poor value chain actors with low capital loan amounts (from som 2,000 to som 2.5 million); durations range from a minimum of 10 days to up to 6 months. However, collateral is needed and interest rates are high at 4 percent per month.

6.0 THE GLOBAL ENABLING ENVIRONMENT

This section provides information on the global environment for trade and includes factors that influence global trade; Kyrgyz policies regarding WTO and FTAs; and experience in the Kyrgyz Republic with organic and bio standards.

6.1 FACTORS INFLUENCING GLOBAL TRADE

Factors that influence the ability of one country or region to compete effectively within global trade include:

1. **World Trade Organization and multilateral agreements** made between countries, end markets (e.g., United States or Europe), and producer countries.
2. **Free-Trade Agreements** between countries for products or finished goods that receive preferential treatment for tariffs and import duties.
3. **EUREP-GAP certification** for growers that can lead to ISO (International Organization for Standardization) Guide 65 approval. EUREP-GAP certification was introduced in the late 1990s following concern over food safety, the environment, and the welfare of employees in third world countries seeking to export food and agricultural produce. The European Union wanted to influence the quality of food systems through product liability and due diligence procedures. Consumers are concerned over food scares (pesticide residue, mad cow disease, foot and mouth, genetically modified crops). There was a need to improve the legislation regarding food standards. Retailers and supermarket chains had to demonstrate a degree of transparency, traceability, and product liability for the goods they sold. The EUREP-GAP processes involve certifying growers either individually or through grower associations. Other market chain levels of processing, packaging, wholesale, and export are covered by the HACCP process (see below).
4. **HACCP (Hazard Analysis and Critical Control Points) approval,** other export procedures, and taxation. The seven main principles to adhere to are[46]

Principle 1: Conduct a hazard analysis. A food safety hazard is any biological, chemical, or physical property that may cause a food to be unsafe for human consumption.

Principle 2: Identify critical control points. A Critical Control Point (CCP) is a point in a food manufacturing process to which control can be applied and, as a result, a food safety hazard can be prevented, eliminated, or reduced to an acceptable level.

Principle 3: Establish critical limits for each critical control point. A critical limit is the maximum or minimum value to which a physical, biological, or chemical hazard must be controlled at a critical control point to prevent, eliminate, or reduce the hazard to an acceptable level.

Principle 4: Establish critical control point monitoring requirements. Monitoring activities are necessary to ensure that the process is under control at each critical control point. In the United States, the FSIS requires that each monitoring procedure and its frequency be listed in the HACCP plan.

Principle 5: Establish corrective actions. These are actions to be taken when monitoring indicates a deviation from an established critical limit. The final rule requires a plant's HACCP plan to identify the corrective actions to be taken if a critical limit is not met. Corrective actions ensure that no product injurious to health or otherwise adulterated as a result of the deviation enters commerce.

Principle 6: Establish record keeping procedures. The HACCP regulation requires that all plants maintain certain documents, including its hazard analysis and written HACCP plan, and record documenting the monitoring of critical control points, critical limits, verification activities, and processing deviations.

Principle 7: Establish procedures for ensuring the HACCP system is working as intended. Validation ensures that the plants do what they were designed to do; that is, they are successful in ensuring the production of a safe product. Plants will be required to validate their own HACCP plans.

6.2 Kyrgyz Republic policies with regard to WTO and FTAs

In the early 1990s, the CIS countries formulated a Free Trade Agreement with zero import tariffs for all goods originating from all the signing countries. While this agreement has never formally entered into force the Kyrgyz Republic and all its trade partners follow its rules in practice. This multilateral free trade arrangement has also been reinforced by bilateral agreements between the Kyrgyz Republic and almost all the other CIS countries. However, it is necessary to note that such bilateral free trade agreements allow parties to introduce import duties on a limited number of commodities, either to protect

[46] Taken from Wikipedia HACCP.

sensitive domestic industries or as anti-dumping measures. In some cases, the application of these rules has adversely affected Kyrgyz exports to Kazakhstan, Uzbekistan, Ukraine, and other countries.

The Protocol of Accession of the Kyrgyz Republic to the Marrakech Agreement Establishing the WTO was ratified on November 17, 1998. The Protocol entered into force on November 20, 1998, when the Kyrgyz Republic became the 133rd member of the WTO.

A recent article[47] addressed various issues. The Kyrgyz Republic does not apply tariff quotas or exemptions. With regard to the value added tax of the Kyrgyz Republic and conformity with Article I of the General Agreement on Tariffs and Trade, the Kyrgyz Republic will change the system of taxation of the value added tax to the destination principle. Export licenses are required on the export of arms, explosives, nuclear materials and technologies used for the military purposes, virulent poisons, narcotics, and psychotropic substances, and works of art and antiquities having historical, cultural, or scientific value. With regard to export subsidies, there are no current measures for subsidizing exports in the Kyrgyz Republic. There are only certain programs for the maintenance of export, including privileges for particular investment projects. The Kyrgyz Republic accepted the obligations to eliminate all privileges that could be considered to conflict with the requirements of the Agreement on Subsidies and Countervailing Measures by the end of 2002.

6.3 EXPERIENCE IN THE KYRGYZ REPUBLIC WITH APPLYING ORGANIC AND BIO STANDARDS

According to the Central Custom Service of the Kyrgyz Republic, standards such as the EUREP–GAP, HACCP, and CODEX are not used widely in exporting goods from the Kyrgyz Republic, due to the effect in increasing export costs. Certification for organically produced products from different countries and regions (e.g., IFOAM, NOP, IOAS, JAS) apply slightly different standards and criteria. Certification is also very rigorous in the standards that are applied and obtaining the certificate from those organizations is very complicated; that is why a certification practice is not developed in the Kyrgyz Republic.

With regard to walnut products, a group of Dutch entrepreneurs surveyed Jalal-Abad walnut markets and purchased /exported samples for biological testing after which it obtained bio-certificates for Kyrgyz walnuts. Under this standard, the group exported about 20 tons of organic walnuts from the Ortok and Kara-Alma *leskhozes*. However, they later discovered that farmers in the Kara-Alma *leskhoz* used chemicals to control pests and dropped their orders immediately.

Because walnut forests in Jalal-Abad are wild forests, it should be fairly straightforward for walnut products to conform to organic standards. The Bio Service Foundation, an organization based in Jalal-Abad since 2003 and established by a Helvetes project, has investigated the potential. There seem to be many obstacles yet to overcome.[48]

Phase I of Bio Service was a soil fertility program with an organization of farmers. In Phase II, it broadened its activities to include the institutionalization of farmer cooperatives. Bio Service provides organic certification for cotton, herbs, chickpeas, and dried apricots. Activities include training, organic certification, and marketing. Bio Service was accredited in 2004 to work with European Union standards and NOP (Natural Organic Products of USA), which take three years to qualify; and Japanese and Swiss organic standards programs (takes two years to convert to organic status) in 2011.

The RMA team was given examples of the degree to which foreign organizations check local conditions prior to certification. The scope of work to review organic apricots in local forests included three foreign certifiers who spent 10 days checking farm areas, including random checks of land, neighboring land, irrigation sources, other areas of possible pollution, and areas for post-harvest management. The cost for European Union certification includes a lump sum, travel costs, and €500 per day, giving a total cost of about €6,000 for one standard. FAIRTRADE costs 10 percent more. FAIRFOR LIFE is easier and cheaper but has small market potential. Certifying 50 grams of herbs in approved laboratories overseas would cost $300 courier post plus $100 customs clearance and $300 for analysis.

Certification is based on (1) land area under cultivation including all the crop rotation systems, (2) product safety, and (3) hygiene at work. To date, Bio Service has 986 farmers and 26,000 hectares certified. Bio Service previously charged farmer groups for services but now charges buyers for services performed.

Organic markets are opening up in Osh and Bishkek. The mark-up for organic certified produce is 30–40 percent higher in the Kyrgyz Republic, but there is more potential in nearby countries and more developed markets. Finding buyers is the biggest limiting factor. Bio Service has limited funding support now, which affects what it can do.

[47] http://www.wto.org/english/news_e/news11_e/ag_com_31mar11_e.htm.
[48] Personal communication with Mr. Saparbek Alymkulon, Bio Service Public Foundation.

Bio Service is working with walnuts, but has yet to find the correct location for organic production. It surveyed Toskool-Ata and found trace elements of uranium in the soils. It has to check varieties, forest areas, and calibration of products. Other problems include dust, drying on pavements, washing standards, cracking methods (cleanliness and hygiene, as well as criteria related to underage workers), and HACCP standards.

The benefits of organic certification are large. A price comparison of organic versus nonorganic walnut products in the United Kingdom showed a large difference in price. Ordinary walnut kernels cost £1.20 for 300 grams whereas organic certified walnuts (both from California, USA) cost £3.50 for the same weight,[49] a mark-up of 169 percent.

[49] Price collected from Waitrose supermarket in the United Kingdom.

III SUMMARY AND CONCLUSIONS

A final summary of findings, conclusions, and recommendations is given below.

7.0 CONCLUSIONS AND RECOMMENDATIONS

Even before the ethnic violence that erupted in southern Kyrgyz Republic in June 2010 in the major cites of Osh and Jalal-Abad, the local economy in Jalal-Abad province was depressed. It now desperately needs capital investment in industry, manufacturing, and job creation. The walnut value chain provides valuable employment and income for thousands of poor people in both forest areas and cities and towns. Poor people, especially women, lack access to micro-credit to grow their walnut businesses. Kernels are the major export. Without support infrastructure and industries, the majority of the potential value added is exported to countries like Turkey and Iran. The government lacks funds to develop infrastructure, promote industrialization, establish support industries for a manufacturing base, and promote Kyrgyz products overseas.

Survey findings have shown that improvements to the efficiency of the walnut value chain in Jalal-Abad could improve the income and livelihoods of many participants, increase employment through value addition, and increase the national GDP through exports. Regional economic growth, if equitably distributed, could also serve to reduce ethnic tensions and division. Support to improve the efficiency of value chains of walnuts and other NTFPs would also help promote sustainable walnut-fruit forestry management practices, currently under threat from increased population pressure, deforestation, and livestock farming.

7.1 SPECIFIC CONCLUSIONS AND RECOMMENDATIONS

1. It was not possible to find the latest figures on the existing area of walnut forests in southern Kyrgyz Republic. It was also impossible to get accurate figures of walnut production, especially since the early 1990s. An estimation of peak yields of walnuts in exceptional years was 3,200 tonnes, but export figures for kernels from the customs department in 2010 gave a figure of 2,923 tonnes. At crack-out rates of 45–50 percent, this means that more than 6,000 tonnes of walnuts were harvested.

Recommendation: The State Department of Environment Protection and Forestry should devote more resources to ascertaining the exact area of walnut forests, both wild and cultivated. There is a need to collect more yield data more systematically from walnut-producing *leskhozes*. It is also necessary to conduct an inventory of walnut forests located outside the State Forest Fund *(Goslesfund),* on the territories' of *aiyl okrugs*, towns, etc.

2. The Decree of the President of the Kyrgyz Republic No. 331 (2006) to prohibit all cutting of walnut trees and limbs may be counterproductive in its efforts to reduce deforestation. A more pragmatic approach that allows *leskhoz* staff to give permission to leaseholders to prune and maintain existing wild trees – as allowed for kitchen walnut trees – may provide a basis for more sustainable management conditions in wild forests.

Recommendation: Review the impact on wild walnut forests of the Decree 331. The moratorium on cutting valuable species is considered a temporary intervention. Any future revision of legislation on forest offenses will override existing decrees, thus effectively changing the situation.

3. The post-harvest systems and market-related infrastructure for walnuts in the Toskool-Ata *leskhoz* are poor. Farmers lack drying and storage facilities. There are few access roads to remote forest areas. Walnuts sold "wet" immediately after harvest, eliminating the opportunity to dry, store, and process walnuts into kernels. Marketing arrangements are limited. Improvements could provide poor households with much more income and employment during winter months.

Recommendation: More complex arrangements for bulking, sales in volume, and negotiated sale prices with larger traders could be developed, if farmers were to sell collectively. The development of local micro-credit schemes to assist poorer farmers should be considered.

4. Walnut cracking by hand is very labor intensive. Wild walnuts have very thick skins and should be carefully cracked in order to produce quality kernels. Wild walnuts cannot be cracked successfully by large machines, unlike hybrid varieties with softer shells. No handheld kernel cracking equipment is available.

Recommendation: Further research is required to develop a cheap handheld tool that can speed up the process of walnut cracking while ensuring that quality kernels are produced.

5. In order to redistribute the economic benefits from the wealthier exporters to the poorer participants along the chain, access for the poor (leaseholders, collectors, walnut crackers) to short-term microfinance facilities must be improved, so that they, too, can purchase walnuts and kernels for storage for sale at a higher price later in the season. P oor participants in this value chain do not have access to affordable short-term (less than three months) sources of credit.

Recommendation: Undertake a thorough review of microfinance institutions and their schemes, to identify potential partners to reach out to marginalized groups. This should be supported by working with groups to develop business plans and build their capacity to engage as entrepreneurs.

6. An attempt was made during this rapid assessment to quantify volumes in wholesale markets for both the season and long-term trends. However, given the complexity and size of the markets and the short survey duration, it was not possible to obtain reasonable estimates.

Recommendation: A more detailed survey of market volumes and conditions in key wholesale markets is required to fully understand the dynamics of flow of goods for both walnuts and kernels.

7. A great opportunity remains, to develop a processing base to add value to local walnut kernels through the manufacture of processed foods, such as walnut oil, kernel and honey mixes, vacuum-packed kernels, beer nuts, etc. Despite having access to good-quality wild and, if certified, organic raw materials, export market access has proved difficult for processed walnut products. Lack of support services and local suppliers severely restricts the growth of the manufacturing base.

Recommendation: Market promotion and development of entrepreneurial skills should be strengthened, to help potential businesses effectively find markets for their products.

Recommendation: Government support is lacking for the private sector in terms of product promotion, industrialization, and enabling policy and legal frameworks. Improvements could include the development of an industrial zone for Jalal-Abad. Many exporters indicated that it was difficult to do business in the Kyrgyz Republic. A review of policies and the legal framework is required to provide a more "enabling business environment," rather than government by regulations and possible coercion.

Recommendation: Export policies between Uzbekistan and the Kyrgyz Republic need review and revision.

Recommendation: There should be opportunities to market directly to other countries, particularly in Europe and Asia. To do so competitively needs to be explored.

8. The current export price is $5–$7/kg for kernels in the 2010/11 season. The declared value by exporters is $1.47/kg. With a 1 percent income tax on value for each shipment, the Inland Revenue is losing a lot of tax revenue as a result.

Recommendation: Although it is common practice for exporters to underestimate the value of goods on customs forms, the recorded value here is just 20 percent of the real value. A review should be made and practical steps taken to ensure that recorded values are more realistic.

9. A review of walnut and kernel products on sale in major supermarkets chains revealed that only a few processed products were available, which indicates that consumers mainly shop for walnuts or kernels in retail bazaars; there is limited growth or diversification of manufactured walnut products for domestic consumption. The opportunity to exploit a niche market for particular products aimed at middle- or high-income groups is not being developed. No organic labeled products were offered.

Recommendation: Ways to support access of processors and manufactures of walnuts and NTFPs to niche markets should be reviewed, including organic certification.

7.2 FINAL REMARKS

It is recommended that these findings are shared with a broad group of stakeholders to discuss possible solutions to overcome constraints and improve the flow of benefits to value chain participants.

Steps to improve the efficiency of the market chain may include:

1. Improvements to the technical production aspects

2. Improvements to post-harvest handling
3. Value added and means to increase farmers' income through local product processing
4. Reduced input supply costs through bulk buying
5. Organized group selling or volume transportation to town
6. Improved access to microfinance
7. Increased prices through improved negotiation with traders
8. Scaling-up of production areas based on increased volumes sold
9. New employment opportunities of local people to provide essential services to support the product chain (e.g., collection services for product assembly, input supply, etc.)
10. Improved enabling environment for value addition prior to export (e.g., vacuum-packed walnuts, walnut oil products, beer nuts)
11. Government promotion of Kyrgyz walnuts and related industries in Osh and Jalal-Abad

ANNEXES

A.1 Agro-enterprise and Market Development Process (AEMDP) Methodology

Annexes 1

1. Methodology

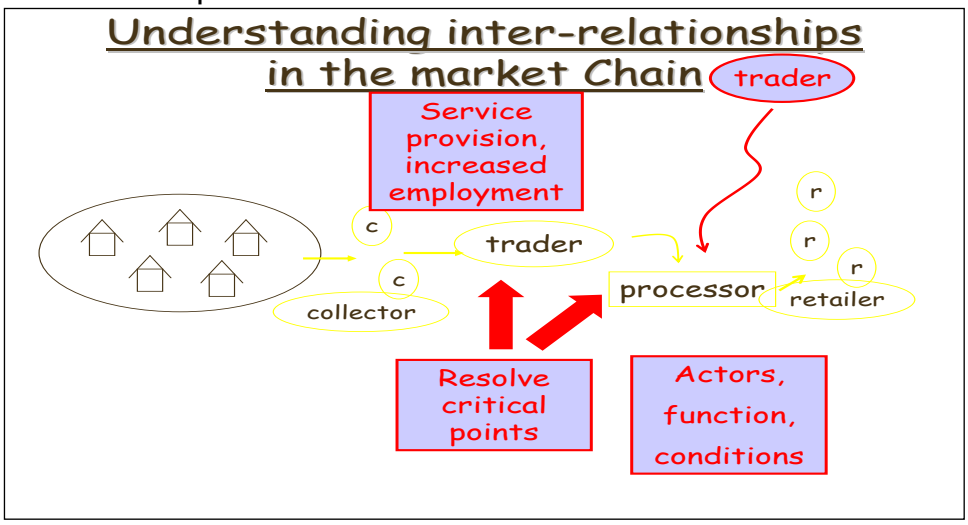
Two training courses were developed and delivered. One was held in Bishkek for RDF staff on March 22–23 and one was held in Toskool-Ata *leskhoz* office on March 25–26 for *leskhoz* staff, Provincial Department of Forestry and Ecology staff, and local farmers.[50] Three of the five trainees were further deployed to assist the RMA team.

The RMA study team used survey tools developed in an AEMD[51] to understand the different actors in a market chain, their functions, and relationships that exist between them. These include farmers, collectors, traders, wholesalers, processors, exporters, and retailers. The RMA survey team then collected different market-related parameters:

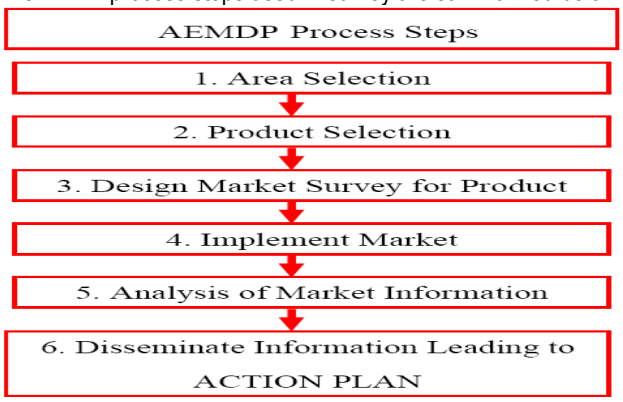
- What is demanded by each actor in the market chain
- The type of product, condition, and price
- Seasonal supply, demand, and price
- Regional supply conditions (products imported from different countries or provinces)
- Support services required by the product for efficient marketing, etc.

These conditions are summarized in the following:

Market chain example



The AEMD process steps used in survey are summarized below:



[50] See Report 2: Training Completion Report for details.
[51] See "Starting an Agroenterprise Development Process, A Field Facilitators Guide," by SADU, CIAT, and NAFRI.

The AEMD process takes an area or territorial based approach involving a cluster of similar villages that trade or produce similar products and face the same problems and opportunities (step 1). Through the use of The People's Analysis of Health Priorities (PRA) and focus group discussion tools, products are screened and prioritized against a set of criteria to establish their importance and potential in the local village economy (step 2). Once selected, a rapid market chain assessment (RMA) is designed (step 3) and then implemented (step 4). The study team involved key village representatives together with district and other selected staff. Once analyzed (step 5), information is disseminated and discussed in cluster and village levels. A final stakeholder workshop is convened, with all views represented, to formulate an Action Plan (AP) for improving the efficiency of the market chain (step 6).

Steps to improve the efficiency of the market chain may include:

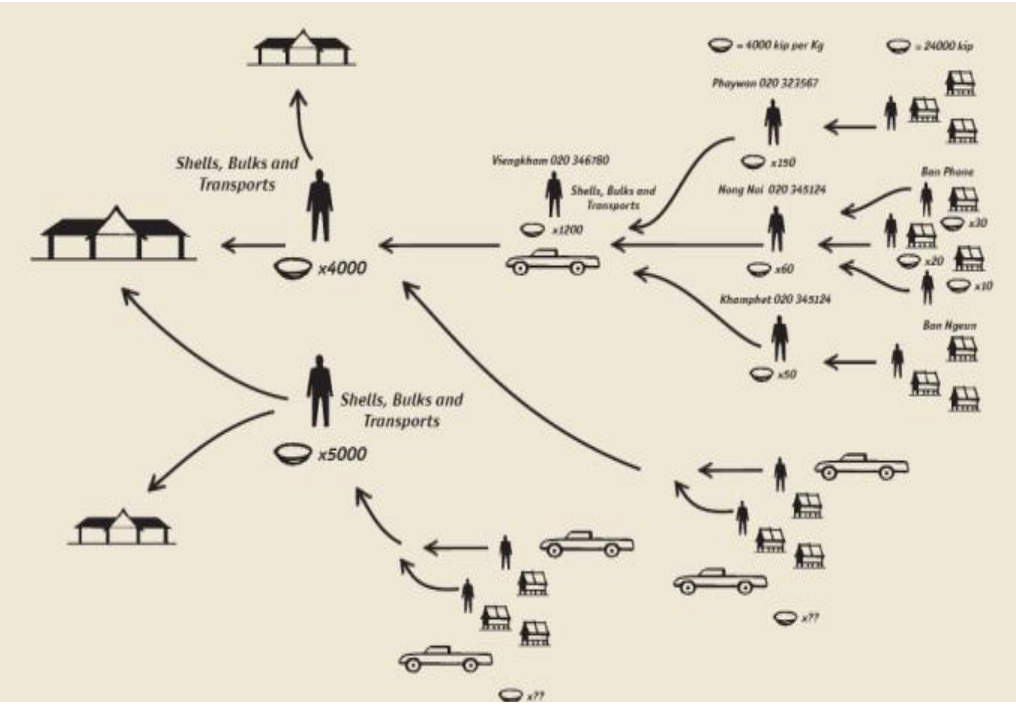
- Improvements to the technical production aspects
- Improvements to post-harvest handling
- Value added to increase farmers' income through local product processing
- Reduced input supply costs through bulk buying
- Organized group selling or volume transportation to town
- Improved access to microfinance
- Increased price through improved negotiation with traders
- Scaling up of production areas based on increased volumes sold
- New employment opportunities of local people to provide essential services to support the product chain (e.g., collection services for product assembly, input supply)
- Improved enabling environment for value addition prior to export (e.g., vacuum-packed walnuts, walnut oil products, beer nuts)
- Government promotion of Kyrgyz walnuts and related industries in Osh and Jalal-Abad

To estimate trends in demands, supply, and price across seasons, different trader and collector groups are interviewed based on their size and importance. Data are thus collected from large, medium, and small players in the market, who are assumed to be typical of the type of trader. Once figures are collected from a sample of three or four of these actors, the total number of traders in that category is identified and then average figures from these three or four actors are multiplied by the number of traders in that group.

2. AEMDP Tools

2.1. Physical Market Mapping

2.1.1 Market Chain Diagram



2.1.2 Chain Basic Data

1. Chain levels
2. Link/actor, quantification, value, role, and function
3. Structure and management
4. Actor relationship at each chain level
    a. Contact, appointment, and agreement
    b. Payment method
    c. Competition
    d. Product bulking
    e. Service provision from the vertical link
5. Cost-profit analysis (Case study; not compulsory)
6. Service provision and supports from horizontal link
    a. Training, extension, etc.
    b. Transportation service
    c. Credit and inputs service, etc.
7. Policy, regulation
8. Competition
9. Technology and infrastructure
10. Obviously observed constraints and opportunities

2.1.3 In-depth Date Mapping

A. Trends in Demand and Price

Max. price								Max.quant.
								Demand quantity
Min. price								Min.quant.
	4	3	2	1	1+	2+	3+	
	Years backward				Years forward			

Reason of Fluctuation

4	3	2	1	1+	2+	3+
Statistics/ socio-economic reasons	Statistics/ socio-economic reasons	Statistics/ socio-economic reasons	Statistics/ socio-economic reasons	Statistics/ socio-economic reasons	Statistics/ socio-economic reasons	Statistics/ socio-economic reasons

B. Seasonality of Price and Demand

	Max. price								Max.quant.
									Demand quantity
	Min. price								Min.quant.

Reason of Fluctuation

C. Purchase Condition

1. Variety
2. Quality attributes
3. Transportation distance
4. Bulking
5. Payment method
6. Product preparation and presentation
7. Packaging
8. Region/area/destination for transport (e.g., inside the district, cross-border)
9. Collecting/buying period
10. Collecting/buying frequency
11. Max. and min. purchase
12. Other conditions designed with types of products

D. SWOT

Strengths:	Weaknesses:
Opportunities:	Threats:

Remarks

O and T : Market chain steps

S and W: Internal resources, capacity, and process

A.2 List of Walnut Exporters and Contact Details

	Name of exporter	Manager name	Address	Tel no
1		Mr. U. Turdukulov	6-microdistrict, H-13 / 1, AP-30, Bishkek, Kyrgyz Republic	+996 772 346250 +996-312 521135
2	"KC-KG trading company Ltd."	Mr. K. Beshbakov	Frunze str 4, Kara-Balta, Kyrgyz Republic http://www.kcproduct.com/	+996-3133-25723
3		Mr. O. Nurgaziev	Sovetskaya 13-20, Bishkek, Kyrgyz Republic	+996-312-542110 +996 700 756242
4	Vega Plus Ltd	Mr. K.Aitkalov	Kugart str 28/24, 715600, Jalal-Abad, Kyrgyz Republic	+996 3722 51028
5	Gedic Ltd		Ivanicina str 51a, 715600, Jalal-Abad, Kyrgyz Republic	+996 3722 51276
6	Zolotoy oreh Ltd	Mr. Islambekov	Moskovskaya str 62, 715600, Jalal-Abad, Kyrgyz Republic http://www.zolotoyoreh.kg/	996372251214 +996 772 326057, +996 555 326057
7	Sky Ltd		Respublica str 151\ 21, 715600, Jalal-Abad, Kyrgyz Republic	+996 3722 55841
8	Earth food Ltd.	Mr. Sami Sari	Kurmanbek str, 9, 715600, Jalal-Abad, Kyrgyz Republic http://www.earth-food.com	+996 3722 52113 +996 532 6140809
9		Mr. N.Mamatov	Sputnik, 715600, Jalal-Abad, Kyrgyz Republic	+996 775 791979 +996 3522 52110
10	Rosindustrial&commercial co. Ltd.	Mr. Reza Esmailzadeh	Mir str. 303, FEZ-Bishkek, Bishkek, Kyrgyz Republic	+996 312 600251 +996 772 572334

A.3 Relevant Kyrgyz Laws to Develop Trade and Enterprise

Relevant Law	Key point
Law of the Kyrgyz Republic on April 13, 1994, No. 1460-XII "About trade and industry party of the Kyrgyz Republic"	Trade and industry party of the Kyrgyz Republic is a private organization designed to articulate and defend the interests of the nation's businessmen and to promote national economic, industrial, scientific, technical, and trade relations between the Kyrgyz Republic and other countries.
Law of the Kyrgyz Republic on March 3, 1997, No. 12 "On licensing"	This law regulates the relations connected with the state licensing activities or certain activities subject to licensing.
Law of the Kyrgyz Republic on July 2, 1997, No.41 "On state regulation of foreign trade activities in the Kyrgyz Republic"	This law defines the basis of state regulation of foreign trade; its implementation by the citizen of the Kyrgyz Republic and foreign persons; and rights, duties, and responsibilities of public authorities of the Kyrgyz Republic in the field of foreign trade.
Typical Provision "On parts of the business support" approved by the Government of the Kyrgyz Republic on April 24, 2000, No. 236	"Business support" is formed in the prescribed manner within the state administration and local self-government in Bishkek and Osh within the approved states and structures entrusted to them to ensure the coordination of business development and protect the interests of business activities in the regions.
Law of the Kyrgyz Republic on February 1, 2001, No. 15 "On protection of entrepreneurs"	This law aims to protect the rights of citizens to freely use their abilities and property for the realization of entrepreneurial activity, and establishes the forms and methods of state regulation of stimulating proactive business activities.
Position on permits, issued by government bodies of subjects of entrepreneurship "approved by the Government of the Kyrgyz Republic from July 30, 2001, No. 386	This provision governs the procedure for issuing permits, relations arising in the process of obtaining business permits, and mechanisms to address conflicts of interest in the issuance of these documents in the field of business regulation.
Law of the Kyrgyz Republic on March 27, 2003, No. 66 "On Investments in the Kyrgyz Republic"	This law establishes the basic principles of public investment policies aimed to improve the investment climate in the country and stimulate domestic and foreign investment by providing a fair, equitable legal regime of safeguards to protect investors and raise their investments in the country.
Law of the Kyrgyz Republic on March 27, 2003, No. 64 "On Joint Stock Companies"	This law defines the procedure for the establishment and legal status of joint stock companies, and the rights and obligations of their shareholders, and also protects the rights and interests of shareholders.
Law of the Kyrgyz Republic on August 12, 2003, No. 195 "On public procurement of agricultural products to support agricultural producers'	This law establishes a general legal and economic principles and provisions to support agricultural producers in the Kyrgyz Republic, regardless of ownership.
Law of the Kyrgyz Republic on June 11, 2004, No.70 "On cooperatives"	This law defines the legal framework and economic foundation of education and cooperative activities of the Kyrgyz Republic and their unions.
Regulation "On the Public chamber on economic development and entrepreneurship under the President of the Kyrgyz Republic" approved by Presidential Decree of October 26, 2005, No. 496	The public chamber for economic development and entrepreneurship under the President of the Kyrgyz Republic is a consultative body set up to coordinate the actions of governments and social structures of the private sector in implementing government policy in economic development and business support.
Law of the Kyrgyz Republic on December 28, 2006, No. 215 "On providing state support to legal person and individuals	In accordance with this law, interest rates on loans provided to businesses and individuals residing and engaging in economic activities in villages located in mountainous, remote, and inaccessible areas of the Kyrgyz Republic; credit unions, banks; and microfinance institutions

Relevant Law	Key point
residing and engaging in economic activities in villages located in mountainous and remote areas of the Kyrgyz Republic"	are reduced in proportion to regional coefficients, and the term of repayment increases in proportion to the regional coefficient of the settlement.
Law of the Kyrgyz Republic on May 25, 2007, No.73 "On State Support to Small Businesses"	This law establishes the general provisions of state support and small business development, and establishes the forms and methods of government incentives and regulation of small businesses.
Law of the Kyrgyz Republic on May 25, 2007, No.72 "On the procedure for inspections of businesses"	This law establishes the procedure for authorized agencies to conduct inspections of businesses, establishes the rights and duties of competent authorities and business entities in the relationship, linked with the implementation of inspections, as well as protects the rights of businesses from unlawful interference in their activities.
Regulation "On the Taxation of small businesses under the simplified system" approved by order of the State Committee of Kyrgyz Republic on taxes and duties on December 3, 2008, No. 126	This provision established a simplified system of taxation of small businesses.
"On establishing of rates of custom duty for goods exporting from Kyrgyz Republic" of the Government of the Kyrgyz Republic No. 77, dated October 1, 2010	Recent rates customs and duties introduced for export from the Kyrgyz Republic.

A.4 Export Certification and Documentation

Issues on Export Certification and Documentation

Sources:

1. Law on plant quarantine of the Kyrgyz Republic, law of the Russian Federation, requirements on import and export, state standards
2. Internet sources, websites of exporting companies, certifications and webpages of legislation
3. Central Custom Service of the Kyrgyz Republic – Mr. Chekilov Murat
4. Inspection on plant protection and quarantine – Mr. Askar Abakirov
5. Chamber of Commerce and Industry, Expertise Department, Tel: 0996 312 61-38-80.

During the survey, the list of possible options required on exporting goods was:

	Necessary certificated for walnut export	**Authority**	**Notes**
1	Origin certificate	Chamber of Commerce and Industry	On requirement of importing country
2	Phyto-sanitary certificate	Inspection on plant protection and quarantine under the Ministry of Agriculture of the Kyrgyz Republic	1) required for exporting goods from the Kyrgyz Republic 2) on importing country's request
3	Findings on mytotoxin content	Accredited laboratory	On importing country's or buyer's request
4	Import-quarantine permission	Inspection on plant protection and quarantine of importing country	Requested when goods are imported to Russian Federation
5	Quarantine certificate	Veterinary and phyto-sanitary office of custom service of importing country	Requested when goods are imported to Russian Federation
6	Environmental control	Required when amount of harmful subsistence in exporting goods exceeds allowable standards	

Among these certificates, a phyto-sanitary certificate is mandatory. The certificate should be prepared according to International Convention on Plant Protection requirements. The other types of certificates have advantages on selling and can be agreed on conclusion of a contract between seller and buyer. In general, the findings on mytotoxin content provided by an accredited laboratory, and biological parameters of walnut and kernel are the complementary documents for walnut exporting. On exporting walnuts from the Kyrgyz Republic, the exporter provides the custom service with a list of documents including invoices, an international contract, a phyto-sanitary certificate, and other documents regarding to custom legislation. Other countries have their own requirements for export documentation. Certificates such as EUREP–GAP, HASSP, and CODEX are not used in exporting goods from the Kyrgyz Republic, because costly expertise increases exporting goods' cost several times. The same is true for certification of bio-products; this type of certificate is issued by IFOAM, NOP, IOAS, or JAS – these in turn have different standards for different countries for the same product. Obtaining the certificate from those organizations is very complicated, that is why a certification practice is not developed in the Kyrgyz Republic.

A.5 Fair Trade Requirement

Summary of the fair trade or sustainable trade model	Creating value for all the participants on the trade chain. A better product deserves a better price, covering the cost of sustainable production and the cost of sustainable living for farmers and workers in developing countries.
Objective	• Sustainable development with a social-economic emphasis. • Fair access to markets with a focus on sustainable production and improved living conditions for small-scale producers/farmers. • Professionalization of processes in order to improve quality and value of the product.
Requirements	• Traceable flow of goods and transparent financial flows. • Compliance with national labor laws and the Conventions of the International Labor Organization regarding age, working hours, working conditions, collective bargaining, and safety. (**www.ilo.org**) • Compliance with basic environmental standards, including but not limited to integrated crop management systems, sustainable water and energy use, reduced use of chemicals in farming, reduction of soil and tree erosion, promotion of biodiversity. (**www.globalgap.org**). • Voluntary system for organized small producers and farmers dependant on hired labor/workers.
Scope of the standard	
Organizational processes	Stakeholder participation, transparency, improved labor conditions, implementation of nondiscrimination policies, and access to fair housing, clean water, health care, and education services for workers and their families.
(On-farm) production	Improvement of product quality: Producers monitor the business processes for traceability purposes and keep records of fertilizers and agricultural chemicals used. All records are checked annually. Producers provide training to all employees on health and safety procedures and the correct use of pesticides.
Processing	The product is processed by accredited manufacturers from the certified body, allowing for transparency and traceability on the flow of goods and the flow of finances.
Certification/Inspection	• Internal annual self-assessment against a checklist. • External inspection against standards of a given certification scheme; timeframes differ.
Who can apply	
Producers/producer groups	Small farmers organized in groups or cooperatives and plantation farmers dependant on hired labor. Ability to fill at least one container of product (40 tonnes).
Transformation/ manufacture	Accredited by the "fair trade" and/or "sustainable" labeling/certification organization (see links below): binding contract ensuring transparency and traceability checks on flow of goods/finances.
Exporter/trader	Accredited by the "fair trade" and/or "sustainable" labeling/certification organization (see links below): binding contract ensuring transparency and traceability checks on flow of goods /finances
Importer	Accredited by the "fair trade" and/or "sustainable" labeling/certification organization (see links below): binding contract ensuring transparency and traceability checks on flow of goods /finances
Retail	Binding contract between the labeling organization and the retailer ensuring the fair trade and/or sustainable price is paid to the producers/farmers (fair wages for workers).
Products	Coffee, cocoa, sugar, tea, bananas, avocado, pineapple, mango, nuts, orange, juices, cotton, palm oil.
Markets	EU countries, Switzerland, U.S., Canada, Japan, Brazil, Mexico, India, Philippines.
Examples of certifiers	List of Fair Trade certification schemes and other resources

Source: http://193.194.138.42/en/Sustainability-Claims-Portal/Discussion-Forum/Fair-Trade/

A.6 Fair Trade Organizations

ACW: Faith-based social equity and workers' rights association. www.acw.be

Altereco: Fair trade certified food products and shops in the Pacific, Japan, Brazil, and France. www.altereco.com

Artisan Life: Promoting Colombian fair trade handcrafted jeweler and fashion accessories. www.artisanlife.co.uk

Autonomie Project: A new fair trade fashion company offering sweatshop-free and eco-friendly footwear, clothing, and accessories. www.autonomieproject.com

Beyond the Peel: An Equal Exchange Initiative focusing on fair trade bananas from Ecuador. www.beyondthepeel.com

Biocoop: Promoting fair trade products and shops in France. www.biocoop.fr

British Association of Fair Trade Shops: A network of independent fair trade shops across the United Kingdom. www.bafts.org.uk

BSCI: The Business Social Compliance Initiative is a business-driven platform for the improvement of social compliance in the supply chain of commerce. www.bsci-eu.org

Commerce Equitable: Association of 37 fair trade actors across France. www.commercequitable.org

CRS Fair Trade: Catholic humanitarian agency promoting fair trade products. www.crsfairtrade.org

European Fair Trade Association: Organization promoting fair trade in Europe. www.european-fair-trade-association.org

Equal Exchange: NGO dedicated to fair trade with small-scale coffee, tea, cocoa, and banana farmers in the developing world. www.equalexchange.coop

E-Shop Africa: Online fair trade shop with products coming directly from Africa. www.eshopafrica.com

Ethical Trade Initiative: Alliance of companies, NGOs, and trade union organizations promoting the implementation of corporate codes of practice that cover supply chain working conditions. Its ultimate goal is to ensure that working conditions of workers producing for the United Kingdom market meet or exceed international labor standards. www.ethicaltrade.org

Ethical Superstore: Large online shop featuring fair-trade, organic and environmentally friendly products. www.ethicalsuperstore.com

Fair Fabric: Works with cooperatives and nonprofit organizations to find markets for quality, fairly traded silk fabric and products. Mission-based enterprise that supports women in conflict and post-conflict countries. www.fairfabric.org

Fairganic: Online store selling fair trade and organic products. www.fairganic.co.uk

Fair Trade Federation: Association of businesses and organizations that are fully committed to fair trade. FTF strengthens the capacity of its members, encourages the exchange of best practices, and raises awareness about the importance of choosing fairly traded products and supporting businesses committed to fair trade principles. www.fairtradefederation.org

Fairtrade Labelling Organizations International (FLO): Composed of 24 organizations working to secure a better deal for producers. The FAIRTRADE Certification Mark indicates that the labeled product has met international fair trade standards. www.fairtrade.net

Fair Wear: Dutch fair-trade clothing label. www.fairwear.org

In November 22, 2011 RDF carried out the National Workshop on the Forest and Rural Livelihoods in the Kyrgyz Republic - Development Potential research project. The main objective of the workshop was to present the core findings of the studies to the wide range of stakeholders: from policy-makers to practitioners of forestry sector as well as local communities and non-timber forest product businesses and elicit their feedbacks.

The workshop was divided into two sessions: Session one: Governance in Forestry Sector of Kyrgyz Republic and Session two – Value Added Chain of Walnut. Ms. Undeland Asyl, the World Bank consultant presented core findings of the Governance and Use in Forestry Sector study in the first session. In the second session Ms. Umut Zholdoshova, the RDF Environmental Programs coordinator, presented the findings on walnut value chain research, conducted by rapid market appraisal team, lead by Mr. Willie Bourne. Below are some of the noteworthy comments, suggestions and feedback from stakeholders regarding the walnut VCA presentation:

1. The research on Value Added Chain of the walnut industry cannot be considered as complete; because it lacks the basic production costs for the planting and growing of walnut trees. There were suggestions of including the cost of environmental services, provided by the walnut-fruit forests to walnut VCA. The participants suggested revising the report on walnut VCA and making efforts towards it's full completion.

Response: *The field survey period was very short covering just 5 days. The VCA survey team did not get the chance to review and study production costs and returns for planting walnut trees. Instead, a decision was taken to focus more on the cost and returns of natural wild forest production. The point is valid and further studies should be carried out to assess the economic potential of walnut plantations.*

The benefits of the important environmental services that natural walnut forests provide should likewise be calculated and assessed through an Environmental Impact Assessment. Findings should then be compared to the impact of other types of economic land use (e.g. livestock rearing) in forest areas.

It is recommended, that both these issues are taken up in future work. Unfortunately, there is no time left in PROFOR or resources to revise the findings, as suggested.

2. Representatives of SAEPF commented on the recommendations given in the VCA report regarding the review of the moratorium for cutting valuable tree species, approved by the Presidential Decree #311, 2006. Due to the huge ecological functions of natural walnut-fruit forests, sanitary cuttings for production purposes should be forbidden; instead of allowing cutting (even sanitary one) in natural walnut-fruit forests it would be betterto create artificial walnut plantations.

   On this point, other participants argued that for the sake of improving the natural walnut-fruit forests condition the moratorium must be revised., and t he recommendation of the World Bank consultant should be specified into details;

Response: *There are two arguments to this point as described above. By banning any pruning of disease affected or broken limbs of old walnut trees, it is likely that the productive life of these trees will be shortened. Reinforced community management and understanding of the importance of caring and conserving walnut forest will hopefully result in less exploitation of walnut timber. Policies and efforts to increase the economic return from walnut trees through improved market linkages and income generation should lead to more sustainable community level forest management.*

It is recommended that a review of the relevant decree by a technical team with the appropriate specialized knowledge is undertaken and their findings and recommendations be reviewed by the SAEPF for use in future policy development.

3. The head of Forest and Ecosystems Development Department of SAEPF (Mr. A.Kysanov) argued that the information on lacking transparency in distribution of walnut forest plots among the lessees was not correct, because nowadays in leskhozes the leasing of forest plots is being complied with in accordance with all rules and procedures;

Response: *The point raised was in relation to previous experience quoted from KIRFOR and other literature. It may well now be the case, as the Head of SAEPF has pointed out, that the process of leasing forest plots is undertaken with the full compliance of rules and procedures.*

4. Discussions arose among the SAEPF representatives and walnut and kernel exporters on custom charges on use of non-timber forest resources (walnut). The participants felt it necessary to conduct a review and amendmend the procedures and rates for nature resource use, including walnut and kernels;
5. There were comments regarding the discrepancy of the SAEPF and Custom data on walnut production: the data provided by the SAEPF on the maximum yield of walnut 3,200 tonnes shows only walnut production of natural walnut forests. The gap shows yields from artificial walnut plantations in other regions of the country;

Response: *This appears to be a valid conclusion and explanation of the issue raised.*

6. It is necessary to add some recommendations on development of the private walnut plantations in order to minimize human pressure on walnut-fruit forests;

Response: *A recommendation should be added. A specific study should be undertaken to review all legal, institutional and socio-economic issues regarding the development of private walnut plantations together with recommendations on how best to support private sector involvement in forest production and its management.*

7. Mr. B.Toktoraliev, the representative from National Academy of Sciences of KR and former head of SAEPF, suggested to rename the walnut as "a kyrgyz walnut", because Kyrgyzstan is a home for *Juglans Regia*.

Response: *There is great opportunity to promote "Kyrgyz walnuts" as a national product in the global market together with brand development. Kyrgyz walnuts may be considered unique in the world in terms of quality and taste. The outcome of any future work in this regard would manifest itself in increased value and economic benefits along the value chain.*

8. Mr. T. Musuraliev, another former head of the SAEPF, explained his understanding of the history of the forestry sector of the republic and suggested a continuation of the effort to include the walnut-fruit forests of Kyrgyzstan into the List of World Natural Heritage of UNESCO. He argued that research done by the Swiss scientists from the KIRFOR program had determined the walnut-fruit forests of Kyrgyzstan to be of artificial origin, which, according to his opinion, was mistaken. He suggested more workbe done to prove the indiginious origin of the walnut tree to the Ky artificial origin of walnut-fruit forests of Kyrgyz Republic..
9. A representative of the Ministry of Economic Regulation of KR proposed to continue the work that was done by the WB and the RDF and implement the recommendations. He suggested conducting more comprehensive and detailed research on the walnut VCA and carrying out capacity building activities for walnut farmers.

Response: *This report should be considered just a beginning in the effort to understand the value chain and potential improvements in efficiencies that could be made from production, post harvest to manufacturingto sales promotion and export. The survey and its findings only "scratched the surface" of the issues that affect the efficiency and competitiveness of Kyrgyz walnuts. The link between improved management of walnut value chains and sustainable walnut-fruit forest management should not be overlooked. Only when the economic benefits from good forest management are realized in a sustainable way will forests be properly managed, conserved and protected.*

Donors should be encouraged to support any endeavor that aims to develop the market and value chain potential of all NTFPs produced in the fruit – walnuts forests to help promote growth and prosperity for those engaged in the different value chains.

10. Participants concluded that the finding of the research done by the consultants of WB and RDF was incredibly useful and should be explored further in future meetings related to forestry issues. They emphasized that the study results could be used by government bodies as a practical tool for their further work.

Response: *The WB consultant and RDF would like to thank the workshop participants for their positive remarks.*

It is recommended that the SAEPF prepare concept briefs to follow up on the recommendations presented in this study and the work of the PROFOR project. These briefs should include proposals for further donor support and funding for NTFP market and value chain development in the sector.

Willie Bourne[i], WB Consultant

1st December 2011

[i] **Willie Bourne** is a development consultant with over 25 years of experience and has worked widely in South East Asia and Southern Asia, the Kyrgyz Republic and some islands of the Caribbean with different donors and organizations. He began his development career with Voluntary Service Overseas (VSO) in Thailand in 1985, working on opium drug replacement programs in remote parts of the northern highlands and assisting poor ethnic hill tribe minority farmers in the production and marketing of vegetable, flower and fruit crops. Since then he has worked on development projects to improve aid efficiency, emergency rehabilitation work, M&E system development for projects or government ministries and departments, and sustainable natural resource use and conservation in coastal and remote upland areas. He is currently working with the Department of Planning in the Ministry of Agriculture and Rural Development (MARD) in Hanoi, in the development of renovated planning and M&E system development for

improved policy decisions in the agriculture and rural development sector in Vietnam. His home base is in Chiang Mai, Thailand where he lives with his wife and two children.