

CARBON SEQUESTRATION THROUGH CLIMATE INVESTMENT IN FORESTS AND RANGELANDS IN
KYRGYZSTAN (CS-FOR)

**Contribution to the Feasibility Study on Component 3:
“Green Value Chains Development”**

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Chapter 1. Rural context

Rearing traditions and prevailing mentality made livestock the main driver of pastures degradation. “Roaming bank” tradition for over 25 years by the vast majority of animal owners resulted in major pasture degradation, especially in vicinity to rural settlements. Rearing traditions and prevailing mentality are not naturally conducive to optimize the income generated from livestock. There is a general perception among most smallholders that a milking cow is rather considered as a valuable asset for family nutrition than an income generating production unit. In Kyrgyzstan, animal husbandry has been traditionally the main source of livelihood for rural population with farming households generating 95 percent of the nation output in red meat. This category of animal breeders relies exclusively on pasture meadows located at altitudes of 2500 m asl and above with grazing period ranging from 120 to 140 days. Animals are therefore the main driver of pastures’ degradation.

Degraded pastures and inefficient production systems turn animal breeding non-profitable. Herders are trapped in intermediaries’ network; relations of mistrust and difficulties to reach up the formal markets weaken the chain. Simple calculations demonstrate that animal husbandry brings no (or negative) profit to herders who use pastures inefficiently (this is the case of the vast majority of herders, except for the most advanced PUUs that apply good pasture management techniques). Small-scale production has unavoidably led to high production costs. Little to no profit on herder’s side vs. generous margins of intermediaries create relations of mistrust compromising the performance of the entire chain. See Annex 1 for details. High red meat price volatility due to unorganized domestic market and aggressive speculation on prices by animal traders (intermediaries) make long-term transactions difficult (e.g. export contract), which limits private sector investment in meat industry.

Making forests more valuable to local users can encourage forest conservation. In the southern Kyrgyzstan, especially in the region of Jalal-Abad, 50 percent of trees in the forests are walnut trees. Local

families can obtain the right to collect walnuts and other forest crops from the government in land portions of 5 hectares each for up to 49 years; and so, for a month or more each year, they move from their villages into the forests to collect walnuts. Collected walnuts are then traded in their shells by each collector individually, often to middlemen or small traders who sell the product in local wholesale markets or proceed directly abroad through the informal channel. Despite their dependency, collectors usually overexploit their plots without looking to the future. In recent years, overgrazing by livestock and over-harvesting has seen significant reductions in output from the trees.

International certification to drive the paradigm shift. Alarming rates of deforestation, increased awareness on the multiple products and services provided by forests, have converged in efforts to link conservation and development through the commercial development of forest products. Non-timber forest products (NTFPs) in particular have a high profile in this, based on a perception that they are more accessible to rural populations, and especially to the rural poor and that their exploitation is more benign than timber harvesting. Moreover, there is an assumption, often implicit, that making forests more valuable to local users can encourage forest conservation. According to the [Forest Stewardship Council \(FSC\)](#), harvest of NTFPs usually has lower impacts on the forest ecosystem than timber harvesting, and can provide an array of social and economic benefits, particularly to community operations, and can therefore be an important component of forest ecosystem management. Before a forest tenants can certify their forest, they must meet the [ten FSC principles](#) for responsible forest management. These rules are in place to ensure environmentally appropriate, socially beneficial, and economically viable forest management.

Rich biodiversity. Nightly three percent¹ of the Kyrgyz territory is classified as uninfringed or slightly infringed natural ecosystems. Due to a variety of landscapes and microclimates, limits of ecosystem variety are wide enough - from deserts to leaf-bearing and coniferous forests and Alpine high mountainous system. According to Biodiversity International, Kyrgyzstan is the world's biggest remaining areas of ecosystems dominated by fruit-bearing woody species. Country's natural walnut forests – in particular the relict walnut Forest Arslanbob, which is considered the world largest walnut grove – are of global significance for biodiversity conservation.

Structural issue that needs to be addressed. NTFP value chains lack transparency and therefore traceability. According to industry experts, only 20 percent of nuts and ten percent of other NTFP and dried fruits are marketed through the formal (corporate) channel. Intermediaries (mid-traders) affiliated with exporters smuggle the bulk of the product creating relations of mistrust between forest leasers and the end market operators and taking away value addition beyond Kyrgyz borders. The collection of walnuts, for example, generates additional income for families living in rural areas. Mid-traders supply these walnuts to household crackers before being sorted and packed by exporters and toll processors. This traditional supply chain is archaic and inefficient as it involves many actors and compromises transparency and therefore traceability. Actors, in fact, cannot see beyond the next participant in the chain, causing lack of trust and reducing product quality and putting food safety at risk. As the trade of walnuts is often a one off deal, without long term commitments, and no incentive is paid for practices, forest users do not invest in sustainable forestry practices. Furthermore, mid-traders offer leaseholders low prices in a low season when smallholders need money, while their (mid-traders') margins easily reach 100 percent and the business is based on traded quantities, not quality with little to no market risk.

Underreported role in the global trade. Accurate data on Kyrgyz exports of NTFP are difficult to pin as most of the products are exported to Turkey and then re-exported, mainly to EU, not carrying any information on their true origin country. In addition, value addition of hundreds of tonnes of walnut and tenths thousands of dried fruits is happening in Tajikistan and Uzbekistan resulting, according to authors' estimates, in some USD 200 million opportunity cost for Kyrgyzstan only on EAEU market space (see Annex 3 for more details). Such trade schemes do not contribute to the international recognition of the country's image not to mention lost economic opportunities for Kyrgyz men and women. This is probably why [the International Nut & Dried Fruit Council](#) (INC) that links global business community operating in this sector is unaware of the Kyrgyz offer. Still, a handful of Kyrgyz private companies operating according to international standards have managed to benefit from economically vibrant sector of NTFP and dried fruits and integration with well-functioning export markets. These include “[Vega Plus](#)”, “Gedik”, “Lesnoy Produkt”, “Golden Walnut”, “Farmers Organic Garden”, “Bishkek-Expo”. Thus, in 2016 officially reported Kyrgyz export of tree nuts and dried fruits reached USD ... million.

While local administrations have powerful mandate, failure to understand national priorities and high staff turnover result in lack of action and “consumer” attitude vis-à-vis natural resources and settlement development in general. Discussion with the local government authorities during various missions fielded for the purpose of design, revealed that the heads of local administration (*Akims*) are not fully

¹ UNEP/GRID-Arendal, <http://enrin.grida.no/>

aware and/or do not fully understand the national strategies with regards to environmental protection, climate change adaptation, agrifood industry and trade development. Line ministries commitment – and especially that of their decentralized offices – is low due to high turnover of key staff. Such ignorance along with discontinuity in implementation compromise the positive impact of investment operations designed to address issues related to climate change and degradation of natural resources. Moreover, this leads to human capital loss and doubtful practices, including in relation to NRM. Failure to address this issue will – without doubt – lead to serious degradation of natural resources at scale.

At the grass root level, farmers need access to knowledge: modern and sustainable. Farmers, and not only smallholders, have limited to no access to modern knowledge on how to improve their production practices or organization skills. Today in Kyrgyzstan all advisory service provision to farmers (both, herders and growers) is entirely driven by donor support. This makes the system patchy and non-sustainable in time. Certification bodies, such as FSC, have high caliber training programmes to support adoption of good practices by smallholders.

The need for a shift from business-as-usual towards sustainable, forward-thinking natural resources use. Continuously growing stocking rates of animals and patchy, sometimes undermining landscape integrity management of forest land, will unavoidably lead the country to a deadlock. Pastures and forest land, as part of the supply chain, need to be managed responsibly and this means complying with the international environmental, social, and economic standards. This implies that local communities are respected, the habitats of endangered plant and animal species are protected, and that rural communities gain fair prices.

Chapter 1. Processing industry context

Agribusiness community: small yet dynamic and export-oriented. The Kyrgyz food industry represents only 15 percent (KGS 24 billion or USD 357 million) of the total processing industry output. Main **animal source foods** such as meat and dairy occupy a modest share of nine and 19 percent for meat dairy respectively, suggesting that most of primary output moves towards consumer through a non-corporate channel. The situation is even more contrasting in fruits in vegetables industry: processors operating in this sector barely reach one percent of the national food industry output.

This having said, agrifood exports are an important contributor to country's economy generating 15 percent of the total export value or USD 99 million. It is important to keep in mind that most of non-timber forest products massively exported from Kyrgyzstan are not accounted.

In Kyrgyzstan, there are 326 agribusiness companies of different scale², few are credit-worthy. In animal source foods industries five companies operate in meat industry (one slaughterhouse in Bishkek and one in Osh, and three meat processing facilities) and about 20 dairies, mainly located in Chui, Issyk-Kul and Talas provinces. Walnut industry is represented by five companies of medium scale (200-300 kg of walnut capacity), mainly located in Issyk-Kul and Jalal-Abad.

Chapter 1. End markets context

The growth in the dried fruits and edible nuts market on the rise. Kyrgyz products reach EU countries but direct transactions volume remains low. According to the International Nut & Dried Fruit Council, the global market for dried fruits and edible nuts is projected to reach 4.7 and 62.6 million tonnes, by 2022 driven by the growing awareness over the nutrient contribution of nuts and fruits to diet quality. Some USD 69 billion are traded annually in this category with the European Union as the biggest consumer: the EU is the largest market for edible nuts in the world, representing more than 40 percent of total world imports. Large importing and consuming markets such as the Netherlands, Germany, France and the UK offer opportunities for developing country exporters.

USA, Turkey and Iran are the largest suppliers of the European market. Kyrgyzstan, just as other Central Asian countries, is traditionally specialized in dried fruits and nuts. In 2016, the country generated USD 8.7 million on export operations in this category, with Russia, Turkey, India and China as main trade partners. Main traded products range from walnuts, almonds, pistachio to dried mulberry and apricots.

² Government of Kyrgyzstan, National Food Industry Development Programme 2017-22

Natural, low sugar and safe products are the main trends supporting increasing consumption of edible nuts and dried fruit. Consumption is therefore fueled by the growing demand for “healthy snacks”, natural processing methods (sun dried vs. industrial dehydration). Importantly, the role of traditionally dominating supplying countries is reducing as importers seek to diversify their sourcing options. In Kyrgyzstan, government and businesses have in general low awareness on the potential of NTFP.

In addition, globally, consumers are increasingly aware of, and concerned by, the origins of the products they buy and the processes that go into making them. They want to make responsible decisions about what they buy, weighing up social and environment credentials.

Chapter 3. Industry performance

The Kyrgyz agriculture: modest role in country's economy and high dependence on livestock. Significant growth potential driven by diversification from livestock and premium markets positioning.

In 2016, the agriculture sector accounted for 13.2 percent of the country's GDP with the livestock sector representing some 48 percent of gross agricultural output (GAO) or KGS 197 billion (USD 2.9 billion), with 15 percent generated from dairy and 30 from meat sub-sectors³. Contribution of NTFP to the national economy is largely underestimated (0.005 percent). While sector stakeholders assess this contribution as 2.5 percent, in 2018, the National Statistics Committee has introduced a new form to capture economic activity of forest leaseholders.

Poor performance as a result of highly fragmented production structure and non-compliance with the quality standards. Industry estimates annual red meat output as 35 thousand tonnes⁴, of which 16 percent has been illegally exported to Uzbekistan and Kazakhstan. Illegal traffic of live animals, in turn, has brought to Kyrgyz animal owners substantial losses worth some 300 thousand USD (value of confiscated animals). NTFP industry is largely underdeveloped with few operators in Jalal-Abad and Naryn Provinces specialized in preserves (of pines or walnut skins), dried herbs, tree nuts and dried wild fruits and berries. These are small-scale processing companies heavily dependent on donors' support (e.g. JICA's OVOP initiative) and imported glass packaging (especially for honey and jams).

Ensuring timely offtake of animals remains the major obstacle for industry development and, most importantly, for pastures rehabilitation. Red meat export performance is significantly lower than committed quantities as organizing batches of animals sourced from a multitude of unorganized small producers is extremely challenging. Thus, out of 340 tonnes of mutton contacted by the Iranian buyers in 2017, Kirgizstan was only able to supply 11 percent. The main reasons – stemming from the highly fragmented production structure – include non-compliance with industry standards and the lack of relevant infrastructure, such as livestock holding paddocks (animals holding facilities before transport to the slaughterhouse) and cattle trucks. Organizing and linking animal owners to modern slaughterhouses with regular sourcing needs will not only offer better producer prices but also offer competent advisory and veterinary services that will eventually result in higher animal productivity. Relations of trust need to be re-established between animal owners and processors to shorten, thus strengthen the entire chain.

High potential on domestic and export markets. Kyrgyz pastures feature over 3.5 thousand botanical species, including some 200 medicinal plants, and therefore represent a highly nutritious pasture forage for animals. Exceptional palatability traits of Kyrgyz beef and lamb are valued by consumers from Russia, Kazakhstan, Islamic Republic of Iran, Uzbekistan, and the United Arab Emirates notwithstanding the fact that Kyrgyz lamb has a high price tag. New markets, such as Qatar and China, are to welcome Kyrgyz red meat in 2018. On domestic market, meat accounts 23 percent of households' expenditures on food⁵. Red meat is consumed exclusively fresh (chilled) with *bazars* (traditional wet markets) remaining the main retail outlet.

Bishkek-based company “Toro” and its slaughterhouse “Toyboss” have expressed their interest in sourcing young bulls and sheep in three districts of the core project area.

With regards to dairy, the closest to the core project area milk-processing factory “Ak-Sut” is located in Osh and sources raw milk in Osh and Jalal-Abad Provinces, including Suzak and Uzgen districts, through its network of 14 milk collection centres. Ongoing investment operations, such as IFAD-supported ATMP, can support further development of milk collection schemes.

³ The National Statistics Committee

⁴ 2017 data

⁵ National Statistical Committee, 2016 data

Chapter 3. Recent portfolio, lessons learned and best practices.

The IFIs' country programmes have been designed on the basis of the following strategic considerations agreed with the Government of Kyrgyzstan: the focus of the programme should be the livestock sector, as such a focus would support Government's aim of developing this backbone of the rural economy for improved food security, nutrition and incomes as livestock is the basis for the livelihood of the poorest segments of the rural population who have little or no access to scarce and expensive arable land. Within the livestock sub-sector the initial focus should be on the two pillars of productivity enhancement: a rational and efficient use of the country's pasture resources through support to the roll-out of the community based management regime introduced by the new pasture law; and improved animal health, nutrition and husbandry through support to the implementation of the national animal disease control strategies and the establishment of a private veterinary service. Once these fundamental issues were being addressed, the focus of the programme should gradually shift to the commercial aspects of the sector, in particular the market access and market integration of primary producers in order for them to transform increased production into increased incomes, as well as to ensure full impact on food security and nutrition beyond the local level.

Table 1 – Recent investment operations related to livestock sector and supported by the International Financial Institutions

#	Project name and Investment cost	Development objective
1	IFAD/WB. Agricultural Investments and Services Project (AISP)	Supported the important pasture reforms introduced by the Pasture Law of 2009, and the pursuit of improved animal health through the national animal disease control strategies.
2	IFAD. Livestock and Market Development Programme-I, II (LMDP) USD 25.9 and 39.5 Million	Increase livestock productivity through (i) more productive and accessible pasture areas and increased supplementary feed available to community livestock; (ii) healthier livestock with lower levels of mortality; and (iii) market partnerships in the milk value chain providing incentives for productivity increases. LMDP-I focused on Issyk-Kul and Naryn Provinces, LPDP-II on Batken, Osh and Jalal-Abad
3	WB. Pasture and Livestock Management Improvement Project, USD 15 Million (active)	Objectives and activities similar to those of LMDP I+II and covers the two remaining oblasts of the country
4	IFAD. Access to Markets Project (ATMP), USD 55.5 Million (active)	To improve access and integration of smallholder livestock farmers with remunerative markets for their products, leading to improved and equitable returns
5	WB. Integrated Dairy Productivity Improvement Project, USD 5 Million (active)	To enhance dairy animal productivity and milk quality on beneficiary farms (Issyk-Kul Province)

IFAD's and WB's interventions have been designed in close coordination between two financial institutions. The three projects now constitute a coherent programme with national coverage, implemented by the Ministry of Agriculture. ASAP funding present in LMDP-II has ensured the mainstreaming of measures specifically aimed at enhancing the climate resilience of pastoral communities.

Lessons from IFAD and WB projects. Improved pastures lead to higher animal productivity, however linking smallholders to formal markets is key to remain on sustainable development path. Observations of the supervision missions for the LMDP indicate consistently that there is an improvement in livestock productivity in the project communities. Over the period of three years, milk yields went up on average from 4-5 to 6-7 litres per cow/day; and weight gains for cattle bred for meat were up from 280 kg to 300 kg prior to

slaughter. This is attributable to the combined contribution of interventions under the AISP and LMDP I, most notably improved access to remote pastures and water; and a reduction in disease.

The expected production increases from the improved pasture management will lead to increased surplus, which in turn would lead to an ever increasing number of smallholders learning to earn income from livestock. Such a transition will, however, require intensive support to profitably link smallholders with the value chain. To mention the key concerns, first, the smallholders will need improved financial literacy in order to improve their decision making in commercial dairy primary production; second they will need to cooperate to improve their output quality collectively and submit to controls; third they will need to improve new negotiating and collective bargaining capacity when cooperating with a commercial partner to receive their fair share from the surplus generated by improved quality of produce.

Let end-buyer be the entry-point to value chain upgrade. The main difficulty in linking the farmers in profitable red meat value chains is bulking and compliance with industry standards. Evidence from other donor programmes that have sought to improve the quality of livestock produce emphasizes the importance of channeling support to farmers with close involvement of the processors that are the immediate purchasers of the primary produce. This will facilitate the formulation of a set of appropriate standards to farmers by which the processors wish them to abide; ensure commitment by processors to the standards to which the farmers are trained and setup of suitable monitoring arrangements case by case.

Poor animal health situation and limited access to veterinary services are a major limitation of further livestock sector development in Kyrgyzstan. Diseases and parasites negatively impact animal productivity and human health. In addition, the presence of animal diseases causes great economic losses to rural poor representing a large group of the region's livestock owners and strongly affects their ability to trade on national and regional markets. In IFAD experience, successful animal disease control requires intensive public awareness efforts and strong logistical coordination at community level. The successful brucellosis control programme implemented under AISP demonstrated the importance of intensive public awareness and community level planning of vaccination campaigns with private veterinarians.

Network of mediators as an efficient way to link herders and end buyers. There are also examples of good practices originating from local farmers. Thus, "Reina-Kench" leading farm (Ak-Suy district, Issyk-Kul) has organized over 100 farmers into groups with a network of brokers providing mentorship on animal health and hygiene. The initiative was further supported by IFC and Helvitas. Key lessons learned include the need for valid incentives for brokers to work better (e.g. honorarium per LW gain) and stringent control by the state veterinary inspection of all market players.

Past projects experience and national industry experts suggest the immediate results to increase offtake of animals would be in investment in livestock holding paddocks at community level and change in feeding practices (keeping animals in stalls after certain age).

[AKDN's Mountain Societies Development Support Programme](#) (MSDSP KG) implemented the "Increasing Biodiversity and Economic Development in Mountain Areas of Kyrgyzstan" project in 2010-11. The project gathered knowledge and tested measures to improve the nutrition and economic development of mountain populations in Naryn and Osh provinces. This was achieved through the identification of fruit trees and berries to be (re)introduced in selected programme areas, and of shelterbelts to protect land from wind erosion. The success of the new fruit and berry crops in the demonstration orchards has introduced a greater variety of crop options to local farmers, thus increasing biodiversity in the Alai, Chong Alai and Naryn districts. Farmer Field Schools on the demonstration plots and farmer to farmer learning have fulfilled the goal of increased horticulture capacity in the target areas, increased awareness of fruit and berry crop varieties, and increased use of windbreaks to prevent wind erosion. Main difficulties included extreme weather events (frost), pretention of plots from cattle and irrigation water in some areas.

Since 2013, a local **[NGO AgroLead](#)** supported by Fair Match Support and GIZ, is engaged in developing the walnut value chain in Jalal-Abad province. The project originated from the interest of a Dutch company **[Inter-Snack](#)** to procure shelled walnuts in Kyrgyzstan on Fair Trade terms. AgroLead united leaseholders into cooperative, assisted in obtaining the Fair Trade and HACCP certification, and promoted the establishment of relations of trust along the chain. Main difficulties included introduction of new to Kyrgyzstan international standards such as Fair Trade and provision of cash down-payment to leaseholders.

After 2.5 years of effort towards responsible forest management, in February 2018, the [Kyrgyz Association of Forest and Land Users](#) (KAFLU) obtained the first FSC certificate in Central Asia and the Caucasus (FSC-C137351 and FSC-C137353). Smallholder grant funding from FSC supported the KAFLU to purchase equipment for drying and packing, develop walnut harvesting methods and train forest producers on compliance with FSC standards. WWF Russia and NEPCon also provided valuable support to the initiative.

Despite the hard work in the forest people either cannot sell harvested product, mostly nuts, or traders pay them very little. KAFLU saw in the FSC certification system a way out. Today, certification covers 52 leaseholders operating on 312 ha of forest in Jalalabad region (Kisyl-Ungul, Kara-Alma and Toskool-Atyn State Forest Enterprises) who collect more than 14 different NTFP's, which are then transported to a small manufacturing site owned by KAFLU, where they are processed into a variety of products including oils, dried fruits and juices. Their products are marketed under the brand *Silk Road Taste* and include tree nuts, dried fruits, herbs and shortly for mushroom, honey and mineral water.

Walnut season lasts for only one month each year. To sustain livelihoods, other non-timber products are also covered by FSC certification, including apricots, pistachios, almonds, apples, rosehips, barberries, sea buckthorn, hawthorn, valerian and honey.

Stakeholders now understand the economic benefits that will come from the sale of forest products in international markets and, more than ever, they want to preserve the walnut forests. FSC certification has created additional economic incentives for responsible forest management in Central Asia, where they have the most important social and environmental significance. Good practices fostered by FSC certification not only improved the economic wellbeing of smallholders, but also reduced harvested quantities as certified products obtain higher prices. FSC certification is crucial for protection of natural walnut forests and to get Kyrgyz non-timber forest products visible on global markets, with benefits going directly to communities. It will positively affect local people's livelihood and will start an important process of achieving sustainability, biodiversity, gender balance and waste management in walnut forests. FSC has provided all the necessary trainings and assistance in regard to monitoring plans, sustainable forest management development etc. The main difficulty consisted in the fact that there was no any standard for Kyrgyzstan.

Main lessons include the necessity of having a strong association able to mentor smallholders and ensure the integrity of the chain.

Annex 1- Estimated margins along the beef value chain

Case of Naryn Province, mixed production system (6 months – intensive feeding, 3 – grazing).
Prices based on industry data (April 2018).

Table 2 - Daily feeding needs of one head of cattle from the age of 1 to 20 months (LW 520 kg)

Feed	Daily need, kg	Duration in days	Total needs, kg	Price, KGS/kg	Sub-totals, KGS
Milk	2	60	120	16,0	1.920
Fodder lime	0,0401	540	22	50,0	1.083
Salt	0,06	540	32	8,0	259
Grass meal/chopped hay	1	60	540	10,0	5.400
Grazing on pastures, DM intake	3	240	720	0,3	216
Wild grasses hay, DM	1,5	300	450	32,0	14.400
Grains	4	150	600	10,0	6.000
Number of days		600			29.278

Table 3 – Production costs of growing one head of cattle (LW 520 kg)

Costing item	Qty	Price, KGS/unit	Sub-totals, KGS
Feeding	1		29.278
Vet services, vaccinations	8	50	400
Health control, lab tests	2	20	40
Drugs (anti-acaricide treatment of pastures), times	1	300	300
Transport of animal, trip	1	600	600
Labour ⁶ , months	6	4.832	28.992
Total:			59.610

Some farmers reach up to 65-70 thousand KGS of production costs.

Table 4 – Beef procurement prices

Buyer	Price, KGS/kg LW	Price, KGS/kg
Middleman (animal trader)	115	250
Slaughterhouse (corporate business)	120	260

Source: real prices as of 20 April 2018.

⁶ Based on minimum salary scale (4,832 KGS/month)

Table 5 – Estimated gross margin of farmer

COP of farmer, 1 head of cattle	59.610
LW of marketed cattle	520
COP of farmer, KGS/1 kg (LW)	114,6
Average trader price, KGS/1 kg LW	115
Gross margin of farmer, KGS/1 kg LW	0,4
Gross margin of farmer, KGS/head	190

Table 6 – Distribution of the margin along the chain (1 carcass of 540 kg LW, dressing coef. 46%, meat output 240 kg of beef)

	Cost of Prod.	Trader	Primary processor	Retail
Price, KGS/kg	248	250	260	290
Margin, KGS/kg	2	10	30	

Therefore, while farmers profit is close to zero (190 KGS per head with 60 thousand KGS of production costs), animal traders' profit is 2400 KGS/carcass.

Annex 2 - Current area under orchards and greenhouses in the project area

Province	District	Fruit orchards			Greenhouses, ha
		Specialization	Total, ha	Drip irrigation, ha	
Osh					
Jalal-Abad	Suzak		430	320 (74%)	20
Jalal-Abad	Toguz-Toro	Apple	25	25 (100%)	0
	Uzgen		180	160 (89%)	20
Naryn	Ak-Taala	Apple, plum, cherry, black current	203	135 (67%)	1

Source: district branches of MOA

Annex 3 – Assessment of lost market opportunities for nuts and dried fruits on nearby markets

Market outlet	Wholesale price, Kyrgyzstan, US\$/kg	Export quantity, kg	Wholesale price, destination country, US\$/kg	Opportunity cost, US\$
Uzbekistan				
Walnut, in shell	0,5	550.000	2,8	1.265.000
Dried fruits, in bulk	3,5	2.700.000	12	22.950.000
Tajikistan				
Walnut, in shell	0,6	20.000	2,8	44.000
Dried fruits, in bulk	1,4	16.000.000	12	169.600.000
Total:				193.859.000

Source: interviews at Massy and Batkent markets, [Gateway](#) information portal, RDF study and WB forestry project data.

Annex 4 - Economic effect of direct sales of animals to slaughterhouse

Nation-wise, the need for holding paddocks has been assessed as follows: Naryn – 4 districts (Ak-Taala – 1); Talas – 2; Suzak – 1; Uzgen – 1; and Issyk-Kul – 2. Toguz-Toro has insufficient stock of animals. Initial investment cost is about 100.000 USD and some 10 ha of nearby pastures and land are required for feed provision and organisation of paddock. Meat processors (slaughterhouses) will be interested in taking loans to accompany such investment provided the project is able to build the capacity at community level, in particular with regards to local administration and support to mediator network development.

The proposed scheme consists in aggregation of live animals at the commune level with the organized procurement directly by a slaughterhouse. Animals are aggregated and kept in a holding paddock of approximate capacity of 500 heads of sheep and serve to justify logistical costs for processors (large quantities), flatten supply seasonality (year-round supply of animals) and ensure all biosecurity protocols are complied with.

The project will foster direct linkages and relations of trust between herders and processors with four main objectives:

1. Increased animal offtake at community level;
2. Improved animal productivity driven by quality-based pricing and relations of trust;
3. Increased of herders' margins by eliminating the risks of "losses" due to mistreatment by traders (e.g. reduced weight or fattiness category);
4. Increased income of local authorities thanks to locally collected income tax from formal business transactions.

Table 7 – Estimated economic effect of sales of cattle (II fattiness category)

	WOP	WP
Estimated LW, kg	430	440
Average procurement price, KGS/kg LW	115	120
Revenue from sales of cattle	49.450	52.800

As shown above, traders usually "reduce" the weight of live animals by at least 10 kg. With current prices, this is about 1150 KGS of "lost" income. If adding incremental revenue from direct sales (WP), farmer's gross revenue goes up to 4.500 KGS per head.

Assumed, one community sells a batch of 10,000 kg (about 50 heads) and mediator's fee is of 3 KGS/kg, local administration will leverage an incremental income of 3.000 KGS (10 percent tax on profit for legal entities).

Annex 5 - Key considerations for market assessment

Identification of concrete export country markets, having a high demand for the Kyrgyz products, as well as their specific markets' demand and requirements for each of the products. Various tools should be used for finding potential export markets of concrete countries.

- After products are identified and agreed they are of major market value, must be analyzed EU same product market niche: competitors identification, EU consumers research data (publicly available survey results), future trends and local legislation
- Analysis of current condition and trends of locally produced products form e.g EU (is there any niche for Kyrgyz origin products?)
- Is EU the only interesting market? Based on Trade data other potential markets can be identified currently used for export routes
- State Programme for export promotion and import substitution in the Republic of Kyrgyzstan and what are current pros and cons for local producers aiming for export markets

Specific export countries requirements, for each of the identified products: import and export requirements (documents required, licenses, common export documents for shipment, etc.), required laboratory tests and documents, required certification for export and import documents, customs regulations as well as packaging standards.

- Legislative approach for import and export requirements for specific product group/type (incl. documentation, laboratory tests/product quality requirements/ certification/ packaging standards
- Analysis of export market factors and conditions in each of the selected countries (incl. review of cultural attributes geographical characteristics, political stability, demographic characteristics, and market size and growth rates)

Main prospective partners/buyers, as well as their needs in terms of volumes, quality, packaging and shipment frequency

- Identification of main players and partners to assist product import from Kyrgyzstan to e.g EU (work with embassy's etc.)
- Work with local business sectors to identify what are their terms of volumes, quality, packaging and shipment frequency. Sometimes it is publicly available information. But mostly it depends from company to company within sector. And needs deliberate contact and sometimes development of actual claim.

Main hurdles/barriers in markets entry for each of the identified product and solutions on how to resolve them

- Identification of main barriers (language, legal restrictions, logistical and payment challenges) in market entry, analysis of solutions and recommendations to overcome these barriers

Export marketing strategies for the identified products. The Export marketing strategy should consist of recommendations on assessing target markets, export potential of the products, products promotion, pricing, market channels, export volume needed, price and volume comparison, organoleptic characteristics of the products (tasty, odor, colour, etc.), main buyers and resellers, quality comparison, niche and concentration of the products on identified markets, transportation costs till target markets, how to start export to identified export countries markets and other information and requirements.

Straight forward action plan should consist:

- Target market assessment – including risk based approach (in the area of EU harmonised legislation this step should go together with identifying the relevant legal requirements and other provisions, such as harmonised standards or other means that give presumption of conformity, to the legal requirements. Union harmonisation legislation covers a wide range of products, hazards and impacts, which both overlap and complement with each other
- Furthermore, the required traceability indications should be identified, it is particularly important when it comes to managing product risk in new market
- Investigation of best current export success stories in Kyrgyzstan
- Participant test research of a single product (monadic testing) and fill out a survey on the “key performance indicators” like likelihood of purchase or, it can outline the various sensory qualities (appearance, flavor, etc.)
- Development of marketing strategy and business communication for on-pack promotion.
- Develop marketing and communication training program for local producers in order they are able to connect with end consumer and continue business relations.
- Draft diminishing return strategy including revision of marketing message, revising package etc. based on conducted monitoring of product lifecycle in order to remain fully informed on market trends, other parties researches and implement best practices.

Potential buyers + recommendations on entering of Kyrgyz products to the new markets and assistance in establishing of business links between Kyrgyz exporters and export market buyers.

The development of functional long term connection between producers and end consumers. Assistance in communication and marketing as well as in establishment of business relationship between two B2B parties.

Work with most relevant exhibitions in export countries in regard to the identified Kyrgyz products

Organization and conduction of the B2B meeting between Kyrgyz businesses and stakeholders from identified export country markets (importers, trade support institutions)

However this is realistic ONLY in case identified barriers can be overcome and products will be competitive in export markets by price and quality measures

Report including analysis of product potential, barriers, risks, export market locally produced product competition, transportation costs, end consumer purchasing policy requirements, recommendations how to overcome barriers as well as potential partners list to explore. Support trade institutions with short action lists to overcome export barriers for selected products.

Various versions of Export marketing strategies for the identified Kyrgyz products inclusive, green economic growth through promoting trade and enhancing national competitiveness and sustainable development, by helping poor and vulnerable communities to share in the gains from trade.

Analysis of current Kyrgyz legislation on import and product quality control. Current trade relations between Kyrgyzstan and export markets. Economic infrastructure analysis (incl. product quality analysis investments, export market regulations and internationally recognized standard/certification conformity). Exact product global competitors value chain exploration. Providing with alternative markets and define reasons why it is more reasonable to e.g. work with Asia-Pacific and UAE markets etc. Work within not only WTO but also other relevant trade and market unions (where Kyrgyzstan is taking active role). All the collected information reporting and analysis.