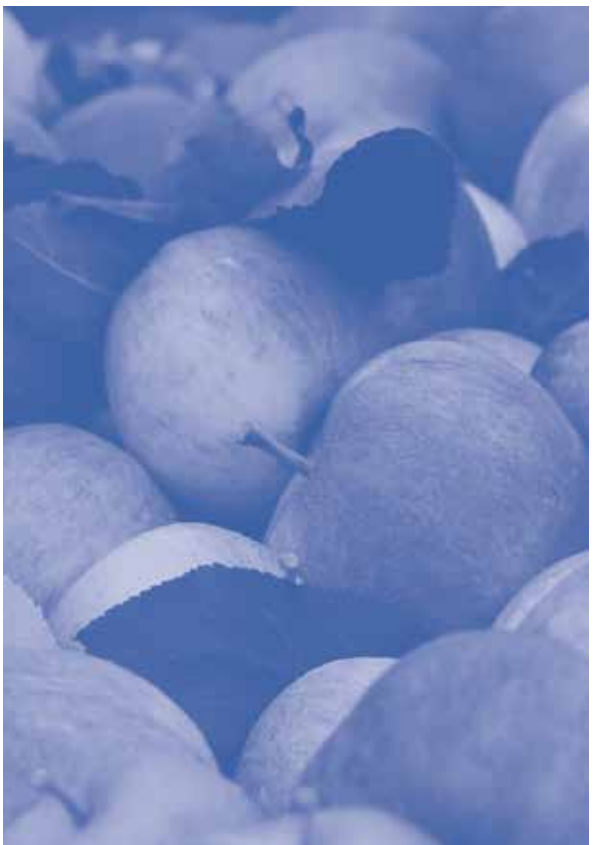
International Labour Organization

the LAB
MARKET SYSTEMS DEVELOPMENT FOR DECENT WORK

ASSESSMENT OF SELECT **HORTICULTURAL SECTORS IN KYRGYZSTAN**, AND THEIR MARKET ACCESS POTENTIAL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EXECUTIVE SUMMARY

The aim of this study is to identify the sub-sectors and products that hold the greatest potential for market development via export promotion – targeting stakeholder income increases, particularly for SMEs. A collaboration between the ILO's 'the Lab' project and UNIDO, the research was intended to inform the design of UNIDO's GQSP project in Kyrgyzstan to increase its prospects for having more targeted and systemic impact. For this purpose a rapid market assessment looked at several horticultural products in three oblasts: Osh, Jalal-Abad, and Issyk-Kul.

Osh

The Osh region has less enterprise activity when compared to neighbouring Jalal-Abad. In successful cases, donor aid has been crucial to support the installation of consolidation and processing centres. Nevertheless, Osh still receives far less aid and donor support than Jalal-Abad and Issyk-Kul, which makes it less prone to suffer from distortionary effects during implementation. Of the three studied regions, Osh ranks second in terms of processing capacity for fruits and vegetables.

The Osh region champions potato production, with far higher production quantity than apples and apricots, and with increasing value when compared to the Issyk-Kul region. However, the potato sector is not an export-competitive, and crop exports have decreased since 2013. Some of the more pronounced constraints to competitiveness are the fragmentation and lack of organization, which is evidenced by the limited number of functioning and sustainable cooperatives and business associations.

Apples in Osh have higher potential, as value chain players cooperate through the implementation of contract farming arrangements, and the installation of processing and consolidation facilities signals a higher degree of innovation relative to other sectors. Behind potatoes, apples are the second most produced crop in Osh, though production levels have stagnated over the last three years. Despite the region's inability to sustain or increase production, the share of apple in Kyrgyz exports from Osh has increased in recent years, which signals a positive trend and good performance in terms of export orientation and capacity. The main challenge, however, remains in reaching demanded volumes.

In Osh, **apricots generally involve small-scale** production with limited processing technology and innovation. Osh does not export significant quantities of apricots.

Constraints across sectors in the region include low commercialization and processing capacity, limited access to certification and standards training, low capacity of producers to organize, low production volume, and limited access to storage facilities.

Jalal-Abad

The Jalal-Abad region has more enterprise and value-added activity than in Osh, most of which can be attributed to the considerably higher levels of donor support. For apples in Jalal-Abad, existing production is underutilised as half of the grown apples are spoiled. **Apple production is six times higher than apricot production**. The value of apple exports is higher than plums and apricots, however, exports represent a rather small proportion of the total apple production, and these exports have decreased since 2011, questioning the export competitiveness of apples in Kyrgyzstan.

Jalal-Abad apricots are led by small-scale farming, though the sector is particularly relevant for women. In terms of regional production, apricots rank second – though apricot exports have been on the decline since 2013. The **plum sector perhaps has more potential** which despite smaller levels of production, has a positive trend in production capacity and prices are also less volatile for this crop. The presence of a higher number of processing and value-added activities in Jalal-Abad, as well as the number of available supporting institutions, should be taken into account to target efforts towards making of the region more export-competitive.

Constraints across all sectors in the region include inaccessible and costly certification services, low commercialization and processing capacity, low production volume, and high levels of informality.

Issyk-Kul

The Issyk-Kul region is experiencing a shift in production patterns, as farmers move out of livestock, potatoes, and grains and invest in fruit cultivation since producers now view it as being more profitable. Fruit exports are almost entirely sold as fresh products, and apples and apricots are the most prevalent crops and the most export-ready due to having more established value chains and higher production levels. Berries (primarily black currants) and medicinal herbs (primarily valerian) have export market potential but would require significant investment to get them off the ground and attract international buyers.

Production in the region is heavily fragmented, primarily taking place on small household plots. The main constraints across sectors in Issyk-Kul include a mistrust between producers and processors or other off-takers, a lack of skills and modern training institutions, a lack of technology and technological services, and access to financial services. While production volume was often cited as a problem for processors or off-takers, this issue could be largely overcome if the previous constraints are addressed. Compliance with HACCP is seen as a challenge but is more related to processing and not necessarily a constraint to production.

Further analysis should examine the underlying causes of the aforementioned constraints so that systemic market-led solutions can be developed and interventions integrated into the GQSP project.

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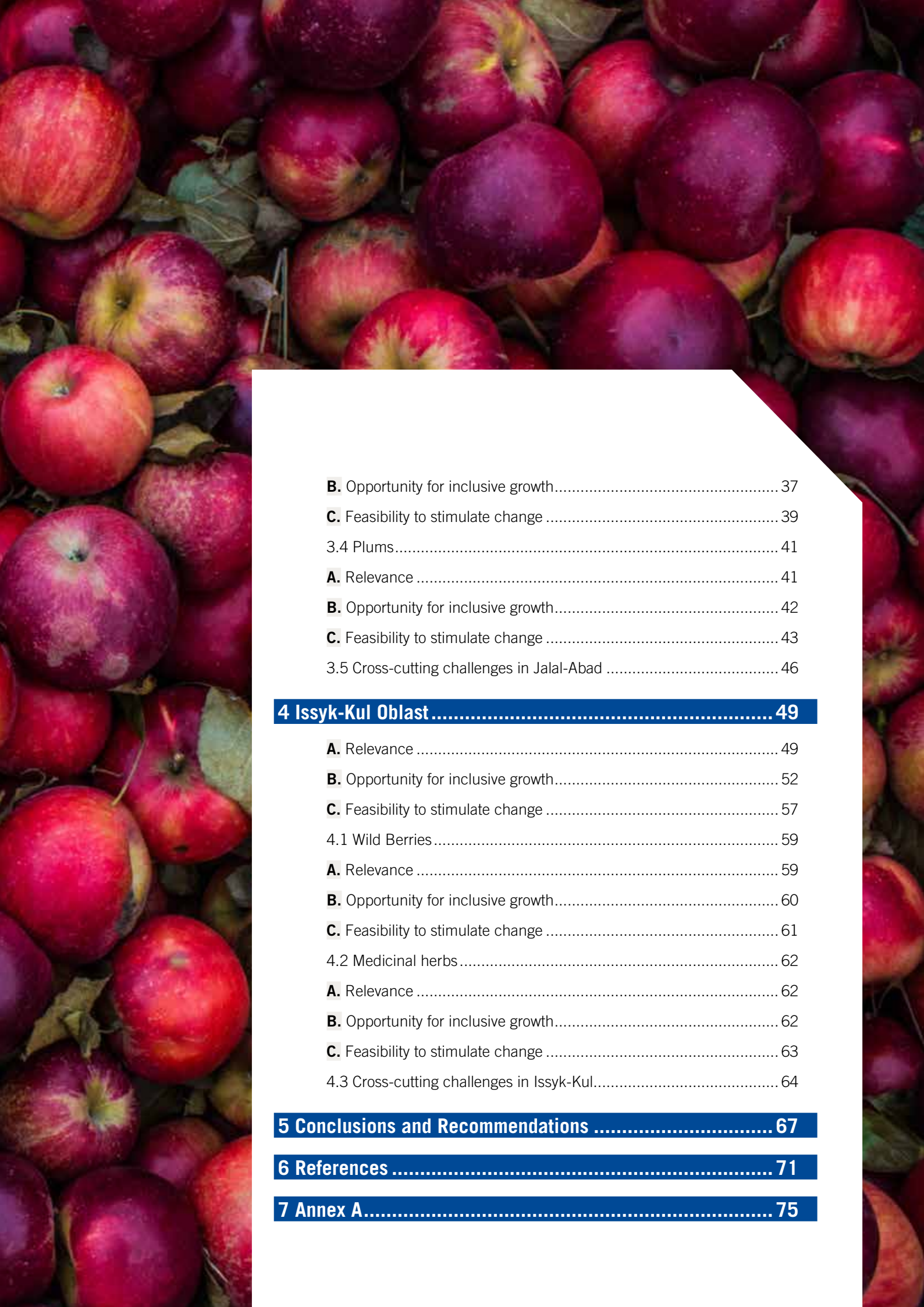


ABBREVIATIONS

ACDI-VOCA:	Agricultural Cooperative Development International and Volunteers in Overseas Cooperative Assistance
AVEP:	Agricultural Vocational Education Project (now a public fund)
GQSP:	Global Quality and Standards Programme
Ha:	Hectares
HACCP:	Hazard Analysis and Critical Control Points
Hg:	Hectogram
ILO:	International Labour Organization
JIA:	Business Association Osh
JICA:	Japan International Cooperation Agency
KGS:	Kyrgyzstani Som
OVOP:	One Village One Product
RAS:	Rural Advisory Services
RMA:	Rapid Market Assessment
SECO:	Swiss State Secretariat for Economic Affairs
TES:	Training and Extension Services
UNIDO:	United Nations Industrial Development Organization

NOTES

On confidentiality. All data collected through primary research have been made anonymous so that individuals cannot be identified. Instead, we refer in generic terms to 'interviewee(s)".

On study limitations:

Scope: The scope of the research in terms of a number of sectors and regions covered was quite large given the timeframe and available resources. The depth with which each sub-sector in each region could be analysed was limited.

Timeframe: The research team had one week for secondary research and field mission preparation, one week for primary research, and one week for analysis and report drafting, which limited the amount of research that could be collected.

Available resources: It was originally foreseen that two national consultants would support the assignment, so that the two Lab staff could cover two regions simultaneously in one week. In the end, one national expert from UNIDO was assigned to support the Lab team. Because of the language barrier, interviews in Osh, Jalal-Abad, and Issyk-Kul has to take place sequentially, limiting the number of possible interviews.

Data: The research team requested sub-sector data on export and production figures for each of the sub-sectors, but these were never received. The publicly available data found on Kyrgyzstan National Statistics website is not disaggregated by sub-sector, and the data found on other sites, such as FAOSTAT, WITS, WB Data, and USDA was not complete or showed differing figures. Therefore, this assignment did not afford the research team to obtain a precise depiction of each sub-sector's performance; however, with the combination of stakeholder interviews and that data which does exist, the research team has formulated a complete a picture as possible as it pertains to the objectives of the research.

1 INTRODUCTION

The Global Quality and Standards Programme (GQSP) is a five-year programme that aims to strengthen the quality and standards compliance capacity in Swiss State Secretariat for Economic Affairs (SECO) priority countries to facilitate market access for SMEs in key value chains.[1] Under the programme, the United Nations Industrial Development Organization (UNIDO) will launch a new project in Kyrgyzstan, with an inception phase starting in September 2018.

To enhance the overall impact of the programme, the International Labour Organization's 'the Lab' project supported UNIDO by conducting a rapid market assessment (RMA) of select horticultural sub-sectors in the Kyrgyz Republic. The objective of the RMA was to identify the sub-sectors and products that hold the greatest potential for market development via export promotion – targeting stakeholder income increases, particularly for SMEs. The research is intended to inform the design of the GQSP project in Kyrgyzstan to increase its prospects for having more targeted and systemic impact.

The geographical focus included three oblasts, or regions: Osh, Jalal-Abad, and Issyk-Kul. Analysed sectors varied by region, but together covered apples and apricots (analysed in the three regions); potatoes (analysed in Osh); plums (analysed in Jalal-Abad); and cherries, pears, berries, mushrooms, as well as medicinal herbs (analysed in Issyk-Kul).

1. UNIDO (2017)

1.1
METHODOLOGY

The RMA was led by two technical officers from the Lab – Daniela Martinez and Callie Ham – and supported by UNIDO national expert – Tursunai Usubalieva – from end May through July 2018. This included the following steps:

Short-list:

- ✓ Apples
- ✓ Apricots
- ✓ Mushrooms
- ✓ Medicinal herbs
- ✓ Cherries
- ✓ Pears
- ✓ Berries
- ✓ Plums
- ✓ Potatoes

Secondary research and short-listing: In a previous assessment undertaken by UNIDO, several horticulture subsectors were identified as having potential for export promotion. These sectors included apples, apricots, pears, wild berries (sea buckthorn and black currant), potatoes, carrots, cabbage, green radish, garlic, wild mushrooms, honey, and medicinal herbs.[2] Based on existing research, the Lab used market systems development-inspired criteria – sector relevance to the target groups, sector opportunity for growth, and project feasibility to stimulate change – to review and narrow down the long-list of sectors into a short-list of sectors to focus the field research. The selection criteria are available in Annex 1.

Apples, apricots, mushrooms, and medicinal herbs were recommended as focus sub-sectors as a result of the short-listing exercise. However, as the secondary research was limited by the lack of secondary resources available and a relatively short timeframe, the research team agreed to remain open to flexibly adapting the short-list as new information was discovered during the field research. Sectors of focus grew to include potatoes in Osh, plums in Jalal-Abad, and berries in Issyk-Kul. Mushrooms were removed due to a limited market.

Field research: Primary research was conducted from June 3rd to June 9th, 2018, covering the Osh, Jalal-Abad, and Issyk-Kul oblasts, with key informant interviews also taking place in Bishkek. Stakeholders interviewed included the national and regional government, exporters, processors, collectors, logistical centres, smallholder producers, service providers, non-profits and other donor-funded projects, experts and academics. During the field research, the research team revised the short-list as it learned about the viability of other sub-sectors relevant to each specific region.

Report drafting: Information and data were then cross-analysed and findings outlined in a draft report from late June to early July 2018.

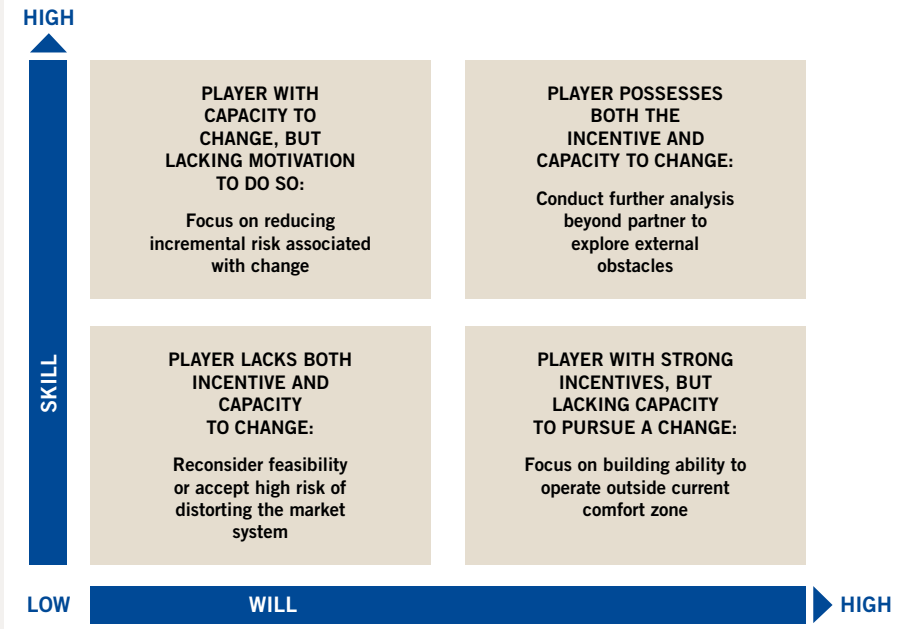
Figure 1:
Field research timeline

2. UNIDO 2018. Briefing Note: Kyrgyzstan.

1.2
SKILL-WILL FRAMEWORK

As a critical part of assessing the viability of sectors to undergo sustainable change, the Lab uses a skill-will framework[3] to capture the relative capacity and motivation of existing sector market players. This allows projects to identify partners that are both willing and able to stimulate progress towards project goals and can also suggest areas of capacity development if a partner is, for example, highly motivated but lacks certain skills. Figure 2 identifies the four quadrants in the skill-will matrix with indications of how a project should potentially engage partners that fall into that quadrant.

Figure 2:
Skill-will framework



1.3
FRUITS AND VEGETABLES: A PROMISING MARKET

Global trade in fruits and vegetables is a one hundred billion dollar market, and it is growing steadily at about three percent per year.[4] Fruit exports alone, however, are growing at nearly seven percent a year. Nine percent of all fruits grown around the world are traded internationally, and about 80% of global fruit production is sold as whole fresh fruit. In fact, demand for fresh and frozen fruit continues to rise, while demand for preserved fruits has stagnated and even decreased in Europe, the U.S., and Australia.[5]

Contributing factors to the growing fruit trade include improved market access, changing consumer preferences, a more professional retail environment, a rise in purchasing power (especially in countries like China) and improved logistics alongside temperature controlled storage and cold-chain facilities.[6] Certified organic foods are also a

3. The skill-will framework along with Figure 2, are sourced from *The Operational Guide for the Making Markets Work for the Poor (M4P)* (2015).
4. Freshplaza (2017).
5. Ibid.
6. Ibid.

growing trend, particularly in developed economies.[7] The major importers of fruits are the U.S., China, and Germany.[8]

In Kyrgyzstan, agriculture accounts for 20 percent of the GDP and employs 40 percent of the labour force, more than any other sector. The majority of production takes place on small household farms, which makes the aggregation of produce to fulfil export orders a challenge.[9]

Exports of horticulture products in 2016 was roughly $63 million – or about 6.2% of total national exports.[10] While the government is eager to increase this number, the sector still struggles with many issues, including limited production volume, packaging deficiencies, limited access to capital, and disorganised logistics. Compliance with necessary international phytosanitary and quality standards is difficult for producers.[11]

Investment in processing units to promote value-added products like jams, compote, juices, dried fruits, and canned and pickled vegetables has increased substantially in recent years, but are operating under capacity, some at only 20 to 40 percent. A lack of management skills, access to finance, equipment, and market information all contribute to their underperformance. Processed fruits and vegetables account for two percent of total production.[12]

While there is an array of Kyrgyz horticultural products reaching the export market, from those sub-sectors being reviewed here, **apples and apricots** are front-runners in all three regions.

Within the region, Kyrgyzstan is the third largest producer of fresh apples but earns the highest price per ton (US$661/ton). For fresh apricots, Kyrgyzstan is the fourth largest producer and earns an above average price per ton (US$799/ton).

Table 1:
Relative position of exported fresh apples and apricots within the region (2017)[13]

	Apples (fresh)		Apricots (fresh)	
	Value (USD)	Quantity (tonnes)	Value (USD)	Quantity (tonnes)
Kyrgyzstan	$3,550,000	5,373	$1,785,000	2,233
Kazakhstan	$227,000	1,078	$76,000	3,787
Russia	$6,767,000	17,904	$46,000	54
Tajikistan	$28,000	87	$873,000	2,946
Turkmenistan	$354,000	857	$2,000	2
Uzbekistan	$4,224,000	7,031	$20,513,000	22,840

7. Ibid.
8. Ibid.
9. International Trade Administration, US Department of Commerce (2017)
10. Based on 2016 total export value for Kyrgyzstan as identified in *The Economic Complexity Observatory* (2016)
11. Ibid.
12. Ibid.
13. ITC trademap.

2 OSH OBLAST

2.1 AN OVERVIEW OF THE LEVEL OF ENTERPRISE AND VALUE-ADDED ACTIVITIES

Despite being the largest oblast in terms of population – with over 1,314,000 people – the Osh region has traditionally lagged behind in terms of enterprise activity, particularly when compared to the neighbouring Jalal-Abad. Nonetheless, a number of initiatives aimed at increasing the value of produced crops have emerged. These include the installation of collection and consolidation centres, packaging, processing, and storage facilities, traders, as well as cooperatives. During the research visit, it was evidenced that most of these initiatives came as a result of donor-supported programmes and projects, which over the years, have provided financial and technical support for the formation of producer groups, cooperatives, and consolidation centres. Currently, some of the interviewed enterprises continue receiving support though in reduced amounts. Fewer enterprises, particularly small-scale processing facilities, were still dependent and could not continue operating without external support.

Figure 3:
Osh region in Kyrgyzstan

This apparent donor dependency raises questions on the effectiveness of the predominant enterprise development approaches on creating sustainable agricultural enterprises in Kyrgyzstan. Although Osh receives far less aid and donor support when compared with Jalal-Abad, the current scenario presents an opportunity to adapt or improve existing approaches to enterprise development and reinforce the work done so far with market-system level actors, including cooperatives, associations and government agencies in charge of developing the sector. In this scenario, markets are in less risk to suffer from distortionary effects.

Looking at the general fruits and vegetable sector of the three target provinces, Osh ranks second in the number of processing activities compared with Jalal-Abad (listed first) and Issyk-Kul (third). The region has 34 processing facilities, of which five are legal enterprises, and 29 are individual entrepreneurs.[14]

The following table identifies a selected number of enterprises which perform value-added activities in the Oblast region and in the crops being the focus of this report. Using a value chain perspective, the table includes stakeholders in cooperatives, processing, collection, packaging, and consolidation, as well as export-related activities. In comparison to Jalal-Abad, Osh has fewer enterprises, value-added activities, and cooperatives.[15]

Regarding the potential to produce organic agricultural products and enterprises, Osh has a total of 500 certified farmers covering an area of 5,000 ha,[16] though it is relevant to mention that most of the certification[17] efforts are supported through donor grants. In this regard, certification stakeholders emphasized that farmers would not otherwise have access to certification and standard information services due to their high costs.

14. Data provided by the Ministry of Agriculture, June 2018. Please note that the law of Kyrgyzstan provides the possibility of business activity without forming a legal entity as an individual entrepreneur. Citizens of Kyrgyzstan, foreign citizens, and persons without citizenship temporarily or constantly residing on the territory of Kyrgyzstan may be individual entrepreneurs.
15. Observation from the Ministry of Agriculture, interview June 2018, and the research team
16. Bio Service Public Foundation, "Partners for production, processing and certification of organic products, according to EU standards", unpublished, 2018
17. Certification efforts include supporting services to help producers and processors through the certification process, including training on GAP, global standards, and financial assistance to cover certification costs.

Table 2:
Enterprises and value-added activities in the Osh region

Name	Type	Crops	Size
1) Minovar Muidinova	Small drying and packaging facility	**Dried apples, dried plums**, dried tomatoes, herb spices, fresh onions.	Workers: small (household of 3-5 people)
2) Aravan Agro Service	Cooperative and consolidation centre	**Potato**	-Workers: 217 farmers -Production capacity: 600 tonnes of early potato in one season[18] -In the process of obtaining HACCP certification
3) Isaev- Individual Entrepreneur	Medium-sized processing facility (natural drying), storage and sorting, and trading (import, forward, and export)	Fresh: **apples**, cherries Processed: **apples, plums**, wild berry, walnuts	-Workers: Low season (3 workers); high season (up to 50 workers) -Production capacity: up to 500 tonnes per season
4) Orjemil LLC	Drying facility	**Dried apple**, peaches, **plums**, cherries and other stone fruits that are not suitable for selling fresh in the market.	-Production capacity: 600 tonnes per year[19] -Storage: 40 tonnes
5) Advantex LLC	Drying facility	**Dried apple**, peaches, **plums**, cherries and other stone fruits that are not suitable for selling fresh in the market.	Production capacity: 500 tonnes per year[20] Storage: 40 tonnes of apple
6) Sabira Aidoshova	Cold storage facility	**Apples**	Storage capacity: 160 cubic meters[21]
7) Agroelita Manufacturing and Commercial Cooperative	Cooperative/ consolidation	**Apples**	Founded in 2004 by a group of entrepreneurs from Osh, Kyrgyzstan, to produce and arrange exports of dried fruits (apples, pears, and prunes), fruit and berry mixes, and dried vegetables grown in Southern Kyrgyzstan.
8) Natural Products LLC	Processing and packaging facility (already exporting)	**Apples (apple juice)** - Around 70% of their products are apple by- products.	Workers: five permanent staff (low season); 25 staff (high-season)
9) Rahmonberdi Ltd.	Processor	**Apricot and plum compote, apricot jam and apple jam**	Production capacity: 3 million reference unit jars a year. Number of employees: 22 people, up to 60 people during the season. Able to produce fruit and vegetable preserves from desired fruits, berries and vegetables in 0,25 up to 3 kg glass bottles and jars.
10) PE Kudaibergenova	Processor	**Apricot compote, natural apple juice**	Production capacity: 500 thousand reference unit jars Number of employees: 20-50
11) Nukok cooperative	Cooperative	**Potato**	Farmers: 267 farmers Nukok grows potato and provides farmers with high-quality potato seeds. The fixed assets of the cooperative have increased fourfold since 2002, and the farmers' incomes have tripled. The volume of grown potatoes has increased threefold.

18. US Embassy in Kyrgyzstan. Aravan potatoes achieve record profits. [Internet article].
19. US Embassy in Kyrgyzstan. 13 November 2017.
20. Ibid
21. Ibid

2.2 POTATOES

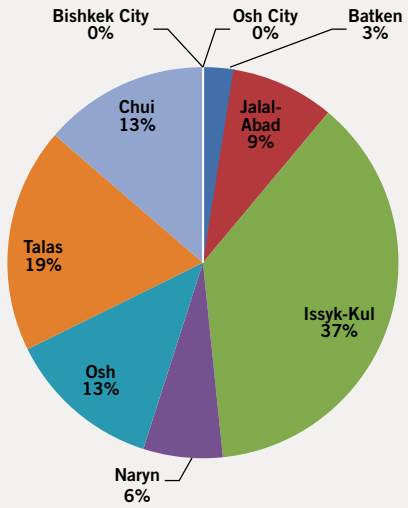
A. Relevance

Context and market structure: Potatoes are far and away the most cultivated vegetable in the country and ranks among the top five agricultural products in Kyrgyzstan, valued at 128 million USD.[22] It is widely produced and consumed across the country, with significant production levels in the Issyk-Kul region. In the South, Osh, and Jalal-Abad together contribute to 22% of the country's output.

Although potato production and yields have fluctuated in recent years, both have increased between 1997 through 2016 and stood at 1.39 million tonnes of production and 168,994 hg/ha yield as of 2016 (see Figure 5). Potato production is now more than twice that of wheat and maize, which are both strategic crops.

Kyrgyz potatoes that originate in the Osh region are known for their quality and smaller size. It is largely produced in the Aravan and Chong-Alay Districts. The Chong-Alay district produces late potato, its main crop, and harvests produce in October. On the contrary, the Aravan district produces early potato, which is mainly exported to Kazakhstan, Uzbekistan, and Russia.

Figure 4:
potato production ratio by state

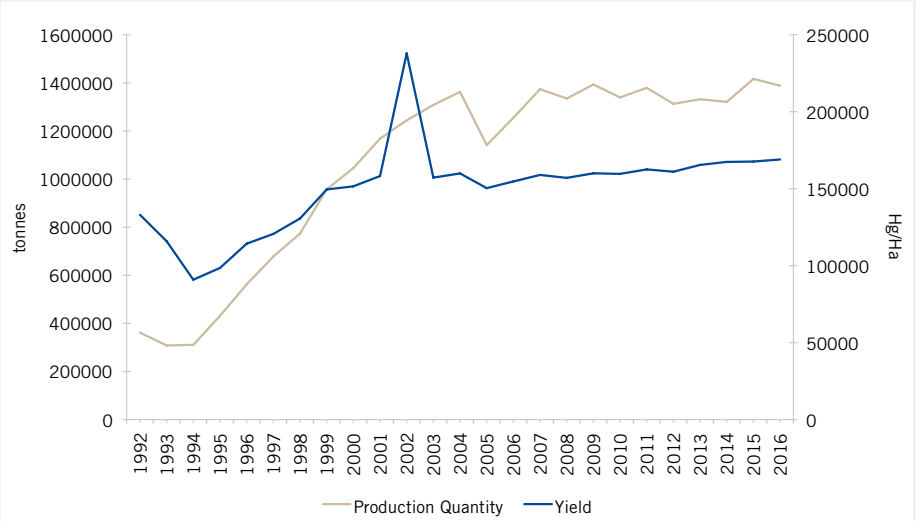


The sector is characterized by its fragmentation and lack of organization. The presence of cooperatives is still limited. The formation of cooperatives is a process that started in the early 2000s, with the support of GIZ. However, stakeholders demonstrate low readiness to cooperate, aggregate production, and work towards common goals. As a matter of fact, business representations such as JIA Osh expressed reluctance to work with potato producers who are perceived as passive and donor-dependent. However, given the large number of farmers cultivating potatoes, JIA Osh is now more actively trying to engage smallholder farmers as members. Up to date, the JIA representation has no active potato producers.

In the few cases when cooperatives work, these are usually 'production-type cooperatives' where producers collaborate to aggregate produce, but do not provide any type of additional support. There is a degree of collaboration that has been initiated and supported by USAID through the development of the Aravan Agro Service cooperative, and its collaboration with Agroelita (participating as seed supplier), Training and Extension System (TES – an agricultural extension service), and a Dutch company (seed-supply company).

22. FAO (2014)

Figure 5:
Potato production and yield in Kyrgyzstan (national)[23]



Picture: potatoes in the Osh region

Overall, the linkage between existing processors and farmers is not optimal; farmers are sometimes not aware that they sell their potatoes to processors, which allows the latter to buy more expensive varieties suitable for processing at a lower price. In the field visit, the research team observed low processing and cooperative activity, signaling a low degree of collaboration and innovation. Most farmers do not sell potatoes for processing, and there is a lack of processing facilities, in general. As of 2017, only a limited number of fried potato and potato chip processors operated in the country.[24]

In isolated cases, farmers and enterprises have experimented with new quality seed varieties supplied by a Dutch company. Investing in new seed varieties, however, is costly, and there is a need to test farmers' interest in investing in new seeds without the push of donor support. There is also evidence of interest from Korean investors to engage in potato starch production.[25] Lastly, there is a need and demand for processing equipment to produce potato chips and other value-added products, but farmers lack capital and knowledge on how to acquire this equipment.

23. FAO statistics
24. FAO (2017)
25. UNIDO Concept Note

B. Opportunity for inclusive growth

Sector size and growth trends: In contrast to the Issyk-Kul region, potato production in the south increased in the previous decade, though the sector faces similar challenges to become competitive, attain profitable margins and sustain yields as the following figures indicate.

Figure 6:
Potato production in Osh (thousand tonnes)[26]

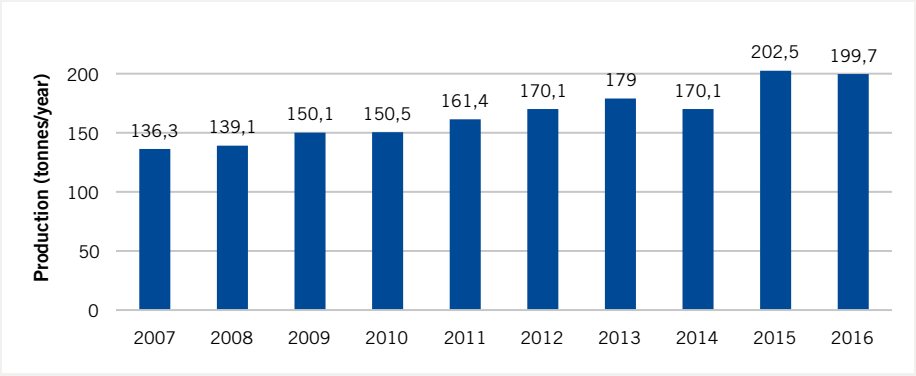
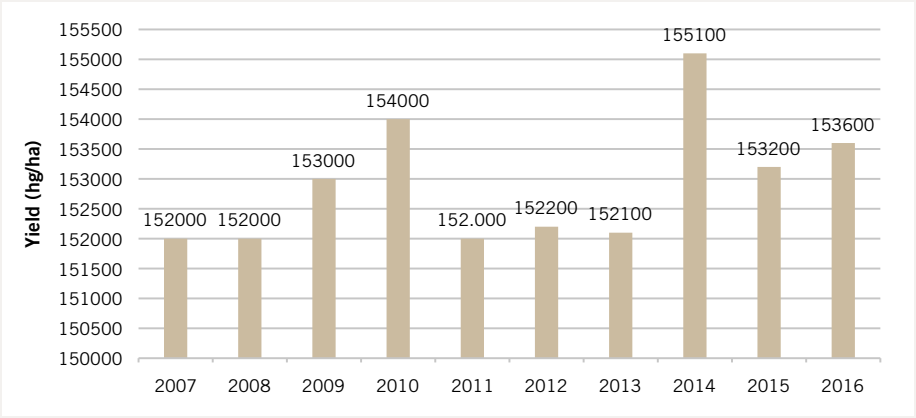


Figure 7:
Potato yield for Osh Oblast (hg/ha)[27]



Between 2007 and 2016, producers struggled to keep yield levels at constant or increasing rates despite the rising aid landing in the sector. In the past, potato production was rarely profitable for late potato farmers, because late potatoes are harvested when the market is saturated, and prices are low. In 2015, oversupply led to an abrupt drop in prices, and farmers lost money because they were unable to cover their production costs.[28] Switching to early potato varieties and sound agricultural technologies have led a selected group of farmers to earn nearly ten times more profit. Potato prices dropped in 2017,[29] and they are expected to drop in the period from 2018 to 2019.[30] In general, the sector is characterized by constant price volatility.

26. FAO Statistics
27. FAO Statistics
28. US Embassy in Kyrgyzstan. Aravan potatoes achieve record profits. [Internet article].
29. Interview with TES Osh June 2018
30. Interview with Aravan Agro Service June 2018

Prospects for quality improvement and export growth: In terms of export value, most exports Kyrgyz potatoes to Kazakhstan, followed by Uzbekistan and Russia, and Tajikistan with far less significance. In the period 2015-2017, exports decreased both in terms of output value and amount. This trend can be confirmed by data provided by FAO, which shows a peak in potato exports in 2013 at around 40,000 tonnes, followed by a reduction in exports afterwards.

Table 3:
Commodity structure of potato exports of Kyrgyzstan per importing country (January-December 2017)[31]

Name of product	Name of country	Export		
		In physical terms (tonnes)	Cost	
			KGS (000s)	USD
Potatoes fresh or chilled, seed for starch production, young, from 1 January to 30 June	TOTAL	20	1,032	15,071
	Russia	20	1,032	15,071
Other potatoes, fresh or chilled	TOTAL	12,327	372,890	5,434,280
	Kazakhstan	9,162	272,403	3,967,785
	Russia	188	5,841	85,386
	Uzbekistan	2,977	94,646	1,381,109

Table 4:
Commodity structure of potato exports of Kyrgyzstan per importing country (January-December 2016)[32]

Name of product	Name of country	Export		
		In physical terms (tonnes)	Cost	
			KGS (000s)	USD
Potatoes of seed, fresh or chilled	TOTAL	66	2,272	31,153
	Turkmenistan	66	2,272	31,153
Potatoes fresh or chilled, seed for starch production, young, from 1 January to 30 June	TOTAL	169	5,155	75,573
	Iraq	20	461	6,500
	Russia	149	4,694	69,073
Other potatoes, fresh or chilled	TOTAL	30,809	389,531	5,569,369
	Kazakhstan	29,423	373,933	5,342,026
	Russia	234	4,152	61,318
	Uzbekistan	1,152	11,446	166,025

31. Kyrgyz Statistical Committee
32. Kyrgyz Statistical Committee

Table 5:
Commodity structure of potato exports of Kyrgyzstan per importing country (January-December 2015)[33]

Name of product	Name of country	Export		
		In physical terms (tonnes)	Cost	
			KGS (000s)	USD
Potatoes of seed, fresh or chilled	TOTAL	627	2,112	33,784
	Kazakhstan	627	2,112	33,784
Other potatoes, fresh or chilled	TOTAL	106,013	481,302	7,496,057
	Kazakhstan	67,456	319,642	4,986,691
	Russia	1,219	10,667	167,374
	Tajikistan	149,38	6,080	939,414
	Uzbekistan	22,400	90,413	1,402,578

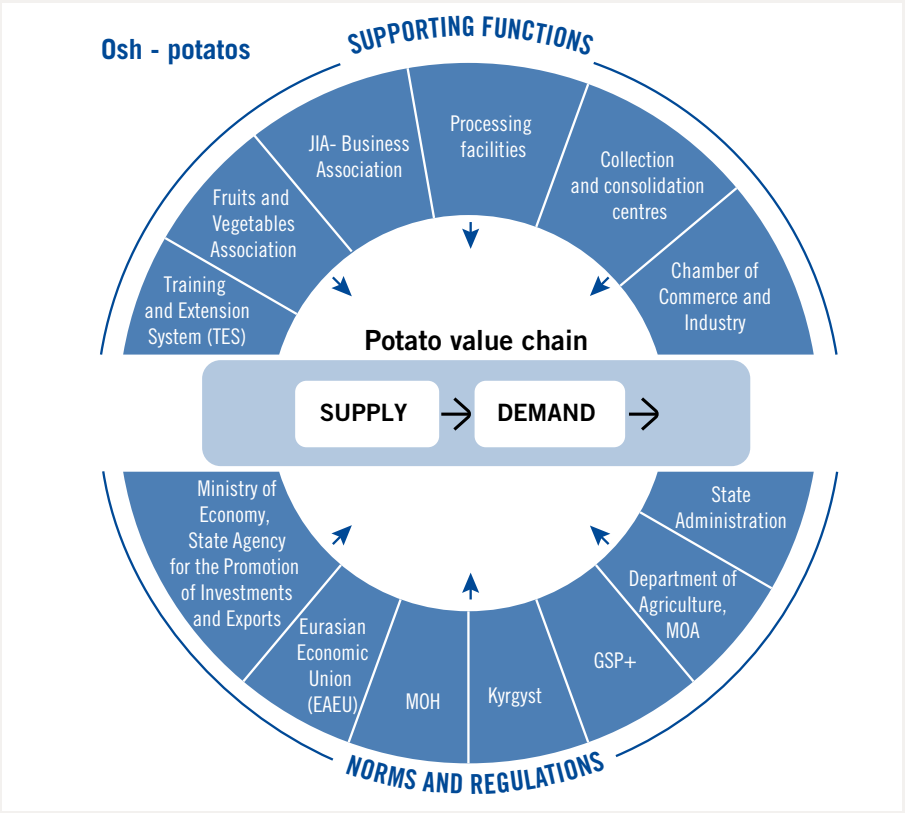
Altogether, stakeholders in the potato sector perceive a potential for increased export competitiveness. This perception might be influenced by increased production levels achieved, though the export potential still appears to be limited, and could only be enhanced through significant investment.

C. Feasibility to stimulate change

Assessment of supporting services, their capacity and willingness to innovate: In this section, the research presents a picture of the number of services and institutions that support the potato sector in Osh. At the bottom of the following figure are the national and regional government agencies and rules that regulate the sector. At the top are those services, institutions, and groups of producers that support the sector in the specific region of Osh. For the sake of brevity, this assessment focuses only on those that specifically support the potato sector in Osh, and has left out sector cross-cutting institutions.

33. Kyrgyz Statistical Committee

Figure 8:
supporting services and institutions in the potato market in Osh



Most of the market-system level actors, with the exception of JIA, receive heavy support from donors or work with donor-led clientele, which is the case of Aravan Agro Service Cooperative. Through the assessment, it could not be ascertained if these actors could attract non-donor clients for their provided services and goods if donors and development programmes were not present.

Agricultural extension services: technical information and consulting services for potato producers are provided by TES and other individual consultants at a smaller scale. TES perceives there is local demand for extension services, though it is recognized that most is driven by development programmes.

Technical education and skills: agricultural universities are perceived to lack specialized technical agronomist careers. For consulting companies like TES, this presents a problem, as they struggle to find technical specialists in the area. There is a demand for these skills but schools and universities focus on broader management skills, and as TES identified, youth are not opting for these careers anymore.

Associations and cooperatives: currently, no large business association has a presence with potato producers. In fact, during the field visit the research team found only two present cooperatives in the Osh region with potato producers. This confirms the widely spread issue of collectivization in this sector. However, TES is looking towards involving potato producers as part of their members and promoting entrepreneurship programmes in the sector.

Certification: there is a lack of certification services and organisations working with potato producers. Bio service In Osh works only with producers of wild spiny capers.

The next table presents a description of some of the actors studied in this research, as well as brief analysis of their institutional capacity and incentives to support the sector.

Table 6:
system-level actors in the potato market in Osh

Stakeholder	Description	Skill	Will
1) Training and Extension System (TES) – Agricultural Extension Services	Training and extension services in agriculture. This is an NGO that aims at increasing the incomes of farmers. They provide consulting, advisory support to establish self-help initiatives unions and cooperatives; training; training of trainers; field advisors or F2F system; and research services. They work with plum producers (Jalal-Abad) and potato producers (Osh). They have offices in Osh and Bishkek. TES provides training to Aravan Agro Service on potato seed cultivation.	Medium Donor-driven service (most clients are donors; although TES also works directly with local clients and organisations). From 2011-2014 they did not work with donors, and their business survived. There is a growing share of paid services by local actors. Problems: to find capable managers and, cooperative leaders and technical specialists.	High
2) Aravan Agro Service – Cooperative and Consolidation Centre	Cooperative of 217 potato farmers, which has been supported by USAID through the provision of training, seeds, and machinery. The Cooperative works with a seed supplier to acquire quality seed potato from the Netherlands, with the support of USAID.	Medium Farmers: 217 Estimated 25% of costs covered by USAID, 75% by the cooperative – they do not have the capacity to host more farmers, though the demand is large. The centre has almost zero rejection. Problems to reach the required volumes, and to store produce.	High
3) JIA- Business Association	Business association formed with representation in Bishkek and Osh. The Osh representation has approximately 250 active members in Osh oblast, but more than 400 enlisted members (not all are active). Only 9 of them are enterprises involved in fruits and vegetables, especially dried fruits. Of these, only one exports dried fruits. They are not currently working with potato producers, but intend to do so.	Medium Members (Osh): 250 active; 400 registered. They have tried clustering approaches with GIZ support, but no results yet. They also established a JIA 's export committee Starting in December 2017, which organized a study visit to India to understand market potential of dried fruits, export values, and learn good practices. Increasing membership The association faces problems to retain staff due to low salaries	High Several initiatives support the perception of JIA as an active and willing stakeholder to bring change. In September 2017 they began to attract smallholder farmers, and organize study visits (inter-regionally) to promote entrepreneurship in all crops. JIA wants to change farmer practices so that they become less passive. The start-up idea is still wrongly understood by farmers. JIA wants to introduce a start-up project using a peer to peer system and establish a TOT system. They have begun work in Osh city so far.

Table 7:
donor-supported programmes and initiatives in the sector

Name	Donor	Implementing Agency	Crops	Oblast	Description
AgroHorizon Project	USAID	ACDI-VOCA	Potatoes fruits and berries	Osh, Batken Jalal-Abad Naryn	A 4-year project aiming to increase the productivity of agricultural producers and link them to markets; increase productivity and markets for agri-businesses; improve enabling environment for agriculture-sector growth; improve the nutritional status of women and children in the zone of influence.

2.3
APPLES

A. Relevance

Context and market structure: Apples are the most popular fruit in Kyrgyzstan, and its production is widely spread all over the country and account for more than 70 percent of total fruits produced.[34] Every third household is cultivating apple trees or harvesting wild apples on a total of 45,500 ha.[35] However, most of these households only satisfy home consumption needs. Nationwide, Osh has the second highest production area, with 23.5 % share of the tree cultivation areas, only behind Chui (25.5%), and before Issyk-Kul (21.5%) and Jalal-Abad (14.5%).

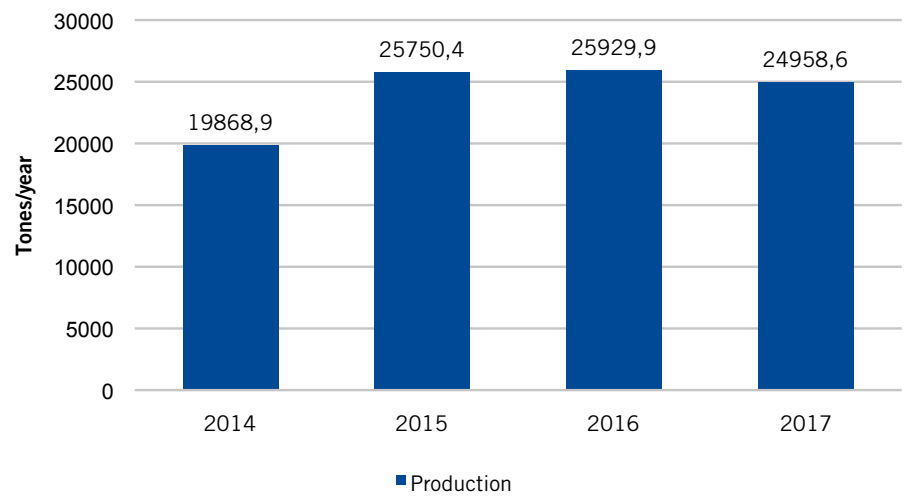
Field research indicated the presence of contract farming arrangements between farmers and processors. In the region, most processors are somehow involved in the production of apples, which signals a degree of innovation in the sector. In fact, most of the visited processors were working with apples (9 out of the 11 processors). Apple processing occurs more frequently than for apricots.

B. Opportunity for inclusive growth

Sector size and growth trends: The region improved production levels since 2014; production has stagnated from 2015-2017. In terms of output levels, Osh produces lower amounts of apples compared with potato (6 times higher production) and almost ten times higher if compared with apricot for the year 2017.

34. JICA (2013)
35. M-Vector (2014)

Figure 9:
Production of apples in the Osh region[36]

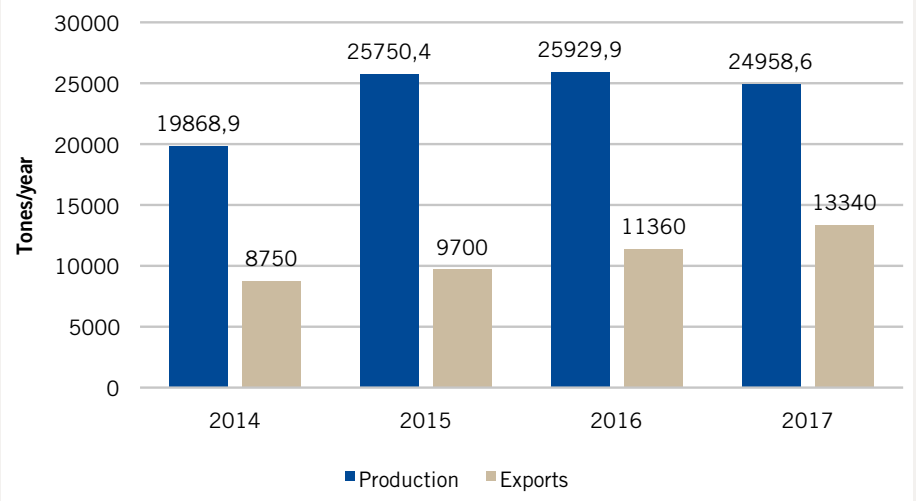


Prospects for quality improvement and export growth: According to the perception of key informants, apple production is high in the Osh oblast though production still does not satisfy the demand. Despite the region's inability to sustain or increase production, the share of apple exports for Osh has increased in the previous years, as the figure below shows. This signals a positive trend and good performance in terms of export orientation and capacity.

Picture: processing facilities in Osh are supported to sell apple juice products

36. Osh State Administration (2018)

Figure 10:
Production and exports of Osh apples[37]



Assessing the participation of apple exports in the Kyrgyz economy, exports represent a rather small share of all produced apples and have in fact decreased since 2011. The Osh region, nevertheless, has performed better than other regions in the country.

Table 8:
Export markets and growth for Kyrgyz Apples (fresh)[38]

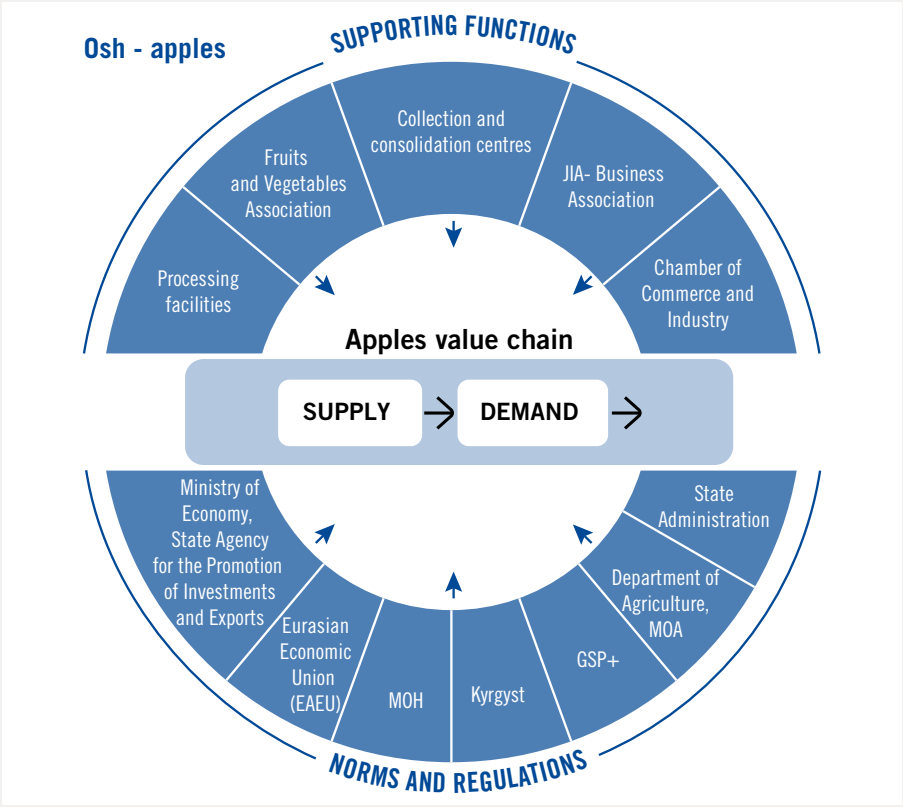
Importers	Year 2017					2013-2017	
	Exported (USD 000s)	Trade balance (USD 000s)	Share of exports	Volume exports (tonnes)	Price/ ton	Export Value	Export volume
World	3,550	1,219	100%	5,373	661	-25%	-39%
Kazakhstan	2,052	1,678	57.8%	3,218	638	-35%	-46%
Russian Federation	1,437	1,313	40.5%	1,927	746		444%
Uzbekistan	57	-391	1.6%	212	269		
Mongolia	4	4	0.1%	17	235	-24%	-5%

An opportunity may lie for exporting organically-produced apples to Germany and Netherlands, as there is demand for organic production in these markets. However, stakeholders perceived that this would involve fierce competition as the European market is generally satisfied by European producers. In terms of organic production sales, the region currently exports organic apples to Russia, China, and Kazakhstan, with the support of Bio Service.

37. Osh State Administration (2018)
38. ITC Trademap

C. Feasibility to stimulate change

Figure 11:
Supporting services and institutions in the apple sector in Osh



Assessment of supporting services, their capacity and willingness to innovate: Most of the market-system level actors, with the exception of JIA, receive heavy support from donors, or work with donor-led clientele, such is the case of Aravan Agro Service Cooperative. It is doubtful that such businesses can attract clients for their provided services and goods, if donors and development programmes did not support them.

Agricultural extension services: technical information and consulting services for apple producers are provided by services like TES, and other individual consultants at a smaller scale. Nevertheless, TES does not work yet with apple producers. Individual consultants do work with apple producers, and it was identified that Agroelita Cooperative provide their members with consulting and technical information as part of their services.

Technical education and skills: as mentioned in section 2.3, agricultural universities generally do not offer specialized agronomist careers which limits the supply of skilled agronomists.

Associations and cooperatives: the Agroelita Manufacturing and Commercial Cooperative was the only cooperative identified during this study that is servicing apple producers. On the other side, JIA Osh is working with many fruit processors and companies, including apple producers. This shows a degree of collectivization and cooperation in the apple sector.

Certification: there is a lack of certification services and organisations working with apple producers in Osh. Bio Service in Osh has so far worked only with producers of wild spiny capers.

Picture: Donated drying machinery at the Minovar Processing Facility in Osh

The following table presents a description of some of the actors studied in this research, as well as brief analysis of their institutional capacity and incentives to support the sector.

Table 9:
System-level actors in the apple market in Osh

Stakeholder	Description	Skill	Will
1) JIA- Business Association	Employers' association formed with representation in Bishkek and Osh. The Osh representation has approximately 250 active members in Osh oblast, but more than 400 enlisted members (not all are active). Only 9 of them are enterprises involved in fruits and vegetables, especially dried fruits. Of these, only one exports dried fruits.	Medium They have tried clustering approaches with GIZ support, but no results yet. They also established a JIA 's export committee Starting in December 2017, which organized a study visit to India to understand market potential of dried fruits, export values, and learn good practices. Increasing membership The association faces problems to retain staff due to low salaries	High Several initiatives support the perception of JIA as an active and willing stakeholder to bring change. In September 2017 they began to attract smallholder farmers, and organize study visits (inter-regionally) to promote entrepreneurship in all crops. JIA wants to change farmer practices so that they become less passive. The start-up idea is still wrongly understood by farmers. JIA wants to introduce a start-up project using a peer to peer system and establish a TOT system. They have begun work in Osh city so far.

Table 10:
Donor-supported programmes and initiatives in the sector

Name	Donor	Implementing Agency	Crops	Oblast	Description
AgroHorizon Project	USAID	ACDI-VOCA	Potatoes fruits and berries	Osh, Batken, Jalal-Abad Naryn	A 4-year project aiming to increase the productivity of agricultural producers and link them to markets; increase productivity and markets for agri-businesses; improve enabling environment for agriculture-sector growth; improve the nutritional status of women and children in the zone of influence.

2.4 APRICOTS

A. Relevance

Context and market structure: The Osh region hosts 13% of the country's apricot trees, a share that has increased over the years relative to Issyk-Kul, which reduced its share from 17% to 8% from 2013-2016. The remaining trees are in Batken (68%), Issyk-Kul (8%), Jalal-Abad (7%) and Chui (3%). Over 1.5 million people benefit from growing apricots; of these, 350,000 are directly involved in the sector. Over 200, 000 women benefit from harvesting apricots, most of them involved in production and processing of apricots – 70% of workers at the processing level are women.[39] Production is generally small-scale – small-holder farmers account for 95% production.[40]

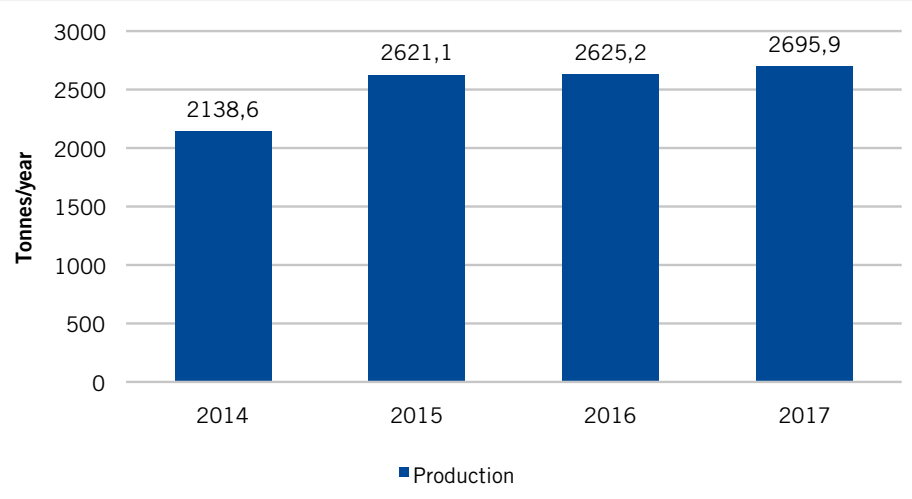
Despite the important role that women play in processing, processing technology and innovation is limited in Osh and apricots are not intensively processed compared with apples and potatoes. This fruit represents an important crop for local consumption, being the second most popular and affordable fruit for the local population.

B. Opportunity for inclusive growth

Sector size and growth trends: Compared with apples and potatoes, Osh does not produce significant apricot volumes, though demand (both internal and external) is high, especially for dried fruits. As of 2016, the region was home to 13% of the country's apricot trees, a small but increasing share compared with 2013, when the region hosted 12% of trees nationwide.[41]

As of 2017, Osh produced 2,695.9 tonnes of apricots,[42] a substantially lower amount than apples (almost 10-times higher production level than apricot) and potatoes (potato achieved 200,000 tonnes produced in 2017). Despite its small size, the output growth has been constant in the region.

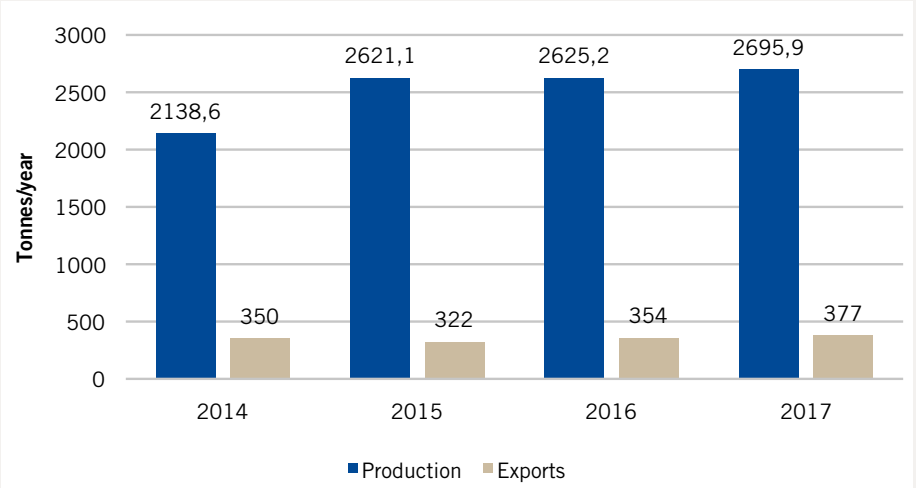
Figure 12:
Production of apricots in the Osh region



39. Data provided by GIZ
40. GIZ Data for 2016
41. Data provided by GIZ
42. Data provided by the Ministry of Agriculture, June 2018

Prospects for quality improvements and export growth: The share of exports out of the total produce is considerably less in apricots than apples. Although the perception is that apricots have big export potential the figures show a different scenario in which apricots do not export significant amounts as initially thought. This should not be mis-interpreted as a disappointment in the sector, as apricots show good export potential in markets like Russia for both fresh and dried apricot products.

Figure 13:
Production and exports of apricots in the Osh region[43]



In the period from 2013 to 2017, Russia represented the most significant export market for Kyrgyz apricots. At the national level, export growth has diminished in the same period.

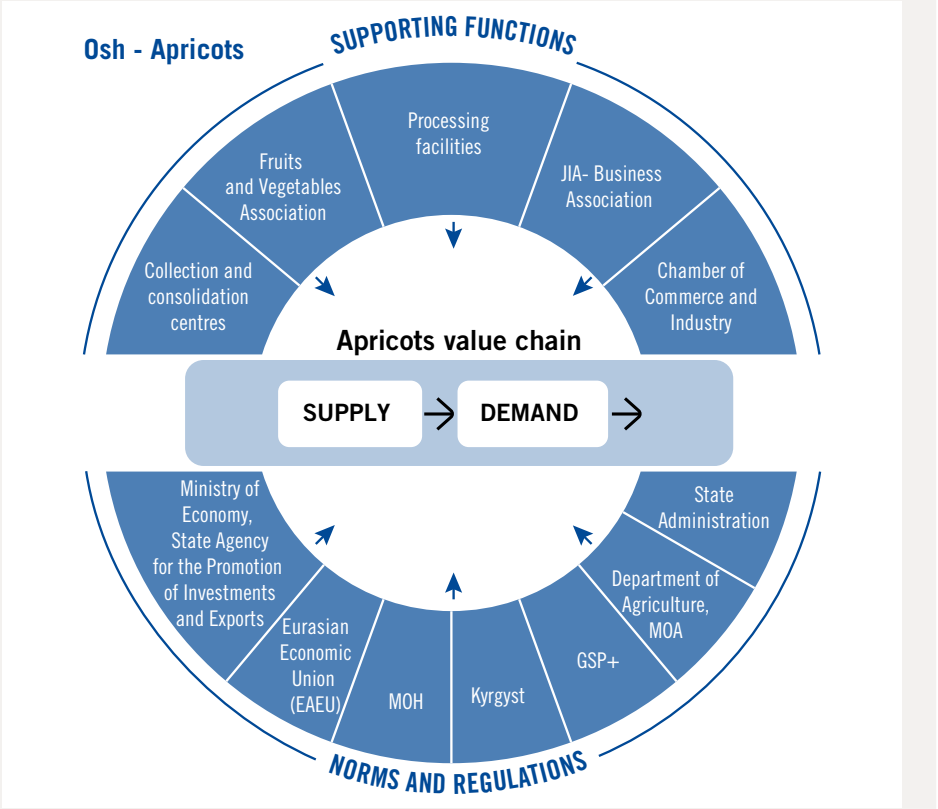
Table 11:
Export markets and growth for Kyrgyz apricots (fresh)[44]

Importers	Year 2017					2013-2017	
	Exported (USD 000s)	Trade balance (USD 000s)	Share of exports	Volume exports (tonnes)	Price/ ton	Export Value	Export volume
World	1,785	-1,585	100%	2,233	799	-41%	-46%
Russian Federation	1,253	1,253	70.2%	1,523	823	284%	129%
Kazakhstan	532	448	29.8%	710	749	-59%	-62%
Tajikistan		-1,463					
Uzbekistan		-1,823					

43. Osh State Administration
44. ITC Trademap

C. Feasibility to stimulate change

Figure 14:
Supporting services and institutions in the apricot sector in Osh



Assessment of supporting services, their capacity and willingness to innovate:

At the province level, fewer market system actors, services and supporting institutions are present in apricots when compared apples.

Agricultural extension services: during the field visit the team was not aware of any consulting or agricultural extension service working directly with apricot producers in Osh.

Technical education and skills: as previously mentioned, there is a generalized problem of lack of specialized technical and specialist staff that can provide advice and support to the sector.

Associations and cooperatives: JIA Osh is working with many fruit processors and companies, including apricot producers. Nevertheless, the number of cooperatives working with apricot producers seems to be few, and during the research, information on cooperatives supporting the apricot sector was limited.

Certification: there is a general lack of certification services and organisations working with apricots in Osh. Bio Service in Osh has so far worked only with producers of wild spiny capers.

The following table details some of the actors studied in this research, as well as a brief analysis of their institutional capacity and incentives to support the sector.

Table 12:
System-level actors in the apricot market in Osh

Stakeholder	Description	Skill	Will
JIA- Business Association	Employers' association formed with representation in Bishkek and Osh. The Osh representation has approximately 250 active members in Osh oblast, but more than 400 enlisted members (not all are active). Only 9 of them are enterprises involved in fruits and vegetables, especially dried fruits. Of these, only one exports dried fruits.	Medium They have tried clustering approaches with GIZ support, but no result yet. They also established a JIA 's export committee Starting in December 2017, which organized a study visit to India to understand market potential of dried fruits, export values, and learn good practices. Increasing membership The association faces problems to retain staff due to low salaries	High Several initiatives support the perception of JIA as an active and willing stakeholder to bring change. In September 2017 they began to attract smallholder farmers, and organize study visits (inter-regionally) to promote entrepreneurship in all crops. JIA wants to change farmer practices so that they become less passive. The start-up idea is still wrongly understood by farmers. JIA wants to introduce a start-up project using a peer-to-peer system and establish a TOT system. They have begun work in Osh city so far.

In terms of donor support, although fruits, in general, receive more development support, apricots seem to be the target sector for donors like GIZ and USAID. Two projects work with the apricot industry in Osh, which are described in the following table.

Table 13:
Donor-supported programmes and initiatives in the sector

Name	Donor	Implementing Agency	Crops	Oblast	Description
Promotion of Sustainable Economic Development	SDC	GIZ	Apricots Plums	Jalal-Abad Osh	The project promotes value chains in various sectors to increase their competitiveness. Value chains include fruits and berries, and walnuts. The German-based Import Promotion Desk platform supports selected companies to take part in trade fair events in Germany. The project works with AFC Consulting Group (German) to provide consulting support in the implementation of food safety management systems and certification in global GAP, and food industry enterprises in the implementation of the HACCP Standard. The project also provides co-funding to economic development initiatives in Jalal-Abad Oblast. Through a collaboration with the GFA Consulting Group, the project also builds institutional capacity of stakeholders (both private and public).
AgroHorizon Project	USAID	ACDI-VOCA	Potatoes, fruits, and berries	Osh, Batken Jalal-Abad Naryn	A 4-year project aiming to increase the productivity of agricultural producers and link them to markets; increase productivity and markets for agribusinesses; improve enabling environment for agriculture-sector growth; improve the nutritional status of women and children in the zone of influence.

2.5
CROSS-CUTTING CHALLENGES IN OSH

During the research, several challenges which more broadly constrain horticulture market potential in Osh were identified. Specifically, these cross-cutting challenges included:

Low commercialization and processing capacity

Osh lags behind Jalal-Abad in terms of number of processing facilities with access to external markets. The research identified that small-scale processing facilities are still dependent on donor support. Furthermore, farmers struggle to find buyers when imports are competitive already.

Very limited access to certification and standards training

Access to certification is limited given the lack of available advisory services and the cost associated with certification. The problem seems to affect all three crops, though it more significantly for potato producers as potatoes are not targeted for certification like fruits. In addition, the province receives less support from donors to help farmers attain standards and gain access to certification.

Difficulties to reach required volumes

The cooperatives still struggle to produce required volumes as identified by the Aravan Agro Service cooperative in Osh. Most of the requests are of one ton of early potatoes, but even this quantity is hard for producers to meet.

Storage facilities are few

In the potato value chain, storage is also a problem. Even when farmers drop their produce at the consolidation centre, the centre does not have the capacity to store all of it.

3 JALAL-ABAD OBLAST

3.1 AN OVERVIEW OF THE LEVEL OF ENTERPRISE AND VALUE-ADDED ACTIVITIES

The Jalal-Abad region is home to 1,960,000 people[45] and is considered to be one of the key engines in the Kyrgyz economy, presenting large export-driven growth potential. Agriculture is a key sector in Jalal-Abad, which accounts for around 40% of its GDP. Moreover, the region has a comparative advantage in terms of fruit and vegetable production due to its favourable climate conditions. Despite the favourable scenario, some key opportunities to create value-added industrial activities remain untapped. Thus a large part of the economy is still underdeveloped and non-competitive.

45. National Statistics database (2018).

Figure 15:
The Jalal-Abad region in Kyrgyzstan

In relation to Osh, Jalal-Abad has more enterprise and value-added activity levels, most of which can be attributed to the considerably higher levels of donor support. The following table presents a number of value-added and enterprise activities that occur in the region in the short-listed sectors, including processing and collection and consolidation, as well as export enterprises.

Looking at the general fruits and vegetable sector, Jalal-Abad ranks first in processing activities compared with Osh (second) and Issyk-Kul (third). The oblast has a total of 88 processing facilities, of which five are big-sized enterprises, and 83 are privately-owned small enterprises.[46] In specific regard to apple processing activities, the state administration identified is a positive trend in the number of processing enterprises. There seems to be a belief that more producers and land would solve the volume issue. The problem, however, seems to be linked to low land yield.

46. Data provided by the Ministry of Agriculture, June 2018, 2014-2017 census

Table 14:
Enterprises and value-added activities in the Jalal-Abad region

Name	Type	Crops	Capacity	Certification
1) Farmers Organic Garden LLC	Processing exporting	**Wild apples** Mushrooms **Plums** Pistachios Peaches Peas Sunflower Peanuts **Apricots** Wildberry Walnuts Pumpkin Prunes Tomato Wild rose	• Total area (ha): 3,000 • Collaborating farmers: 500[47] • Production capacity: up to 1,000 tonnes of dried apple per season; producers organic (240 tonnes in general) • General capacity: 15,600 metric tonnes and storage capacity of 11,105 cubic meters[48] • Workers: 55 permanent workers (low season); ca. 400 workers (high season)[49]	FSSC 22000 (Food Safety System Certification) HACCP Organic Production
2) Agricultural cooperative "Aksy Bio"	Cooperative	**Plums**	• Total area (ha): 540 • Farmers: 294 • Organic production capacity: 20 tonnes in general	Organic production
3) Abdumalik-ata	Processing facility	Cherries **apricots** cucumbers (jams)	Low-scale processing facility with 20 ha of land	
4) Lesnoi product Ltd.	Processor	**Apple juice**	Production capacity: 1 million reference unit jars a year Number of employees: 16 people, 50 people during the season	
5) Bio Farmer Cooperative	Cooperative	**Dried apricot**	• Total area (ha): 3,000 • Farmers: 1,500 • Organic production capacity: 450 tonnes in general	Organic production since 2004: EU guidelines 2092/91 and 834/2007, organic certification by IMO, Switzerland Fairtrade certification since 2008 ID 20294 by FLO-cert, Germany, Certificate of origin and phytosanitary certification (Kyrgyzstan).

It is noteworthy to mention that the Jalal-Abad region has received significant aid and assistance from donor-funded projects relative to Osh and Issyk-Kul regions. This has translated into higher organic production capacity – Jalal-Abad has 2,794 certified farmers covering an area of 14,540 ha across the region.[50]

47. Information provided by Bio Service Public Foundation, June 2018
48. USAID November 22, 2017 [Press release]
49. Information provided by Farmers Organic Garden LLC, Interview June 2018
50. Bio Service Public Foundation, "Partners for production, processing and certification of organic products, according to EU standards", unpublished, 2018

Pictures: processing Company in Jalal-Abad

3.2 APPLES

A. Relevance

Context and market structure: In comparison with other cultivating regions, Jalal-Abad is placed as the 4th production area, with 14.5% share of all tree cultivation in the country. As of 2014, the province had produced around 35,000 to 50,000 tonnes of wild and plantation apples combined on a surface area of 20,000 ha[51]. Nevertheless, one of the biggest constraints is the underutilization of their natural growing capacity, as nearly half of apples get wasted. Contract farming arrangements between farmers and processors are present, and two processors produce apple-related products, which signals some innovation in the sector.

B. Opportunity for inclusive growth

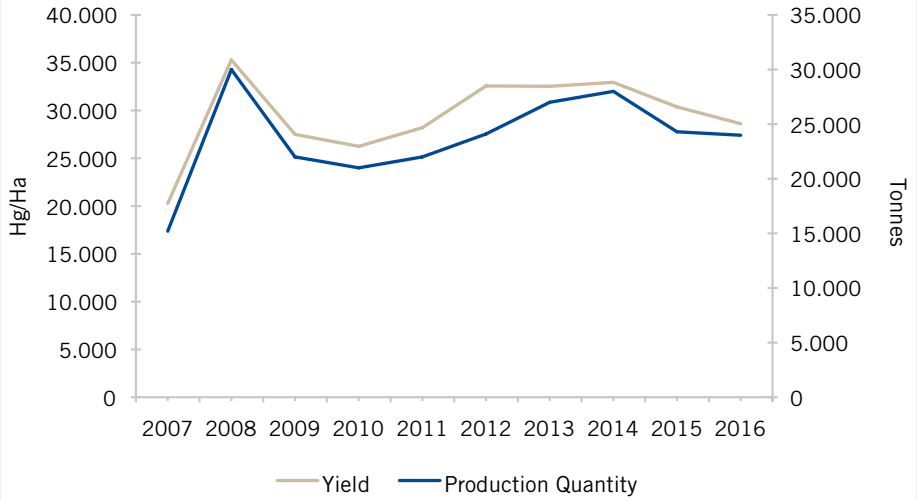
Sector size and growth trends: In Jalal-Abad, apple production is six times higher than apricots. In 2017, the oblast produced just over 23,000 tonnes of apples, according to the Ministry of Agriculture.[52] This shows a decrease in production. According to the state administration, approximately 50% of apples are spoiled, and the remainder is sold commercially or consumed by producers. The spoilage rate in Jalal-Abad is higher than on the national level where up to 36% are spoiled or used as cattle fodder.[53] Regarding innovation, there is room for improvement - pickling is still the most common practice across the Southern region. This might partially explain the high wastage rates.

At the national level, apples are the most cultivated fruit in Kyrgyzstan, growing on about a third of household plots.[54] Over 135,500 tonnes are produced annually; how-

51. Data provided by M-Vector (2014) and Jalal-Abad State Administration, Department of Environment
52. Data provided by the Ministry of Agriculture, June 2018
53. M-Vector (2014)
54. M-Vector (2014)

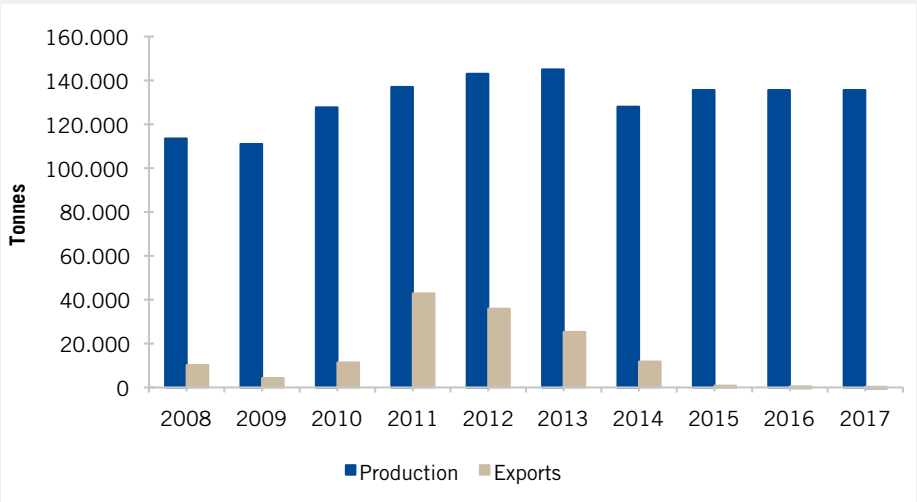
ever, on a national level, yield productivity has gradually declined over the past five years – from nearly 56,000 hg/ha in 2012 to just over 47,000 hg/ha in 2016.[55]

Figure 16:
Apple yield and production quantity in Kyrgyzstan



Prospects for quality improvement and export growth: Assessing the participation of exports in the economy, exports represent a rather small share of all produced apples and have in fact decreased after the year 2011.

Figure 17:
Fresh apple exports versus production levels in Kyrgyzstan[56]



55. FAOSTAT
56. US Department of Agriculture

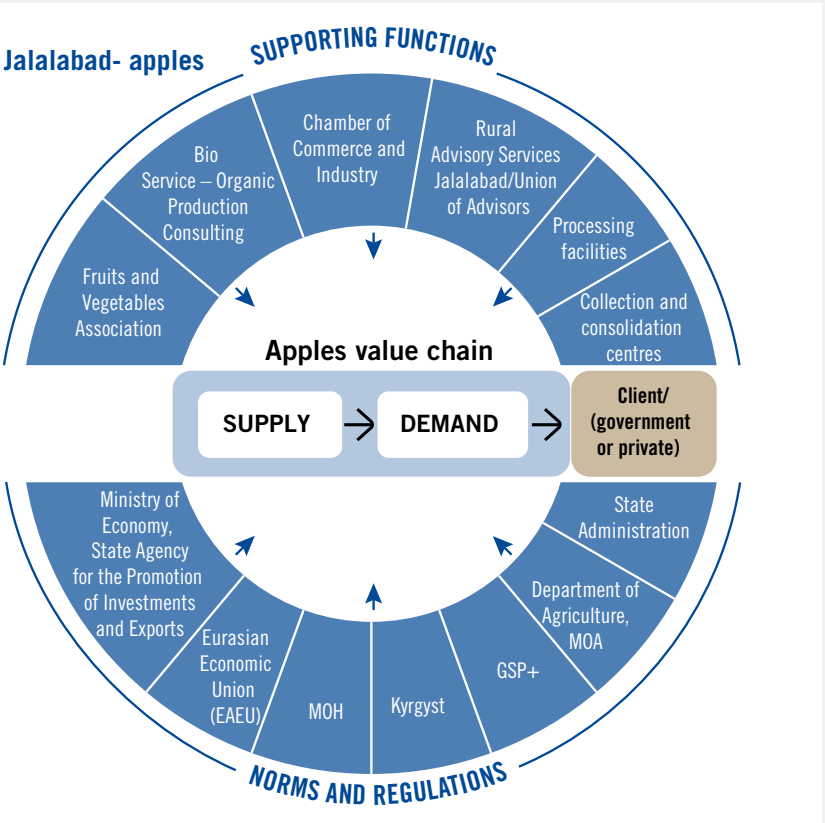
Table 15:
Export markets and growth for Kyrgyz Apples (fresh)[57]

Importers	Year 2017					Growth 2013-2017	
	Exported (USD 000s)	Trade balance (USD 000s)	Share of exports	Volume exports (tonnes)	Price (USD) / tonne	Export Value	Export volume
World	3,550	1,219	100%	5,373	661	-25%	-39%
Kazakhstan	2,052	1,678	57.8%	3,218	638	-35%	-46%
Russian Federation	1,437	1,313	40.5%	1,927	746		444%
Uzbekistan	57	-391	1.6%	212	269		
Mongolia	4	4	0.1%	17	235	-24%	-5%

In relation to apricots and plums in Jalal-Abad, apples have the highest value exports. Similar to Osh, the opportunity for exporting organically-produced apples to Germany and Netherlands may exist, but it is unclear Kyrgyz producer can compete.

C. Feasibility to stimulate change

Figure 18:
Supporting services and institutions in the apple sector in Jalal-Abad



57. ITC Trademap

Assessment of supporting services, their capacity and willingness to innovate: When compared with Osh, services, organisations, and institutions supporting the agricultural sector are more readily available in Jalal-Abad and apples are much more targeted crops for support.

Agricultural extension services: technical information and consulting services for apple producers in the apple market of Jalal-Abad are provided by services like the Rural Advisory services network, and the Union of Advisors. For the promotion of good agricultural practices and organic production, the sector has the presence of Bio Service, as a consulting service for organic production.

Associations and cooperatives: Farmers Organic Garden, in their role as processors, expressed that they work in collaboration with cooperatives. During this study, research did not uncover any cooperative working with apple producers at the commercial level for Jalal-Abad. At the national level, the Fruits and Vegetables Association works with apple producers from Jalal-Abad.

Certification: Bio Service Consulting works to promote the adoption of organic practices in the apple sector in Jalal-Abad. There are no certification services per se. However, Bio Service works to link producers with certification bodies outside of Kyrgyzstan, and facilitates the path through standards, and good agricultural practices training.

The following table presents a description of some of the actors studied in this research, as well as a brief analysis of their institutional capacity and incentives to support the sector.

Table 16:
system-level actors in the apple market in Jalal-Abad

Stakeholder	Description	Skill	Will
Bio Service - Organic Farming Consulting Services	"Bio Service" Public Foundation was founded with the support of the Development of Production and Trade Promotion Project, Organic Cotton (BioCotton), funded by Seco, ICCO, Hivos and Helvetas. Bio Service facilitates the adoption of organic farming, international organic certification, and quality management processes, through a variety of services such as training, ICSC, consultancy, and marketing services. Bio Service partners with bio-cooperatives to provide requested services.	Medium Donor-driven capacity to function, for which donors provide the linkage with buyers to finance certification and training of producers	High
The Public Foundation "Rural Advisory Services Jalal-Abad" (RAS JA) – Agricultural Extension Services	The Public Foundation "Rural Advisory Services Jalal-Abad" (RAS JA) offers assistance to rural communities in the area of agriculture and enterprise development in Southern Kyrgyzstan. Their objective is to improve the living standards of the rural population by providing training and consultations as well as access to information, credits and agricultural inputs through our network of advisors. We offer support in the fields of agricultural development, agribusiness, development of women and youth initiatives, sustainable and efficient use of natural resources. The organization was founded in 1999 at the initiative of the Government of Kyrgyzstan with the support of the World Bank, IFAD and the Government of Switzerland. Head office is in Jalal-Abad and sub-offices in all districts of Jalal-Abad Oblast. During the last years, RAS JA partnered with and received funding from the following donors and organizations: European Union, German Embassy, GIZ, Helvetas/ Swiss Intercooperation, UN WOMEN, and USAID. Additionally, the organization counts with an international advisor supported by the German Centre for International Migration and Development (CIM).[58]	Medium Donor-supported service	High Interest to increase the share of paid services by local companies
LLC " Union of Advisors " (UA) - Agricultural Extension Services	LLC "Union of Advisors "(UA) was founded in 2013 under the Rural Advisory Service Jalal-Abad. Members of the LLC "UA" are ten professionals in the area of agricultural development. Purpose: Supply farmers high quality, certified agricultural inputs, combined with consultations on their appropriate use. LLC "UA" provides services throughout the Jalal-Abad Oblast as well as other regions in Southern Kyrgyzstan. Today LLC offers a large range of different products: High-quality seeds of high yielding varieties/hybrids of vegetables (tomatoes, cucumbers, peppers, cabbage, eggplant, etc.), melons (watermelon, cantaloupe), grains (wheat, corn), oilseeds (soybeans, sunflower, cotton), saplings of fruit trees (apple, pear, peach, cherry, apricot); plant protection products - herbicides, pesticides; chemical fertilizers (nitrogen); medications for the treatment of farm animals	Medium Donor-supported service	High Interest to increase the share of paid services by local companies

58. For more information, visit https://www.rasja.kg/en/

Table 17:
donor-supported programmes and initiatives in the sector

Name	Donor	Implement-ing Agency	Crops	Oblast	Description
AgroHorizon Service	USAID	ACDI-VOCA	Potatoes, fruits (incl. **apples and apricots**) and berries	Osh, Batken, Jalal-Abad, and Naryn	A 4-year project aiming to increase the productivity of agricultural producers and link them to markets; increase productivity and markets for agribusinesses; improve enabling environment for agriculture-sector growth; improve the nutritional status of women and children in the zone of influence.

3.3
APRICOTS

A. Relevance

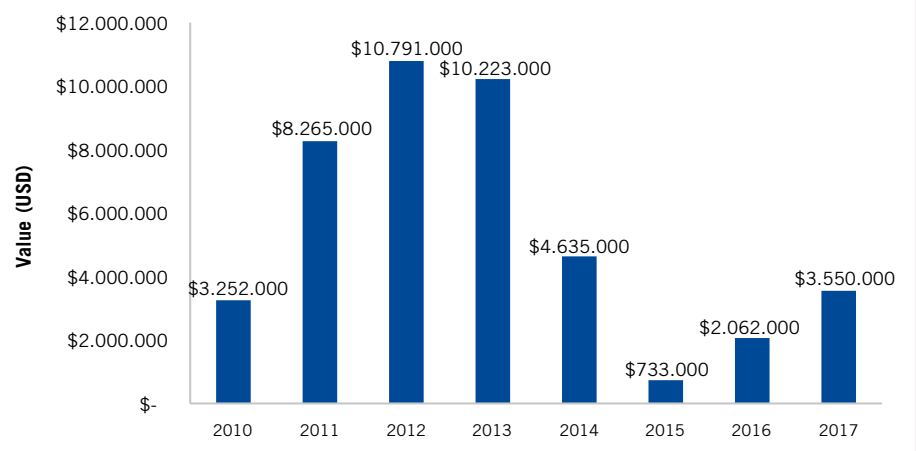
Context and market structure: The Jalal-Abad region is host to 7% of the country's apricot trees.[59] Over 1.5 million people benefit from growing apricots; of which 350,000 are directly involved in the sector. Over 200,000 women benefit from harvesting apricots, most of them involved in the production and processing of apricots. An interesting fact is that 70% of workers at the processing level are women.[60] The sector is widely characterized by small-holder farmers who represent 95% of all, while only 5% are medium and larger-scale enterprises.[61]

B. Opportunity for inclusive growth

Sector size and growth trends: Jalal-Abad Oblast has achieved a production capacity of 4,043 tonnes for the year 2017.[62] Information and data are unfortunately not available for the previous years. In terms of output levels, the oblast produces lower amounts of apricots compared with apples. Stakeholders perceive there are good volumes and good market demand for fresh and processed apricot products, including jams and dried fruits.

59. GIZ data for 2016
60. Data provided by GIZ
61. GIZ Data for 2016
62. Data provided by the Ministry of Agriculture, June 2018

Figure 19:
Apricot yield and production quantity in Kyrgyzstan



Prospects for quality improvement and export growth: In relation to apples and plums in Jalal-Abad, apricots rank second in terms of export values. From 2013 to 2017 Russia represented the most significant export market for Kyrgyz apricots though exports as a whole have diminished during that same period.

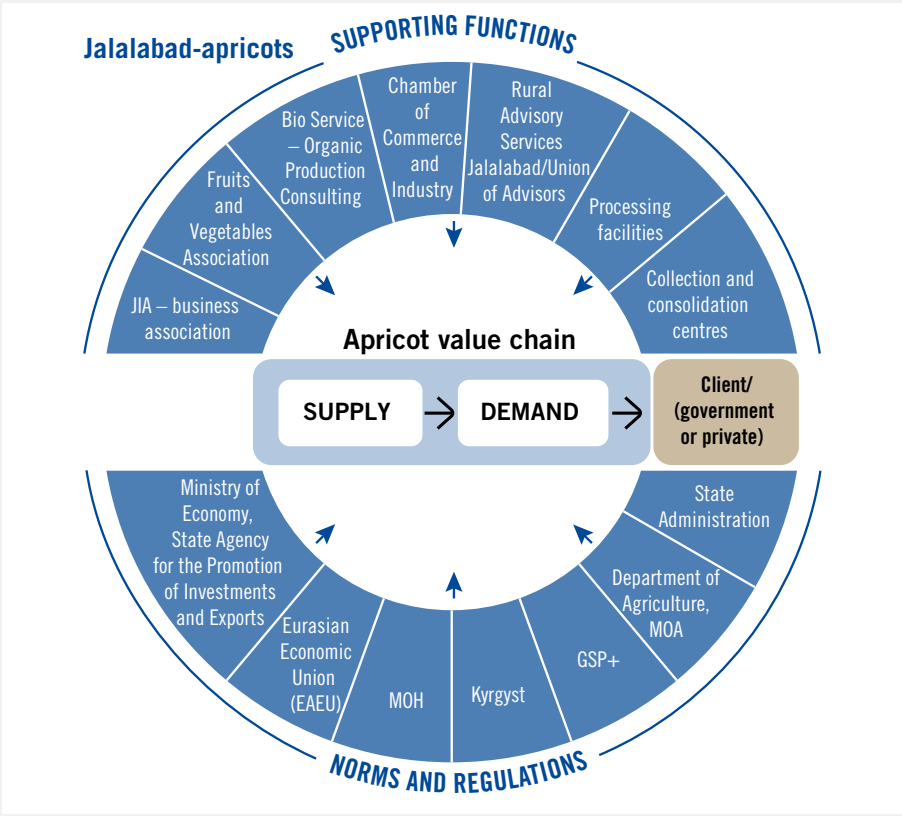
Table 18:
export markets and growth for Kyrgyz apricots (fresh)[63]

Importers	Year 2017					Growth 2013-2017	
	Exported (USD 000s)	Trade balance (USD 000s)	Share of exports	Volume exports (tonnes)	Price (USD/ tonne)	Export Value	Export volume
World	1,785	-1,585	100%	2,233	799	-41%	-46%
Russian Federation	1,253	1,253	70.2%	1,523	823	284%	129%
Kazakhstan	532	448	29.8%	710	749	-59%	-62%
Tajikistan		-1,463					
Uzbekistan		-1,823					

63. ITC Trademap

C. Feasibility to stimulate change

Figure 20:
supporting services and institutions in the apricot sector in Jalal-Abad



Assessment of supporting services, their capacity and willingness to innovate: Similar to apples, apricots are one of the targeted crops for donor support.

Agricultural extension services: technical information and consulting services for apple producers in the apple market of Jalal-Abad are provided by services like the Rural Advisory services network, and the Union of Advisors. For the promotion of good agricultural practices and organic production, the sector has the presence of Bio Service, as a consulting service for organic production.

Associations and cooperatives: Bio Farmer Cooperative hosts 1,500 farmers working in several crops, including apricots (dried). At the national level, the Fruits and Vegetables Association also works with apricot processors and producers from Jalal-Abad.

Certification: Bio Service Consulting works to promote the adoption of organic practices in the apricot sector in Jalal-Abad.

The following table presents a description of some of the actors studied in this research, as well as a brief analysis of their institutional capacity and incentives to support the sector.

Table 19:
system-level actors in the apricot market in Jalal-Abad

Stakeholder	Description	Skill	Will
Bio Service – Organic Farming Consulting	Bio Service facilitates the adoption of organic farming, international organic certification, and quality management processes, through a variety of services such as training, ICSC, consultancy, and marketing services. Bio Service partners with bio-cooperatives to provide requested services.	Medium Donor-driven capacity to function, for which donors provide the linkage with buyers to finance certification and training of producers	High
The Public Foundation "Rural Advisory Services Jalal-Abad" (RAS JA) - Agricultural Extension Services	The Public Foundation "Rural Advisory Services Jalal-Abad" (RAS JA) offers assistance to rural communities in the area of agriculture and enterprise development in Southern Kyrgyzstan. Their objective is to improve the living standards of the rural population by providing training and consultations as well as access to information, credits and agricultural inputs through our network of advisors. We offer support in the fields of agricultural development, agribusiness, development of women and youth initiatives, sustainable and efficient use of natural resources, etc. The organization was founded in 1999 at the initiative of the Government of Kyrgyzstan with the support of the World Bank, IFAD and the Government of Switzerland. The head office is in Jalal-Abad and sub-offices in all districts of Jalal-Abad Oblast. During the last years, RAS JA partnered with and received funding from the following donors and organizations: European Union, German Embassy, GIZ, Helvetas/Swiss Intercooperation, UN WOMEN, and USAID, etc. Additionally, the organization counts with an international advisor supported by the German Centre for International Migration and Development (CIM).	Medium Donor-supported service	High Interest to increase the share of paid services by local companies
LLC "Union of Advisors" (UA) – Agricultural Extension Services	LLC "Union of Advisors" (UA) was founded in 2013 under the Rural Advisory Service Jalal-Abad. Members of the LLC "UA" are ten professionals in the area of agricultural development. Purpose: Supply farmers high quality, certified agricultural inputs, combined with consultations on their appropriate use. LLC "UA" provides services throughout the Jalal-Abad Oblast as well as other regions in Southern Kyrgyzstan. Today LLC offers a large range of different products: High-quality seeds of high yielding varieties/hybrids of vegetables (tomatoes, cucumbers, peppers, cabbage, eggplant etc.), melons (watermelon, cantaloupe), grains (wheat, corn), oilseeds (soybeans , sunflower, cotton); saplings of fruit trees (apple, pear, peach, cherry, apricot); plant protection products - herbicides, pesticides ; chemical fertilizers (nitrogen) ; medications for the treatment of farm animals	Medium Donor-supported service	High Interest to increase the share of paid services by local companies

Table 20:
donor-supported programmes and initiatives in the sector

Name	Donor	Implementing Agency	Crops	Region	Description
Promotion of Sustainable Economic Development	SDC	GIZ	Apricots Plums	Jalal-Abad Osh	The project promotes value chains in various sectors to increase their competitiveness. Value chains include fruits and berries, and walnuts. The German-based Import Promotion Desk platform supports selected companies to take part in trade fair events in Germany. The project works with AFC Consulting Group (German) to provide consulting support in the implementation of food safety management systems and certification in global GAP, and food industry enterprises in the implementation of the HACCP Standard. The project also provides co-funding to economic development initiatives in Jalal-Abad Oblast. Through a collaboration with the GFA Consulting Group, the project also builds institutional capacity of stakeholders (both private and public).
AgroHorizon Service	USAID	ACDI-VOCA	Potatoes, fruits (apricots) and berries	Osh, Batken, Jalal-Abad, and Naryn	A 4-year project aiming to increase the productivity of agricultural producers and link them to markets; increase productivity and markets for agribusinesses; improve enabling environment for agriculture-sector growth; improve the nutritional status of women and children in the zone of influence.

3.4
PLUMS

A. Relevance

Context and market structure: Plums are the third most produced fruit grown in Kyrgyzstan, after apples and apricots. They account for three percent of the total fruit output.[64] This is mirrored in the rather small production surface area of 5,000 ha. Jalal-Abad is the largest plum producing Oblast in Kyrgyzstan. They are mostly wild plums, which are highly concentrated in four rayons. Some villages produce up to 800 tonnes of fresh plums annually. A relatively low share of harvested plums is kept for self-consumption as they are mostly consumed dried. While some micro-drying facilities exist, no large-scale processing unit exists in Jalal-Abad. Therefore, most of the harvested plums are sold to intermediaries. During the visit, the team observed the collection and smaller processing centres in the Jalal-Abad region. This increases the opportunity for farmers and producers to access services on quality improvement and standards compliance to access export markets, as these services are more likely provided to the organized sector.

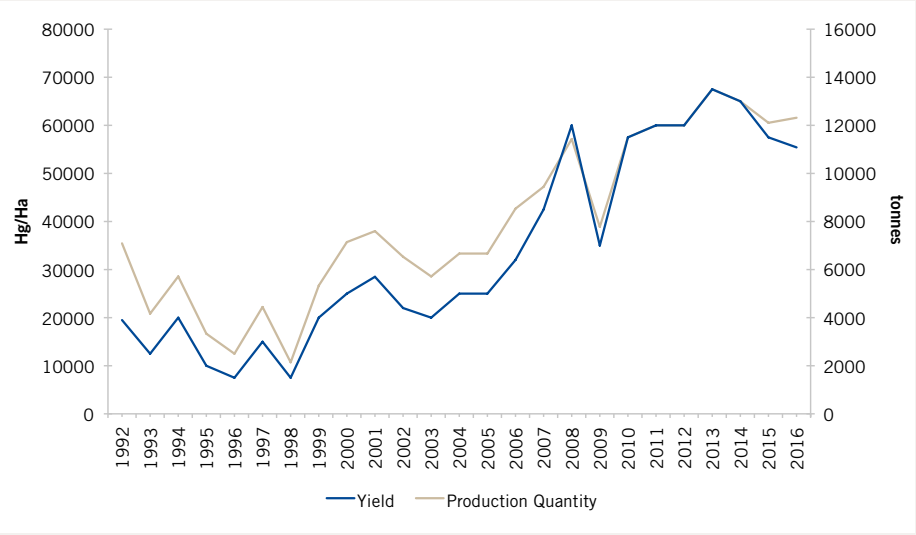
64. JICA (2013)

In the production and processing of dried plums, women are somewhat active – they are perceived as reliable partners and workers, and usually run control systems at processing facilities and green houses and also participate in the sales of seedlings.[65] Overall, there appears to be a positive correlation between increased female participation and innovation, particularly in value-added activities, such as in processing facilities. This same correlation is apparent in potatoes and apricots. According to the state administration, around 300 households are involved in their production of plums in the Jalal-Abad region.

B. Opportunity for inclusive growth

Sector size and growth trends: The Jalal-Abad region has the largest plum producer in Kyrgyzstan – accounting for roughly 90 percent to Kyrgyzstan's total plum production.[66] Total production volume is estimated to be between 15,000 and 20,000 tonnes on a surface area of 3,000 to 4,000 hectare.

Figure 21:
Plums and sloes production and yield in Kyrgyzstan[67]



The production quantity of plums and sloes in Kyrgyzstan increased from 3,000 tonnes in 1997 to 11,083 tonnes in 2016 growing at an average annual rate of around 14%. Though yields for plums and sloes have fluctuated over the past two decades, they have increased nearly three-fold between 1997 and 2016 – current production yields stand at 61,580 hg/ha. Concerning prices and demand, plums have less volatility in comparison to other crops such as walnuts.

Prospects for quality improvement and export growth: Of the three crops evaluated in the region (including apples and apricots), plums have the lowest export values, with only USD 941,000 reportedly exported in 2017. Kyrgyzstan's main export markets for plums are the Russian Federation and Kazakhstan. Over the past last five years, both the value and quantity of exports have diminished by 23% and 39%, respectively. In Jalal-Abad, some companies have started shifting exports to Uzbekistan, but in overall, this is not a relevant market yet.

65. GIZ Interview June 2018
66. FAO Statistics
67. FAO Statistics

Table 21:
Export markets and growth for Kyrgyz plums and sloes (fresh)[68]

Destination	Year 2017					Growth 2013-2017	
	Exported (USD 000s)	Trade balance (USD 000s)	Share of exports	Volume exports (tonnes)	Price/ ton	Export Value	Export volume
World	941	-1,641	100%	1,372	686	-23%	-39%
Russian Federation	493	493	52.4%	693	711		
Kazakhstan	449	439	47.7%	680	660	-42%	-52%

During the research, stakeholders perceived a positive trend in plum exports, but the evidence suggests otherwise. There is, however, an increasing demand originating in China some interviewed enterprises reported an interest from German buyers to import Kyrgyz slums (both fresh and processed). The enterprises reported that German buyers are willing to finance the development of training and quality improvement services for plum producers, including consultancy services, ICSC, and organic certification.[69] This was evidenced by Bio Service's collaboration with German buyers to train and certify plum producers on organic farming methods. Russian companies are also interested in investing in processing facilities for plums.[70] The usual collaboration is via pre-payment agreements.

C. Feasibility to stimulate change

Assessment of supporting services, their capacity and willingness to innovate:

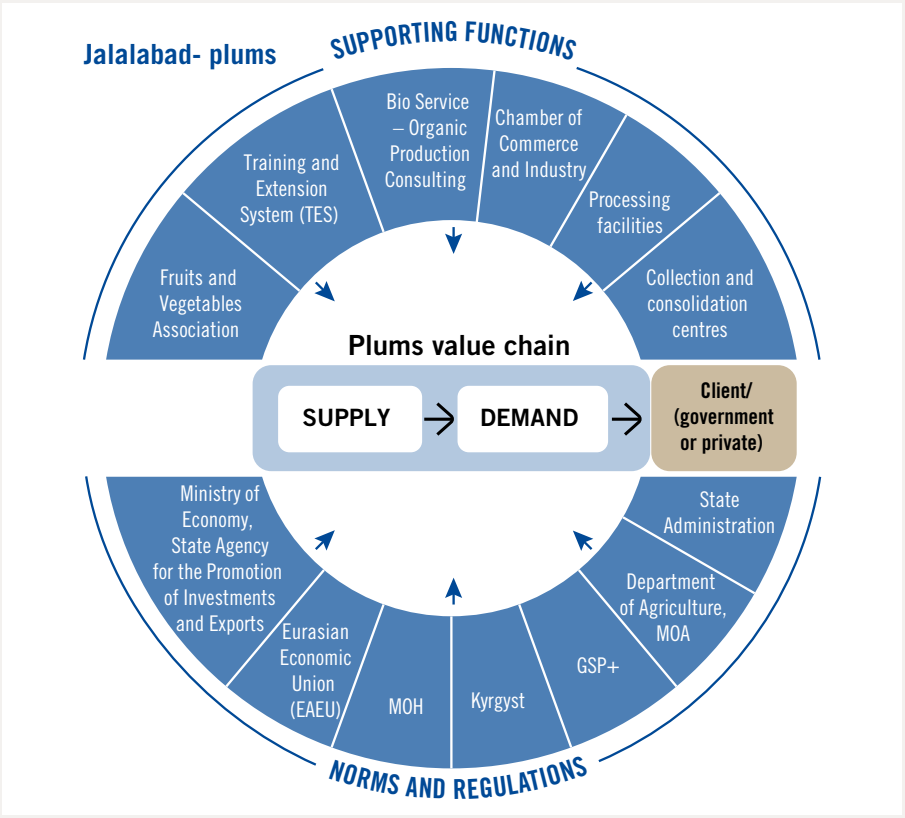
Agricultural extension services: fewer technical information and consulting services for plums are available relative to those for apricots and apples in the region, as only TES is available for this role. For the promotion of good agricultural practices and organic production, the sector has the presence of Bio Service, as a consulting service for organic production.

Associations and cooperatives: during the visit, the team met Aksy Bio Cooperative which works with Bio Service to increase their organic produce capacity.

Certification: Bio Service Consulting works to promote the adoption of organic practices in the plum sector in Jalal-Abad.

68. ITC Trademap
69. Interview with Bio Service, June 2018
70. GIZ Interview June 2018

Figure 22:
Supporting services and institutions in the plum sector in Jalal-Abad



The following table presents a description of some of the actors studied in this research, as well as a brief analysis of their institutional capacity and incentives to support the sector.

Table 22:
System-level actors in the plum market in Jalal-Abad

Stakeholder	Description	Skill	Will
Training and Extension System (TES) – Agricultural Extension Services	Training and extension services in agriculture. This is an NGO that aims at increasing the incomes of farmers. They provide consulting, advisory support to establish self-help initiatives unions and cooperatives; training; training of trainers; field advisors or F2F system; and research services. They work with plum producers (Jalal-Abad) and potato producers (Osh). They have offices in Osh and Bishkek. TES provides training to Aravan Agro Service on potato seed cultivation.	Medium Donor-driven service (most clients are donors; though TES also works directly with local clients and organisations) From 2011-2014 they did not work with donors, and their business survived. There is a growing share of services paid by local actors.	High
Bio Service – Organic Farming Consulting	Bio Service facilitates the adoption of organic farming, international organic certification, and quality management processes, through a variety of services such as training, ICSC, consultancy, and marketing services. Bio Service partners with bio-cooperatives to provide requested services.	Medium Donor-driven capacity to function, for which donors provide the linkage with buyers to finance certification and training of producers	High

Table 23:
Donor-supported programmes and initiatives in the sector

Name	Donor	Implementing Agency	Crops	Region	Description
Promotion of Sustainable Economic Development	SDC	GIZ	Apricots Plums	Jalal-Abad Osh	The project promotes value chains in various sectors to increase their competitiveness. Value chains include fruits and berries, and walnuts. The German-based Import Promotion Desk platform supports selected companies to take part in trade fair events in Germany. The project works with AFC Consulting Group (German) to provide consulting support in the implementation of food safety management systems and certification in global GAP, and food industry enterprises in the implementation of the HACCP Standard. The project also provides co-funding to economic development initiatives in Jalal-Abad Oblast. Through a collaboration with the GFA Consulting Group, the project also builds institutional capacity of stakeholders (both private and public).
AgroHorizon Service	USAID	ACDI-VOCA	Potatoes, fruits (incl. apples and apricots) and berries	Osh, Batken, Jalal-Abad, and Naryn	A 4-year project aiming to increase the productivity of agricultural producers and link them to markets; increase productivity and markets for agribusinesses; improve enabling environment for agriculture-sector growth; improve the nutritional status of women and children in the zone of influence.

3.5
CROSS-CUTTING CHALLENGES IN JALAL-ABAD

During the research, several challenges which more broadly constrain horticulture market potential in Jalal-Abad were identified. Specifically, these cross-cutting challenges included:

Inaccessible and costly certification services

Certification is generally inaccessible and costly, unless supported by donors – as is the case with apples and plums. Part of the problem relies on the long training and certification process. For instance, the standards compliance process is long and costly (this can take up to five years).[71]

Low commercialization and storage capacity

Processors identified that they have excess processing capacity – those with machinery and equipment still cannot find buyers. Part of the problem can be explained due to the lack of appropriate storage techniques and facilities to safeguard production. In one case, the processor was able to identify a buyer, but the raw was rejected due to loss of quality as result of poor storage. However, perhaps there is also a disconnect in the commercial linkage between processors and buyers.

Problems to reach required output volumes

In general, there is a limitation to reach output volumes that export markets demand.

High levels of informality

Businesses register as individual entrepreneurs, despite working with large numbers of employees and being able to qualify as legal entities. Workers are usually not registered. The process of formalization/registration can take between two and three years if the company is willing to go through the process.[72]

Storage methods are inappropriate in some processing facilities

71. According to Bio Service
72. TES Interview June 2018

4 ISSYK-KUL OBLAST

The Issyk-Kul region sits at an altitude of between 1,607m and 7439m above sea level and covers about 22,080 square kilometres. Of that, Issyk-Kul Lake covers 6,236 square kilometres – the second largest high altitude lake in the world. The region is surrounded by the Tian-Shan mountain range, the source of 123 rivers and streams are used for agricultural purposes.[73]

Figure 23:
Issyk-Kul region in Kyrgyzstan

73. Alymkulova, et al. (2016)

Karakol is the administrative capital for the oblast – 12 km off the lake's eastern point – and considered to be an agro-industrial base to the local economy. Balykchy lies to the west on the opposite side of the lake and is half way between Karakol and Bishkek. It is more industrialized (largely in food production and processing) than Karakol[74] and serves as the location for the recently developed Oberon Logistical Centre, the largest logistics centre in the region. Balykchy is also better connected to the other oblasts through rail systems, making it a strategic location for storing eventually exported produce to Kazakhstan.

There are roughly 483,000 people living in the oblast, which are primarily employed through agriculture and tourism. Roughly 70 percent live in what is considered rural areas. Despite having a lower poverty rate than the national average, 60-70 percent of people in the region are still considered to be living in poverty. Increased tourism (up to 1,000,000 people visit the region annually) is contributing to the development of the region, but poses challenges in terms of proper planning and land use.[75] [76]

As of 2016, 180,412 hectares of land in Issyk-Kul were used for cultivation, with 156,600 hectares occupied by small farms. 88,747 hectares were used for growing grain crops and 26,410 hectares for potatoes. Apples, apricots, pears, and berries were jointly grown on 8,041 hectares, equating to about 4.5% of cultivated areas.[77] [78]

Orchard fruits: apples, apricots, and pears

The Issyk-Kul region is traditionally known for livestock, grains, and potatoes as its primary agricultural products. However, the region is now seeing a shift in production patterns, as farmers choose to invest in fruit cultivation. In a 2015 study by AVEP, which conducted interviews with 50 farmers in Issyk-Kul, 90 percent of respondents indicated that it is more profitable to grow fruit trees than grains or potatoes. 95 percent of farmers interviewed said they wanted to increase their fruit tree production.[79] The regional economic development office in Karakol confirmed this, saying that farmers are diversifying by moving into fruit production, as it is seen as more lucrative, requiring less investment.[80]

Picture: Issyk-Kul juice products

Most of the existing support services for apples, apricots, and pears are the same, as are the rules and regulations that govern them. The major factors that set them apart in terms of development potential on the supply side are storage life and disease susceptibility, the latter most affecting pear production.

A. Relevance

Context and market structure: Apples: out of all sub-sectors considered under this assessment, the production volume for apples was the largest. In 2017, the Issyk-Kul region produced 38,567 tonnes of apples, which is about 28 percent of those produced nationally.[81] According to AVEP, the average volume of apples produced per farmer per year is 1.5 tonnes. The primary varieties of apples grown in Issyk-Kul are Kirgizkiy

74. ADB (2009)
75. National Statistical Committee of Kyrgyzstan (2018); IPSI (2017)
76. AVEP data. Received June 2018.
77. National Statistical Committee of Kyrgyzstan. Accessed June 2018.
78. AVEP data. Received June 2018.
79. AVEP (2015)
80. Interview with Head of Regional Economic Development in Issyk-Kul. 8 June 2018.
81. As a proportion of the 2016 national figure for total production

Zimniy and Prevoshodniy, with a harvest period from July to November. Prices for apples are lower at the beginning of the season at about 25 KGS/kilo and rise to 50 KGS/kilo at the end of the season.[82] There are three major processing plants for apples in Issyk-Kul near Balykchy, Cholpon-Ata, and Tyup.[83]

Apricots: Issyk-Kul produced 6,425.9 tonnes of apricots in 2017, about 27 percent of those produced nationally.[84] According to AVEP, the average volume of apricots produced per farmer per year is 1.2 tonnes. Mestniy oruk is the primary apricot variety grown in Issyk-Kul,[85] with a harvest period from June to August. Prices for apricots are higher at the beginning of the season at about 35 KGS/kilo and fall to 25 KGS/kilo at the end of the season.[86]

Picture: fruits market in Issyk-Kul region

Apricots are particularly famous in the Jeti-oguz village of Issyk-Kul. According to a collector in the area, the north side of Issyk-Kul Lake is better known for apples, whereas the south side of the lake is more so known for its apricots.

Pears: compared to apples and apricots, the production volume in Issyk-Kul is much lower, at 353.4 tonnes in 2017, which is about 3.4 percent of those produced nationally.[87] According to AVEP, the average volume of pears produced per farmer per year is 700 kg. Pear production in the country has in general seen a decline over the past five years, which according to farmers, is due to their susceptibility to disease. The primary varieties of pears grown in Issyk-Kul are Lesnaya krasavitsa and Talgarka, and a harvest period from July to November. Similarly to apples, prices for pears are lower at the beginning of the season at about 30 KGS/kilo and rise to 40 KGS/kilo at the end of the season.[88]

Across crops: according to interviews, the majority of fruits grown in the region is sold fresh, although there are a few juicing facilities. Due to the climatic conditions, it is difficult to dry fruit naturally. A few farmers or cooperatives own drying machines, but they are small-scale. Those that are dried or sent to a juicer are typically damaged or of a sub-standard size. According to the Ministry of Agriculture, there are 32 fruits and vegetables processors in Issyk-Kul, including 26 small enterprises and six large companies. The number of facilities processing fruits was not provided, nor the specific type of processing.[89]

As of 2015, there were at least 20 nurseries in Issyk-Kul, larger ones employing an average of 20 workers, roughly 60% women. The percentage of crop saplings were 40 percent apples, 30 percent apricots, 20 percent pears, 5 percent cherries, and 5 percent other.[90] Kyrgyz nurseries, however, do not meet demand – both in quantity and quality – and many saplings are imported from abroad.

Table 24:
Fruit saplings in Issyk-Kul in 2015

Crop	No. of Saplings
Apples	6,000
Apricots	29,500
Pears	9,000
Berries	20,000

82. AVEP (2015); AVEP data received June 2018.
83. M-Vector (2014)
84. As a proportion of the 2016 national figure for total production
85. AVEP (2015)
86. Ibid
87. As a proportion of the 2016 national figure for total production
88. AVEP 2015
89. Ministry of Agriculture. Data received 27 June 2018.
90. AVEP 2015

According to AVEP, roughly 60 percent of household producers of orchard fruits and berries are women, saying that women tend to be more successful: "Women play a key role in household management and are easier to train." Heads of cooperatives interviewed during the RMA indicated that their members were closer to 75 percent women.

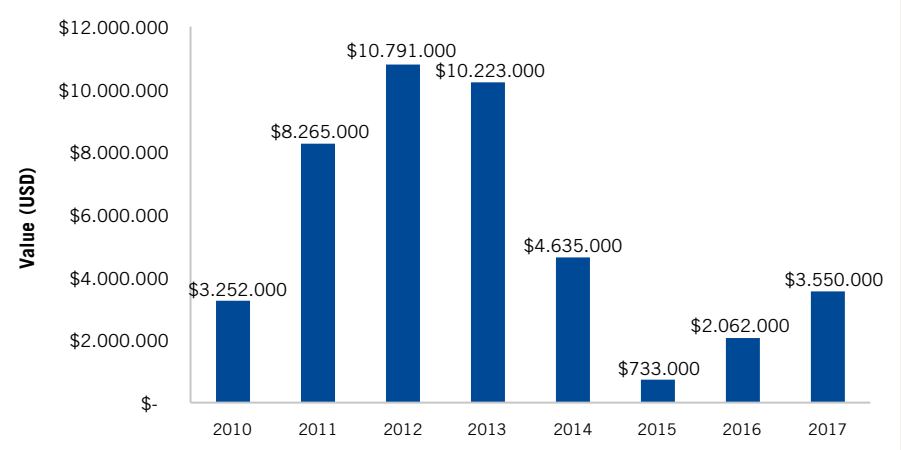
Table 25:
Harvest calendar (apples, apricots, pears)[91]

Crop	J	F	M	A	M	J	J	A	S	O	N	D
Apples							H	H	H	H	H	
Apricots						H	H	H				
Pears							H	H	H	H	H	

B. Opportunity for inclusive growth

Sector size and export growth: Apples: Russia and Kazakhstan are the primary export markets for apples, with small markets in Uzbekistan and Tajikistan. Export data for apples originating from the Issyk-Kul region were not available, but at a national level exports of fresh apples in 2017 were 5,373 tonnes valued at US$3,550,000, or US$661/ton. Exports of fresh apples fell steeply from 2013 to 2015 by 93 percent, but have slowly recovered between 2015 and 2017 (384 percent), as can be seen in the figure below.[92]

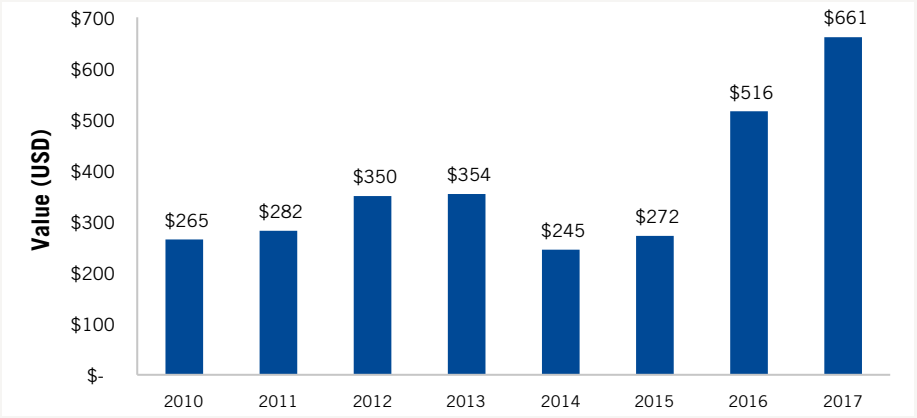
Figure 24:
Export value of fresh apples (USD; 2010-2017)



However, despite this sharp fall in exports, the unit value of exported apples per ton rose significantly from $265 per ton in 2010 to $661 per ton in 2017, as can be seen in the figure below.

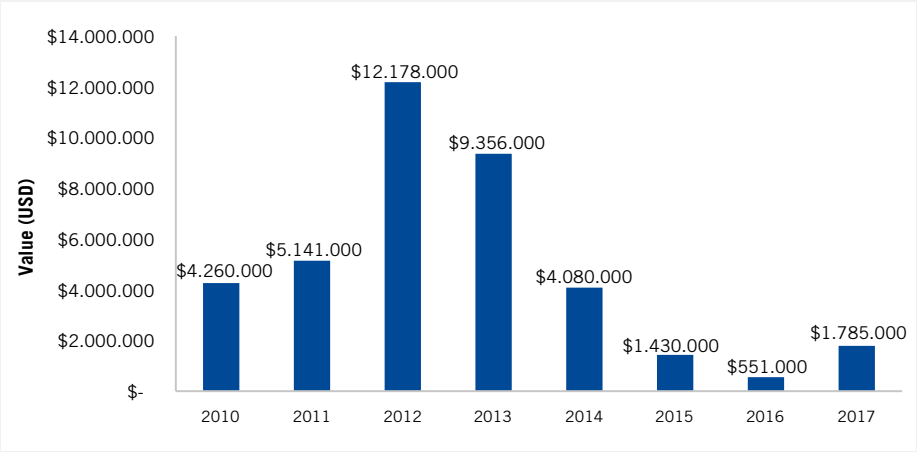
91. Ibid
92. ITC Trademap. Accessed July 2018.

Figure 25:
Unit value of fresh apple exports per tonne (USD; 2010-2017)



Apricots: International markets for apricots are Russia and Kazakhstan. Export data for apricots originating from the Issyk-Kul region were not available, but at a national level, exports of fresh apricots in 2017 were 2,233 tonnes valued at US$1,785,000, or US$799/ton. Exports of fresh apricots fell quite steeply from 2012, when they were valued at US$12,178,000, to US$551,000 in 2016 (a 95 percent fall), but started to recover in 2017 (up 224 percent from the previous year), as can be seen below.[93]

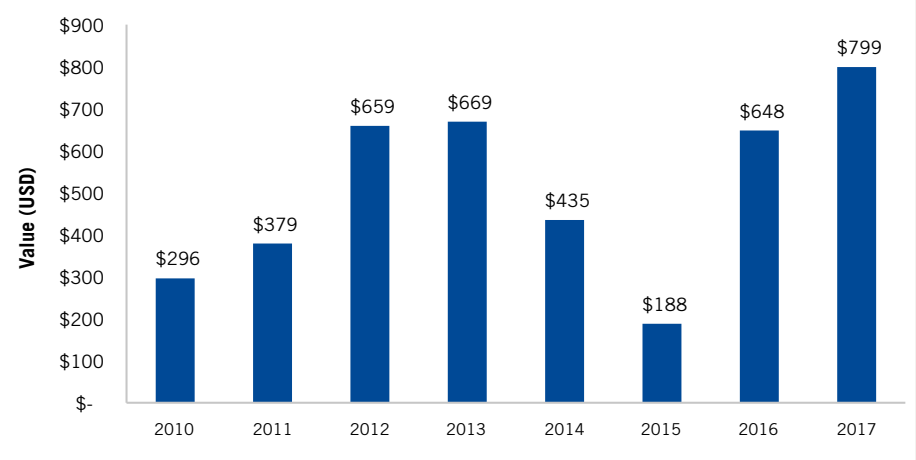
Figure 26:
Export value of fresh apricots (USD; 2010-2017)



While the unit (per ton) value of apricot exports fell with the overall export value, it recovered after 2015 and rose to UD$799 per ton in 2017, a 149 percent increase since 2010, as seen below.

93. ITC Trademap. Accessed July 2018.

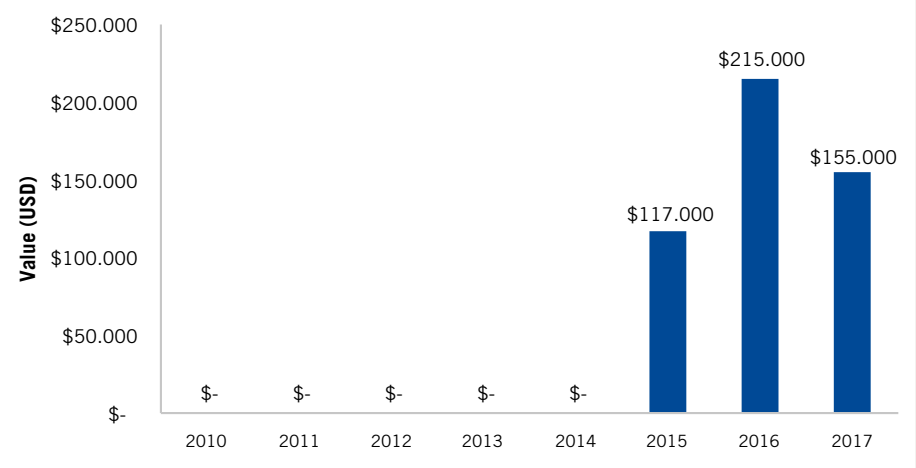
Figure 27:
Unit value of fresh apricot exports per ton (USD; 2010-2017)



Fresh apricots are sold for a higher price in Russia at US$823/ton than they are in Kazakhstan at US$749/ton.

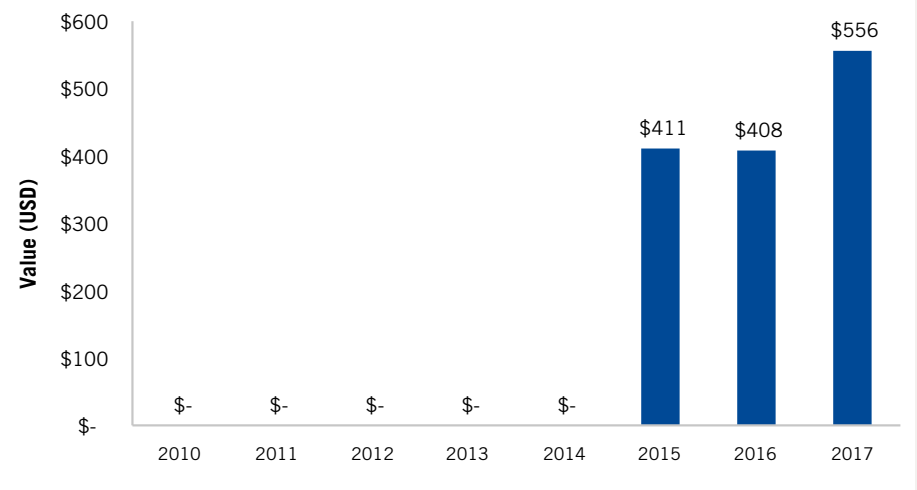
Pears: International markets for pears are Kazakhstan, Russia, and Mongolia. Export data for pears originating from the Issyk-Kul region were not available, but at a national level, exports of fresh pears in 2017 were 279 tonnes valued at US$155,000, or US$556/ton. According to available data, pears do not appear to have been exported prior to 2015. While production has decreased, the unit price rose from 2016 to 2017, as can be seen below.[94]

Figure 28:
Export value of fresh pears (USD; 2010-2017)



94. ITC Trademap. Accessed July 2018.

Figure 29:
Unit value of fresh pear exports per ton (USD; 2010-2017)



The local government in Karakol is eager to expand production areas by supporting farmers to convert currently non-productive soil into arable farmland.[95] Narsu is an agricultural cooperative that was one of the first to do this. Established in 2010, it currently produces apples, apricots, pears and plums using a drip irrigation system on 80 hectares of land, which expands annually. It employs 11 permanent workers (four women and seven men) and 200 seasonal workers (80 percent women) during the harvest.[96]

The below table summarizes the export volume and value of the three main orchard crops produced in Issyk-Kul (bearing in mind that the figures are nation-wide).

Table 26:
Export volume and value for orchard crops in Issyk-Kul 2017 (national production)[97]

Destination	Apples (Fresh)		Apricots (Fresh)		Pears (Fresh)	
	Vol. (tonnes)	Value (USD)	Vol. (tonnes)	Value (USD)	Vol. (tonnes)	Value (USD)
Russia	1,927	1,437,000	1,523	1,253,000	27	20,000
Kazakhstan	3,218	2,052,000	710	532,000	250	135,000
Uzbekistan	212	57,000	0	0	0	0
Mongolia	17	4,000	0	0	2	1,000

Prospects for quality improvement and export growth:

Cold chain storage and logistics

Cold chain storage facilities and improved logistics are key enablers of export growth in the fruit sector and are currently limited. Cold chain storage facilities allow for fruits to be preserved and aggregated, and allow fresh fruit to be exported to buyers at specific times and in specific quantities. Cooled storage and logistical centres do exist, with the

95. Interview with Head of Regional Economic Development in Issyk-Kul. 8 June 2018.
96. Interview with Narsu staff member. 9 June 2018.
97. ITC Trademap.org. Accessed July 2018.

largest one – Oberon Logistical Centre – located in Balykchy. Oberon recently opened in 2016 with the capacity to store up to 2,400 tonnes of fresh produce. It mainly stores apples, apricots, pears, and cherries, not just from Issyk-Kul but the south as well. The facility is compliant with HACCP and is regularly contacted by buyers and investors, making it an important gateway to international markets (Oberon interview).

The existence of facilities like Oberon is a positive indicator in terms of prospects for growing exports, particularly because fruits exports in Issyk-Kul are almost entirely sold in fresh form. However, given the fragmentation of production, access by and coordination with smaller producers will need to be enhanced in order to optimize the amount of produce taken into these facilities and to appeal to buyers requesting large orders that they current cannot fulfil.

Picture:
Oberon Logistical Centre in Balykchy

Production levels

Aggregated production needs to significantly increase if the region is to be able to work with big international buyers and increase exports. One of the biggest issues contributing to limited production and aggregation is the mistrust between producers and buyers (processors in some cases), largely in part to poorly enforced laws and contracts that would otherwise hold each other accountable to contractual agreements. Regardless of the existence of a pre-season agreement, buyers may reduce the price they are willing to pay producers. Knowing this, producers will also sell to a different buyer if they can get a higher price. This prohibits the aggregation of produce for the fulfilment of orders abroad (see more in cross-cutting issues at the end of the Issyk-Kul chapter).

Disease

Pears in the Issyk-Kul region have suffered rust disease, which has resulted in many farmers having to cut down their entire pear orchard and start with new saplings. However, farmers complain that this does not necessarily resolve the problem, as the disease can return if neighbouring farms do not also remove their infected trees at the same time. No effective solution has been introduced to treat the disease, which has resulted in farmers phasing out of pears and into apples and apricots, which are immune to the disease. This problem results in part due to the lack of agronomists in Kyrgyzstan.

C. Feasibility to stimulate change

Active support services in Issyk-Kul are primarily provided by NGOs and non-profits or are private service providers that are directly subsidized by donor money.

Figure 30:
Supporting services and institutions in the orchard and fruits sector in Issyk-Kul

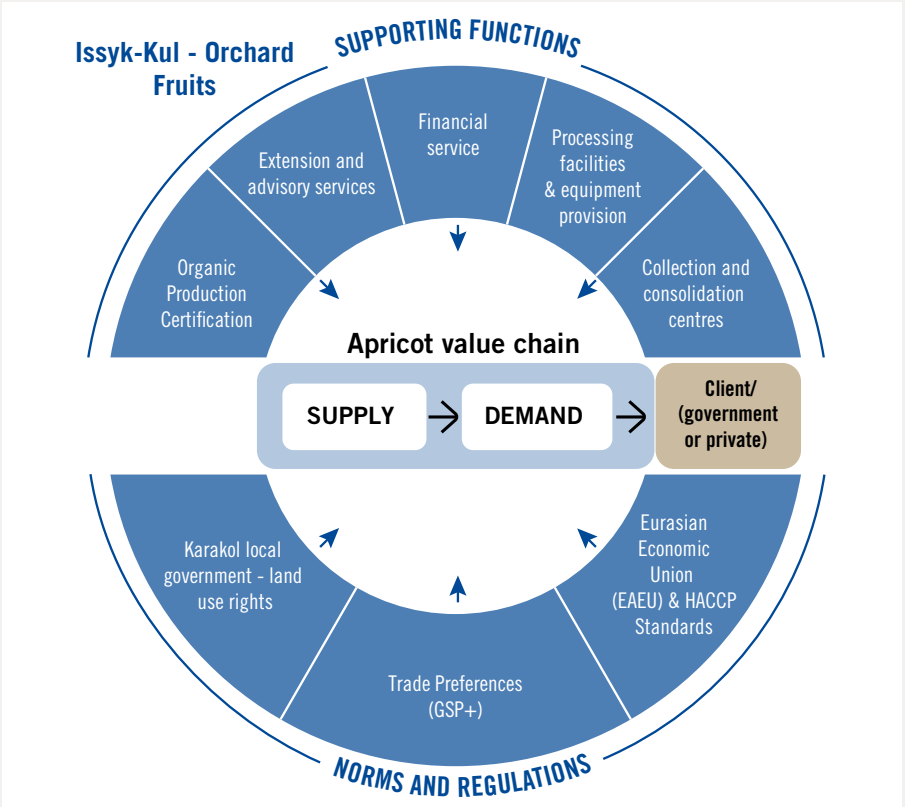


Table 27:
Capacity and willingness of market players (local stakeholders and donor initiatives) to change

Stakeholder/donor program	Description	Skill	Will
AVEP/Karagat+	Karagat+ was established in 2013 under the public fund known as AVEP (previously a Swiss-funded project standing for Agricultural and Rural Vocational Education Project). They provide training in several technical areas related to fruit production in Issyk-Kul. Karagat+ has also tried to help connect producers to buyers through its annual festival in which local producers showcase their products. The festival has been running since 2014 (AVEP interview). Under AVEP, ten farming groups were established with 1500 members from 50 villages. They are particularly active in supporting producers of black currant ("karagat" means black currant).	High	High
Issyk-Kul Organic Cooperative	Established in 2012 and formally registered in 2016, Issyk-Kul Organic has over 220 members. It is the only cooperative certified in organic production in Issyk-Kul. The head of the cooperative travels on study tours to try to meet new international buyers and learn about new opportunities. The cooperative currently receives support from GIZ in organic production. They are certified by Organic Standard.	Medium	High
Bio Service (Organic certification)	Bio Service facilitates the adoption of organic farming, international organic certification, and quality management processes, through a variety of services such as training, ICSC, consultancy, and marketing services. Bio Service partners with bio-cooperatives to provide requested services. Orchard fruits certified by Bio Service in Issyk-Kul include apples, plums, and pears.	Medium (based in Jalal-Abad)	High
Karakol local government	The local government in Karakol is eager to expand production areas by supporting farmers to convert currently non-productive soil into arable farmland. They have provided support to cooperatives in the form of backing simplified machinery leasing agreements but have expressly noted that they are interested in finding further avenues of supporting producers.	Low	Medium
JICA / OVOP Association	The One Village One Product (OVOP) Association, funded by JICA, was established in 2011 in order to help CBOs in the Issyk-Kul region to produce value-added products. The association consists of 176 community-based organizations and over 1,700 members. Their food products include jams, salts, dried fruits, honey, spices, and more. They work with producers of apples, apricots, berries (sea-buckthorn, barberries, raspberries, and wild berries), floral herbs (chamomile and dandelion), wild mushrooms, and more. OVOP experiments with producing new products, striving to generate new niche products (like pinecone jam), thus making it one of the more innovative support services.[98]	High	High
Oberon Logistical Centre	Oberon recently opened in Balykchy in 2016 with the capacity to store up to 2,400 tonnes of fresh produce. It mainly stores apples, apricots, pears, and cherries, not just from Issyk-Kul but the south as well. The facility is compliant with HACCP and is regularly contacted by buyers and investors, making it an important gateway to international markets.	Medium	Medium
Union of Cooperatives	Provide support to regional cooperatives in the form of study tours	Medium	Unknown (not interviewed)
Municipal Enterprise - Bal shireh	Located in Ak-Terek/Jeti-Oguz rayon. It was supported by the Kumtor Gold Mining company to produce different types of juices and jams from local fruits and jams.	NA	NA

continue →

98. JICA OVOP Marketing Catalogue and interviews.

Stakeholder/donor program	Description	Skill	Will
Farmer-to-Farmer / USAID	The Farmer-to-Farmer program is a USAID-funded project implemented by ACDI-VOCA. The project sponsors agricultural specialists from the United States to help Kyrgyz farmers, agribusinesses, and advisory services to improve their current knowledge of production and processing techniques. The project has worked on strengthening cooperatives and improving cold storage system. The project is coming to a close, but are expecting the next phase. While the program does bring relevant expertise to producers, experts come for only a couple of weeks at a time. Thus the service itself is not sustainable.	Medium	Medium
Open Joint Stock Company Yntymak	Located in Balykchy. It has own 2 ha apricot trees and 21 ha apples trees in the Ananyevo and Grigorievka villages. The enterprise also collects apples and apricots from the local population. About 15 0000 of 3 liter-jar apricot in July-August with and about 15 0000 of 3 liter-apples juices in September-October are produced.	NA	NA
Issyk-Kul Shiresi LTD	Located in Balykchy, which produces only 3-litre apple juices. Volume is not significant. The company collects apples from the population.	NA	NA
Compromservice LLC	Located in Cholpon-Ata, working more than 20 years. The company produces different varieties of juices and processed products under the branding "Soki Issyk-Kul". Fruit storage facility is available.	NA	NA
Fair LTD	Located in Karakol city, producing "Eco Juice" apple juices in combination of barberry, pears, tomatoes, and apricots.	NA	NA
Grogoriyeskiy Sad farming collective	Located in Grigoryevka village - a producer of 3-liter Bag-in-Box juices under the branding "Nakktai" from the applies with different fruits such as pears and peaches.	NA	NA

4.1
WILD BERRIES

A. Relevance

Context and market structure: Berry production in Issyk-Kul has risen over the past few years, up from a reported 3,591.4 tonnes in 2015 to 4,355.4 tonnes in 2017 (a 21 percent increase in total production). This is substantially more than Osh and Jalal-Abad, which produced and 21 and 150.2 tonnes respectively in the same year. Black currant makes up 78 percent of total berries produced,[99] while strawberries, raspberries, and blackberries constitute a much smaller portion of the market. The harvest period for berries is from June to August.

3,391 tonnes of black currant were produced in Issyk-Kul in 2017, but they remained on the domestic market, as black currant is not currently exported from Kyrgyzstan. Nevertheless, Kyrgyzstan does export other berries, such as strawberries (109 tonnes were exported in 2017, valued at US$104,000) and raspberries (35,414 tonnes were exported in 2017, valued at US$382,000).[100]

Data received from the Ministry of Agriculture concerning the production of each berry crop over the past three years in Issyk-Kul are reflected in the table below. The data, however, is inconsistent, as the total berries figure does not match the sum of the individual berry crops, making the figures unreliable.

99. These figures do not include foraged berries, like sea buckthorn
100. ITC Trademap.org. Accessed July 2018.

Table 28:
Production yields per crop in tonnes per year[101]

Crop	Tonnes produced per year		
	2015	2016	2017
Black currant	data not available	988.6	3,391.0
Blackberries	data not available	data not available	9.0
Raspberries	data not available	303.5	471.9
Strawberries	data not available	35.2	483.5
All berries	3,591.4	4,217.9	4,355.4

According to AVEP, the average volume of black currant produced per farmer per year is 300 kg; of raspberries, 80 kg per year; of barberries, 100 kg per year; and of sea buckthorn, 150 kg per year, as shown in the table below.

Table 29:
Volume per farmer per year (wild berries)[102]

Blackcurrants	Raspberries	Barberries	Sea buckthorn
300 kg	80 kg	100 kg	150 kg

Based on the two tables above, it can be assumed that approximately 11,300 farmers are engaged in the production of black currants and 5,900 farmers in raspberries.

B. Opportunity for inclusive growth

Based on interviews, fresh and frozen berries in Issyk-Kul – specifically black currant and raspberries – are generally perceived as having high growing potential and are demanded abroad, particularly in fresh and frozen form (Helvetas interview).

With sea buckthorn, as it grows in the wild, there is a risk of overexploitation. The wild berry also grows throughout Russia, limiting its potential to be exported regionally (Helvetas interview). During the field visit, it was found that the little processing that was being done with sea buckthorn was for niche products, like salts and exotic jams and jellies. The One Village One Product Association, supported by JICA, is working on such products.

101. National Statistical Committee of Kyrgyzstan
102. AVEP data

C. Feasibility to stimulate change

Table 30:
Capacity and willingness of market players (local stakeholders and donor initiatives) to change

Stakeholder/ donor program	Description	Skill	Will
AVEP/Karagat+	Karagat+ was established in 2013 under the public fund known as AVEP (previously a Swiss-funded project standing for Agricultural and Rural Vocational Education Project). They provide training in several technical areas related to fruit production in Issyk-Kul. Karagat+ has also tried to help connect producers to buyers through its annual festival in which local producers showcase their products. The festival has been running since 2014 (AVEP interview). Under AVEP, ten farming groups were established with 1500 members from 50 villages. They are particularly active in supporting producers of black currant ("karagat" means black currant).	High	High
Issyk-Kul Organic Cooperative	Established in 2012 and formally registered in 2016, Issyk-Kul Organic has over 220 members. It is the only cooperative certified in organic production in Issyk-Kul. The head of the cooperative travels on study tours to try to meet new international buyers and learn about new opportunities. The cooperative currently receives support from GIZ in organic production. They are certified by Organic Standard.	Medium	High
Bio Service (Organic certification)	Bio Service facilitates the adoption of organic farming, international organic certification, and quality management processes, through a variety of services such as training, ICSC, consultancy, and marketing services. Bio Service partners with bio-cooperatives to provide requested services. Of the berry varieties, blackberries are certified by Bio Service in Issyk-Kul.	Medium (based in Jalal-Abad)	High
Bulan-Sogottu Village	Cooperative specialized in wild berries, primarily black currant; JICA-supported	Medium	Medium
JICA / OVOP Association	The One Village One Product (OVOP) Association, funded by JICA, was established in 2011 in order to help CBOs in the Issyk-Kul region to produce value-added products. The association consists of 176 community-based organizations and over 1,700 members. Their food products include jams, salts, dried fruits, honey, spices, and more. They work with producers of apples, apricots, berries (sea-buckthorn, barberries, raspberries, and wild berries), floral herbs (chamomile and dandelion), wild mushrooms, and more. OVOP experiments with producing new products, striving to generate new niche products (like pinecone jam), thus making it one of the more innovative support services.	High	High
Union of Cooperatives	Provide support to regional cooperatives in the form of study tours	Medium	Unknown (not interviewed)

4.2
MEDICINAL HERBS

No interviews were planned during the mission to gather specific information on medicinal herbs, and production and export data were not requested from the relevant ministries. Therefore the information gathered on the sub-sector is limited to qualitative information provided by a couple of knowledgeable stakeholders.

A. Relevance

Reports indicate that Kyrgyz farmers harvest between 700 and 1,000 tonnes of dried herbs, 90 percent of which are exported to Uzbekistan, Kazakhstan, the PRC, South Korea, India, France, Japan, and Russia. Over one thousand households are estimated to be engaged in herb cultivation nationwide, the majority residing in Issyk-Kul.[103]

Medicinal herbs, however, is a less developed market. There are 61 herb species that may be classified as medicinal in Kyrgyzstan. An additional 40 are considered as being used for medicinal purposes when including in the definition photo-teas and dietary supplements. Only 5 to 7 of these are grown by producers, valerian being the primary species in Issyk-Kul. The benefit of growing herbs, valerian, in particular, is that prices are relatively steady when compared to other potatoes, for instance. Farmers with Issyk-Kul Organics are able to get 55 soms/kilo for fresh valerian and 230-240 soms/kilo for dried valerian.

B. Opportunity for inclusive growth

According to the Institute of Chemistry and Phytotechnology of the National Academy of Sciences, there are interested investors in medicinal herbs from Japan, China, South Korea, Germany, Russia, Uzbekistan, and others. However, as in the case of fruits and vegetables, it is difficult for producers to meet the requirements of foreign buyers. Production capacity does exist, though, as unorganized planting and harvesting sometimes lead to overproduction.[104] According to one cooperative, there used to be about 300 producers of medicinal herbs in Issyk-Kul, but many of them have phased out, due to problems with findings buyers.[105]

Pictures:
Valerian cultivation in Issyk-Kul

103. GIZ, UNIDO Kyrgyzstan briefing note.
104. Interview with the Institute of Chemistry and Phytotechnology. June 2018.
105. Interview with Issyk-Kul Organics

Galenpharm is the main buyer of valerian in Issyk-Kul, which processes and supplies valerian products to Schwabe in Germany. This business model was facilitated by a GIZ project. Galenpharm has preseason contracts with some producers but not all. Some producers switched their cooperative affiliation just to become contracted by Galenpharm. Others perceived Galenpharm's contract terms as unfavourable.

There is no Kyrgyz certifying entity for organic production; however, BioService in Jalal-Abad has been subcontracted in the past by a Ukrainian company called Organic Standard to provide certification. GIZ organized and paid for the organic production certification, which needs to be renewed each year. GIZ may not fund the renewal this year, and farmers are aware that they will likely need to begin financing it out of their own resources, which, according to producers interviewed, can cost up to 1 million soms.

The head of Issyk-Kul Organics, with the support of the Union of Cooperatives in Bishkek, completed several "study tours" – including to Japan, Germany, and India – to learn about new market opportunities abroad and meet buyers. In India, she met a large pharmaceutical company interested in sourcing organic valerian and signed a general agreement for cooperation. Representatives of the company will visit her farm to assess the importability of her products. It is not yet known what the new buyer will pay, but it is the hope of the farmer that it will begin to make the market more competitive. According to Issyk-Kul Organics, there is a 5 ton minimum for exporting valerian.

C. Feasibility to stimulate change

Table 31:
Capacity and willingness of market players (local stakeholders and donor initiatives) to change

Stakeholder/ donor program	Description	Skill	Will
Issyk-Kul Organic Cooperative	Established in 2012 and formally registered in 2016, Issyk-Kul Organic has over 220 members. It is the only cooperative certified in organic production in Issyk-Kul. The head of the cooperative travels on study tours to try to meet new international buyers and learn about new opportunities. The cooperative currently receives support from GIZ in organic production. They are certified by Organic Standard.	Medium	High
Bio Service (Organic certification)	Bio Service facilitates the adoption of organic farming, international organic certification, and quality management processes, through a variety of services such as training, ICSC, consultancy, and marketing services. Bio Service partners with bio-cooperatives to provide requested services. Valerian is currently the only medicinal herb variety certified by Bio Service in Issyk-Kul.	Medium (based in Jalal-Abad)	High
Galernpharm / Schwabe	Galenpharm is a local company in Issyk-Kul, specialized in plant extracts and supplies to Schwabe. Galenpharm worked with GIZ and Schwabe to train 1,000 smallholder farmers in valerian cultivation and 14 as agricultural extension officers.[106]		
GIZ	GIZ provides financial and consulting support to producers engaged in medicinal plant cultivation. Funding covered the purchase of seeds, the acquisition of facilities and drying equipment, and training seminars. GIZ facilitated the buyer relationship between Galenpharm and producers in Issyk-Kul.	High	High (speculative, not interviewed)

continue ➔

106. GTZ (2016).

Stakeholder/donor program	Description	Skill	Will
Karakol local government	The local government in Karakol is eager to expand production areas by supporting farmers to convert currently non-productive soil into arable farmland. They have provided support to cooperatives in the form of backing simplified machinery leasing agreements but have expressly noted that they are interested in finding further avenues of supporting producers.	Low	Medium
JICA / OVOP Association	The One Village One Product (OVOP) Association, funded by JICA, was established in 2011 in order to help CBOs in the Issyk-Kul region to produce value-added products. The association consists of 176 community-based organizations and over 1,700 members. Their food products include jams, salts, dried fruits, honey, spices, and more. They work with producers of apples, apricots, berries (sea-buckthorn, barberries, raspberries, and wild berries), floral herbs (chamomile and dandelion), wild mushrooms, and more. OVOP experiments with producing new products, striving to generate new niche products (like pinecone jam), thus making it one of the more innovative support services.	High	High
Union of Cooperatives	The Union of Cooperatives provide support to regional cooperatives in the form of study tours, meant to develop new market relationships with foreign buyers and to facilitate learning about the types of products demanded on international markets.	Medium	Unknown (not interviewed)
The Institute of Chemistry and Phytotechnology of the National Academy of Sciences of Kyrgyzstan	The Institute of Chemistry and Phytotechnology of the National Academy of Sciences researches, consults, and conducts training seminars on growing, harvesting, drying, and storing organic medicinal plants in Kyrgyzstan, including Issyk-Kul. They have published articles on the cultivation, harvesting, and sustainable use of medicinal plants. The Institute regularly participates in exhibitions, where it presents samples of cultivated and wild medicinal plants from Kyrgyzstan, and advises farmers and students on the identification and use of medicinal plants and medicinal raw materials.	High	Medium

4.3
CROSS-CUTTING CHALLENGES IN ISSYK-KUL

▶ Production volume and contract fulfilment: a problem of trust

There is substantial mistrust between producers and processors (and other off-takers/buyers), largely in part to poorly enforced laws and contracts that would otherwise hold each other accountable to contractual agreements. Processors operate well under capacity, complaining that they can't source enough raw materials. Some establish pre-season contracts with producers, yet still claim that farmers frequently break the agreements, choosing instead to sell elsewhere if prices are higher. Producers, on the other hand, claim that processors also tend to break contracts if they can find cheaper raw.[107]

107. Stakeholder interviews. June 2018.

Helvetas tried to strengthen the relationships between the two by contracting extension services to organize a collection and delivery system, but the farmers reportedly still largely failed to meet volume requirements.[108]

Some companies elsewhere in Kyrgyzstan have overcome this problem by investing in their suppliers and showing a clear commitment to a long-term relationship. Such was a case with Agroplast, a fruit and vegetables processor based in Kyzyl Kiya (in the South). They provided small loans to suppliers to invest in inputs like fertilizer as well as participated in regular working group meetings with their suppliers to better share information regarding the challenges that each is facing (and initiative facilitated by Helvetas and ICCO). Agroplast also had a clear track record of cutting ties with producers that don't fulfil orders, which also helped ensure order fulfilments (Arndt, Cormier, and Ryzanov 2005).[109] Therefore showing support to suppliers, while also demonstrating clear implications for unfulfilled contracts, helped to build trust from both parties and ultimately led to a more stable supply of raw materials for processors and income for producers.

- **Compliance**

While the focus of the report was on production constraints and not on standards compliance, because the findings of this report will serve as inputs to the UNIDO project document on quality infrastructure, informants were asked generally what they considered to be the most difficult requirements to comply with, and the response was uniformly applying the HACCP principles (as part of Technical Regulation 21 within the EAEU).[110] For small producers that also engage in processing, because they mostly operate on household plots, storage and processing happen within the home. Therefore, adapting their physical space to the requirements of HACCP is particularly challenging.

- **Finance and capital**

The research team was not able to interview financial service providers, but access to finance was clearly an obstacle for both producers and processors (or at least those producers who wanted to upgrade to participate also in processing activities). Producers expressed that credit is available to them, but it is perceived as very risky since if for any reason their crops fail, borrowers will be left with significant debt. Crop insurance was not known to exist, according to the producers interviewed.

As mentioned earlier, the local government in Karakol is willing to support farmers, particularly those who are willing to work with non-arable land to convert it into productive land. For Narsu, the support came in the form of being able to acquire a tractor on simplified lease terms.[111] The extent to which these terms made a substantial contribution towards enabling Narsu to obtain the farm equipment is not known.

- **Skills and technology**

Machinery and equipment are outdated. Those companies that do manage to upgrade to modern technology, the services and infrastructure in the market system to support its use are not existent: mechanics, for example, are not familiar with hair to repair or service it, and when replacement parts are needed, it can take several days just to find it. Curricula in educational and training facilities are also structured around old technology, thus hindering the development of knowledge and skillsets.[112] The sector overall lacks much needed specialized skills from professions like agronomists to identify and treat crop pests and diseases.

108. Interview with Helvetas. June 2018.
109. Ardnt et al. (2005)
110. UNIDO Kyrgyzstan Briefing note
111. Narsu interview. June 2018.
112. Shared experiences from participants at the AgroHorizon Forum in Bishkek. June 2018.

5 CONCLUSIONS AND RECOMMENDATIONS

Based on the research conducted within the scope of the study, scores were given to each sub-sector for the criteria groups 'relevance', 'opportunity', and 'feasibility' in each of the three oblasts. Overall, apples and apricots were found to hold greater potential for promoting export growth than the other sub-sectors (with the exception of apricots scoring slightly lower than potatoes in Osh). As the two sub-sectors share many of the same market players, the project could easily design interventions that support the development of both apples and apricots – which may also have positive externalities across other orchard fruits as well. Berry products and medicinal herbs have the potential to serve smaller niche markets, but significant investment will be needed to develop the market and establish buyer relationships.

Table 32:
Scoring matrix of sub-sectors per region

Scoring matrix of sub-sectors per region				
	Relevance	Opportunity	Feasibility	Total
Osh				
Potatoes	3	2	1	6
Apples	2	2	2	6
Apricots	1	2	1	4
Jalalabad				
Apples	2	3	2	7
Apricots	3	2	2	7
Plums	1	1	1	3
Issyk-Kul				
Apples	3	3	2	8
Apricots	3	3	2	8
Pears	2	1	1	4
Berries	2	2	1	5
Medicinal herbs	2	2	1	5

Once a final decision is made with regards to which oblast to focus its activities, the GQSP project should conduct a deeper market systems analysis on the underlying causes to the constraints outlined in each chapter, so as to ensure that project interventions introduce sustainable market-driven solutions. As mentioned in the body of the report, production volume is perceived by stakeholders across all regions as a hindrance to value addition and export promotion, yet the reasons for low production for aggregation or processing appear to be linked to other factors such as weak market relationships, access to services, outdated technology and limited access to storage facilities, for example. It is highly advisable, therefore, that the project looks at such underperforming support services to complement existing interventions relating to better standards compliance. This will enable the project to support market development from multiple angles and raise prospects for more sustainable and inclusive growth of the specific value chains once the project phases out.

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7 ANNEX A

SECTOR SELECTION AND ASSESSMENT CRITERIA

A. RELEVANCE TO THE TARGET GROUP AND OBJECTIVES

Context / market structure

- What is the make-up of enterprises in the sub-sector (covering the number, distribution, location, and nature of micro, small, medium and large firms) – illustrated on VC map?
- What is their geographic location/concentration?
- How many SMEs are linked to the export market (in production, in processing)?
- What are the levels of formality in the sector?
- In which type of enterprise are the majority of people engaged (production, processing)?
- How many women and men are estimated to be engaged in the sector? (disaggregate by poverty status, gender)

B. OPPORTUNITY FOR INCLUSIVE GROWTH

Sector size and growth trends

- What is the overall size of the market with respect to volume and value of output, demand (real/latent) and supply interactions, and employment share?

- What are the current levels of innovation, productivity and competitiveness and/or collaboration in the sector?

Prospects for quality improvements and export growth

- What is the current and potential export value of the product?
- Do SMEs face particular barriers to accessing export markets – if so, what are they1?
- What are the major standards compliance challenges faced by SMEs in the sector?
- With the right level of support, would there be opportunities to access new markets or expand market access?

C. FEASIBILITY TO STIMULATE CHANGE

Availability of market players

Support services

- What are the current support services on offer, who is providing them, and who is using them?
- Testing (KYRGYST, MOH, MOA): microbiology, mycotoxin, pesticides
- Accreditation (for laboratories) (KCA):
- Inspections (State Inspector): phytosanitary and veterinary inspections
- Which supporting functions are lacking?
- Conformity assessment services
- Certification (ISO19001, ISO14001, ISO22000, SA8000, HACCP, and organic certification as recommended by UNIDO)
- Information/knowledge on improving packaging and marketing, and good agricultural practices (extension services)
- Management skills training
- Productive equipment
- Finance
- What is the role of producer associations?

Rules and regulations

- What are the current policies and regulations that influence the market, and who are they benefitting?
- Which 'rules' are underperforming or discouraging SMEs from quality improvements and/or standards compliance?

Capacity of market players to change

- Are there market players capable of changing their business models/adopt new practices? What is preventing them from doing so?
- i.e., extension services are understaffed; testing laboratories lack appropriate equipment
- Who are the key potential partners/ and what are their capacity (financial/institutional/staffing) to adopt changes in their business models/or new practices?

- What significant investments have recently been made or are planned for the near future?
- i.e., international investors in juice processing, including equipment and facilities

Willingness of market players to change

- Are there market players willing to change their business models/adapt new practices?
- i.e., are laboratories willing to become accredited? What is preventing them from doing so?
- Who are the key potential partners / what is their "will" and "skill"?
- Are there any significant political or economic trends affecting the sector (e.g., changes in prices, number of new entrants, production costs, withdrawal protection policies, etc.) that can be leveraged – or that would pose a particular risk to intervening?
- How likely are surrounding market players to benefit from/be positively affected by GQSP?

Likelihood of distortion

- Which donor programmes are present, where, and what are they doing/funding?
- Are there any existing sectorial programs or initiatives with similar productivity/standards compliance objectives in the sector?
- Are there opportunities to collaborate with any of the assessed donor programmes or initiatives?

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