CTJ ASSESSMENT SERIES - PART III: TRANSPORT AND LOGISTICS ANALYSIS HORTICULTURAL EXPORTS IN CENTRAL ASIA

September, 2017
ABOUT THE ACTIVITY

USAID Competitiveness, Trade, and Jobs Activity in Central Asia aims to facilitate exports and employment in horticulture and strengthen transport and logistics services across the five Central Asian economies. By incentivizing firms to become more regionally competitive and by addressing cross-border impediments to trade, USAID helps to develop a more diverse and competitive private sector and generate export-driven growth.

Five-Year Project: October 2016 to September 2021
Goals: Expand regional trade and employment in the horticulture, transport and logistics sectors in Central Asia
Approach: Market Systems Development – facilitating market actors to implement activities and achieve goals

The views expressed in this publication do not necessarily reflect the views of the United States Agency for International Development or the United States Government.
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EXECUTIVE SUMMARY

THE PROBLEM

This research, commissioned by USAID Competitiveness, Trade, and Jobs Activity in Central Asia (CTJ), diagnoses the horticultural exports in Central Asia, focusing on transport and logistics matters. The study covers four countries (Kazakhstan, Kyrgyz Republic, Tajikistan and Uzbekistan). The problems can be grouped into three categories or collectively known as the 3 ‘P’s. The framework summarizes the key problems encountered in the transport and logistics of horticultural exports.

Road transport is the dominant mode of transport due to its simplicity and flexibility in conducting door to door delivery, which can take between 3-7 days. During the export season, the cost of road transport ranges between $0.20 to $0.30 per kg for shipments to Moscow. The cost of railways is less, at $0.10 to $0.20 per kg, but takes 2-3 times longer. It is suitable for selected dried fruits. Air transport is deemed too expensive for fresh produce as it can cost $3.00 per kg. The respondents of this research rarely use this means of transport. This paper argues that, while road transport is dominant, this constrains exporters to over-rely on traditional markets, and does not motivate them to explore new opportunities in markets farther abroad which may require multi-modal transport.

THE FINDINGS

This research consists of a survey that quantifies the importance of the perceived importance and the satisfaction of the respondents on predefined variables. By measuring the ‘importance’ and the ‘satisfaction’ and aggregate the results, one can understand which variable has the biggest ‘gap’ or difference between the mean importance score and the mean satisfaction score. If the gap is large (relative), this means that more attention needs to be focused to address the variable. This is because its importance is high but the respondent is not satisfied, implying existing problems with the current situation.

The responses show that the two variables with the biggest gaps are (1) trade finance and (2) transport infrastructure. Enterprises lament the high cost of borrowing (16% to 28%) and lack access to trade finance services such as transport insurance, export credit insurance, and other financial services. This constrains the enterprise from growing (such as the inability to switch to using a more fuel-efficient vehicle). Transport infrastructure is another shortcoming. It not only covers the road and rail network, but also border crossing points which are cited as impediments. Both problems result in delays and a higher cost of transport.
It is noteworthy that the ‘Cold Chain’ and ‘SPS’ are also two other problem. The cold chain infrastructure includes temperature controlled centers, refrigerated trucks and containers, and cold chain professionals. Cold chain centers represent a massive investment and are costly to operate. In Kazakhstan and Uzbekistan, the private sector has aggressively moved to build these facilities, while in the Kyrgyz Republic and Tajikistan their importance is also recognized, but their construction is hampered by financial limitations. In the Fergana Valley, there is a lack of refrigerated trucks to transfer perishables. This is a serious constraint during the peak export season during which the cost of a refrigerated truck to Moscow can reach as high as $9,000, about three times the normal price. The highest price recorded thus far was $9,000 early in 2017 in Uzbekistan. The respondents also acknowledge a shortage of qualified professionals in the cold chain, so such capacity building in this regard would be useful.

SPS poses major problems for exporters. The incompatible standards and the stringent requirements of Europe naturally confine the export potential of fruits and vegetables to that continent. Even within Russia and Kazakhstan exporters can face problems. For instance, Kazakh importers buy from the Kyrgyz Republic but feel that the SPS level is too low and that the packaging from the Kyrgyz Republic needs to be better. The Kyrgyz Republic and Tajikistan lack laboratories to meet the Eurasian Economic Union (EAEU) SPS standards. The Russian Phyto-sanitary service “Rosselkhoznadzor” requires all foreign exporters to obtain a unique code from the unified export register, one which is not easily available in the Kyrgyz Republic and Tajikistan. Presently, a driver entering the EAEU border must submit SPS documents, ask for a unique SPS code, and then proceed to a destination at which the laboratory examination may be performed. Failure to do so can cause the rejection of an entire shipment, but this process of compliance costs an average of $1,340 per shipment.
THE RECOMMENDATIONS

This report provides action items according to seven focus areas:

1. Customs Modernization
2. SPS Standardization
3. Cold Chain Capacity
4. Transport Infrastructure
5. Transport Operations
6. Trade Finance
7. Market Diversification and Development

First of all, every country is in a different stage of customs modernization. CTJ can align their efforts so that there is wider acceptance regarding implementation. Here, different actions are prescribed for each country. This consists of single window and a green lane for agricultural shipments.

Second, the problem of a unified export register must be resolved and the process of getting a unique code must be streamlined. CTJ can also intervene on the hardware side (laboratories and instruments) and/or on the software side (training on SPS programs).

Third, cold chain problems should be addressed in a coordinated manner, with a national master-plan for cold chain infrastructure, operations, and talent development. In done in a haphazard manner, there is the risk of over-building cold rooms, which will lead to an over-supply of these in the future. The use of refrigerated containers as temporary storage is an immediate remedy, but the real long-term cost-effective solution is to have well-designed cold rooms. The training and implementation of pre-cooling is also critical to lengthen product shelf life.

Transport corridors and key border crossing points commonly used by shippers in exporting products are identified. This identifies areas of improvement. Road transport is the primary means of export, and is not likely to change in the foreseeable future, so efforts should focus on rehabilitating the road network. In the longer term railways offer a more economical solution to send dried fruits. Multi-modal transport linking road to other transport modes should also be considered. Finally, air transport has the potential to overcome distance limitations and can be another source of increasing export volume.

CTJ can intervene in trade finance by education (promoting the awareness of trade finance services for farmers, exporters, and transport operators), and encourage banks, associations, and enterprises to develop blanket offers so that the cost of such services (e.g. insurance premiums) can be reduced through quantity purchasing.

Finally, this report argues that over-reliance on the Kazakhstan and Russian markets is unwise, and there is a need to diversify and develop new markets. It is acknowledged that this is a long-term endeavor. Through more research, business-to-business matchmaking, and trade exhibitions, prospective markets such as China and India may be penetrated.
CHAPTER 1: INTRODUCTION

BACKGROUND
Central Asia presents a unique and interesting case regarding global trade integration. The core five countries include Kazakhstan, the Kyrgyz Republic, Tajikistan, Turkmenistan, and Uzbekistan. Since the disintegration of the Soviet Union in 1991, these young nations have had varying degrees of economic success after independence. Countries that are well-endowed with natural resources, particularly Kazakhstan and Turkmenistan due to their energy and mineral resources, have fared relatively better. Smaller nations such as the Kyrgyz Republic and Tajikistan have had a narrow range of exports, and imports mainly sustain their economies. Uzbekistan has had commendable success in building a more diversified industrial base.

Nonetheless the region faces unique challenges. First, the countries are land-locked, which indicates how they are not fully-integrated into global maritime trade lanes. Second, they inherited from the Soviet Union infrastructure and standards which are not be compatible with other international standards. For instance, the existing railway networks in the Kyrgyz Republic and Tajikistan are not beneficial to those countries. The SPS standards in the Central Asian Republics are GOST-based, and are not harmonized with international standards, thereby increasing the difficulty of exports to other markets. Third, the large, geographical land mass and small domestic population increase the inefficiency of supply chains. Goods travel long distances to reach markets. There are no economics of scale and scope that can be derived from the agglomeration effects of large cities. Fourth, there are prevalent challenges in border crossings. Restrictions in transit regimes, cumbersome documentary and procedural requirements, and unharmonized standards obstruct the efficient cross-border movement of goods. All these reasons make for a detrimental impact on transport time (lengthy) and cost (expensive). Thus, supply chains are unreliable and inefficient.

The fact that agricultural exports are a dominant economic component in the Central Asian Republics has led to an undesirable economic situation. Exports of fruits and vegetables are the main income source for countries like the Kyrgyz Republic, Tajikistan, and Uzbekistan, but unfortunately, these items are essentially low-value and high-weight items. The consequent costly transportation therefore diminishes the profitability of such exports. Furthermore, the unpredictability of the supply chain can result in spoilage or higher the normal defect rates, resulting in write-offs.

ABOUT THIS RESEARCH
The United States developed a new program “New Silk Road Initiative” to support the Central Asian Republics (CARs) in integrating more effectively into the global trade system. A pivotal element of this program is Competitiveness, Trade, and Jobs (CTJ), a five-year project (2016-2021). The project mandate is to raise competitiveness, to promote trade, and to generate employment. The CTJ commissioned a preliminary study focusing on the horticultural sector. This paper is part of the study, and shall concentrate on an assessment of the transport and logistics in Central Asia, highlighting the constraints and providing recommendations to address issues.
CHAPTER 2: METHODOLOGY

THE FRAMEWORK

It is common knowledge from any review of the available literature that the Central Asian Republics have the following characteristics:

1. The countries are land-locked.
2. The dominant modes of transport are road and railways.
3. The supply chains are relatively inefficient. (i.e. transport times and costs are high).
4. Within the four exporting Central Asian Republics, the countries have both relative stronger performers and weaker performers.
5. Agricultural exports are significant.

Considering these five characteristics, the study then formulated a methodology according to four major elements that constitute the ‘framework’:

- **Problem Statement**:
  1. What are some of the main barriers to greater export volume from Central Asia to traditional markets?
  2. What are some of the operational increase transport time and/or cost of export?

- **Focal Areas**:

  - **Products**:
    1. Cherries
    2. Beans
    3. Apples
    4. Fresh Apricots
    5. Dried Apricots
    6. Fresh Grapes
    7. Dried Grapes
  
  - **Exporting Countries**:
    1. Kazakhstan
    2. Kyrgyz Republic
    3. Tajikistan
    4. Uzbekistan
  
  - **Markets**:
    1. Kazakhstan
    2. Russian Federation
    3. Turkmenistan (new)
    4. China (new)
    5. Europe (new)
    6. India (new)

- **Data Collection**:
  - Primary Data: Questionnaire, Field Trips

- **Data Analysis**:
  - Quantitative Data: Construct the estimates of Key Metrics
  - Qualitative Data: Identify key issues that affect the Key Metrics

- **Recommendations**:
  - What are the key constraints that affect exports?
  - What are some actionable initiatives where CTJ can adopt?

PROBLEM STATEMENT

Agricultural exports account for a substantial volume of the exports from the Central Asian Republics. However, markets for produce have been concentrated in the Russian Federation and Kazakhstan. Note that the latter is not self-sufficient in fruits and vegetables, and also serves as a re-export center to the former. Thus, this study performs a diagnostic assessment to analyze why this is so, and identifies the main barriers to a greater export volume. The barriers can be institutional and non-tariff trade barriers such as policies and regulations, or they can be an under-developed infrastructure. Another constraint can be a weak private sector for transport and logistics in performing more shipments or in completing a more sophisticated and demanding supply chain.
FOCUS AREAS

The first task is to define the project’s boundaries. This is important so that the study can focus only on important parameters. Horticultural products are varied, thus this study is not for conducting a comprehensive study on all the export products, nor is it a general study on the agricultural/horticultural sector. Typically, horticultural products are ‘commoditized’, which means they are of comparatively low value and high weight. This makes them undesirable candidates for export, especially when the end markets are faraway. It is then strategically important to focus on only items that have a higher value-weight ratio so that exports can be competitive.

Since this study focuses on ‘Transport and Logistics,’ the proposed scope will target three major inputs:

a. Products
b. Transport Modes
c. Supply Chains (origin to destination)

PRODUCTS

This study includes five products (cherries, beans, apples, apricots, and grapes) in seven types (the four former products and then apricots and grapes in both fresh and dried forms). The study performs an ‘End Market Analysis’ in which these products are analyzed and then elaborates on their transport and logistics. These items were also chosen based on their global aggregate demand, and the relatively higher value and competitiveness of exporting from Central Asia.

TRANSPORT MODE

This study plans to focus on road transport in as much as preliminary research identifies this as the most popular method for exporting agricultural produce. It will seek to understand why other modes are less popular or are not as feasible, at the present time.

SUPPLY CHAIN (ORIGIN-DESTINATION)

This study covers producers from Kazakhstan, the Kyrgyz Republic, Tajikistan, and Uzbekistan. The stakeholders in the supply chain, their characteristics as well as their functions, will be elaborated. At the same time, the study will also describe the transport corridors used to send goods. Destinations to traditional markets such as Kazakhstan and Russian Federation are emphasized since they presently account for most of the exports from the Central Asian countries of the Kyrgyz Republic, Tajikistan, and Uzbekistan. New markets are also included, and these consist of Turkmenistan, China, Europe, and India. It must be acknowledged that data for these destination markets could be sparse as little shipments go to these regions. However, it is important for exporters to consider the long term advantage of market diversification. The oil present crisis which led to a sharp Russian ruble devaluation in 2014, and which resulted in reduced imports of agricultural produce from Central Asia, showed the risks of market concentration. The subject of new market access and diversification will be given a cursory analysis here, and could be the subject for CTJ’s future research.
DATA METHODS

DATA COLLECTION
This study collects both primary and secondary data. Data collection begins by a review of current studies. Base-line data from the central statistics office from each CAR is available on the website, as well as international organizations such as the World Bank and the Asian Development Bank. Such information and data form the base-line performance indicators.

Field consultants are also sent to Almaty, Bishkek, Dushanbe, Tashkent, and cities in the Fergana Valley to conduct the focus groups. Using a standard questionnaire, time and cost data are captured on actual commercial shipments. Respondents in the focus group include producers (in the Fergana Valley), shippers (exporters and traders), as well as buyers. In addition, consultative interviews with the policy makers are also held, particularly with Ministries in Commerce, Transport and Economic Development. Customs Administration agencies that are also pivotal, so their inputs are also sought. The base-line data are also revised and updated (although some public data on websites are not updated), through the primary data collection from these stakeholders.

DATA ANALYSIS
Any empirical data (in raw form) received are first reviewed. If there are any irregularities detected or incorrect submissions, the team will contact the respondents to verify the data. Unusable samples are discarded. The questionnaire attempts to quantify respondents’ perceptions so that the importance and the exiting performance of transport and logistics competitiveness factors may be analyzed.

Another important set of information is qualitative in nature, and consists of references to competitiveness factors and recommendations to improve the transport and logistics sector. These will be used to supplement the empirical data where applicable. This information will also be featured in the discussion on competitiveness factors.

RECOMMENDATIONS
At the end of the analysis, recommendations for policy makers and the private sector will be given. It must be emphasized that these recommendations are written from the perspective of an international aid agency (USAID CTJ), so they can differ from those of a policy maker or the private sector. Wherever possible, the report will also indicate priorities and where CTJ could be especially relevant to intervene on behalf of, or collaborate with, stakeholders on actionable items.
CHAPTER 3: HORTICULTURE SUPPLY CHAINS

THE SUPPLY CHAIN AND STAKEHOLDERS

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<th>Producers</th>
<th>Intermediaries</th>
<th>Regulators</th>
<th>Buyers</th>
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<tr>
<td>Farmers</td>
<td>Brokers</td>
<td>Exporters</td>
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<td>Transport Operators</td>
<td>Border Agencies</td>
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The supply chain for horticultural exports originating from Kazakhstan, the Kyrgyz Republic, Tajikistan, and Uzbekistan, to the Russian Federation and Kazakhstan as key export destinations. The roles of the various stakeholders are elaborated below.

FARMERS

Farmers are producers of agricultural products and serve as the fundamental unit in the supply chain of agricultural products. They have land plots with private houses or leased land for a definite term. Farmers might choose the product themselves or take an order on consumer request. They are influenced in their decision based on the types and sorts of agricultural products in commercial demand based on supply and demand, as well as on the results of business in past season. In most cases, they themselves find and buy seedlings, seeds, and land using only their own capital or by borrowing funds on the side (not from official financial institutions) for the cultivation and production of agricultural products.

In general, farmers are only involved in production and do not participate in further value-added activities in the supply chain due to:

1. lack of knowledge of the following:
   - financial and banking issues,
   - norms and requirements for goods (certification, sanitary and etc.),
   - documentation for export (contracts...),
   - procedures for the export of goods,
   - logistics and transport issues,
   - customs procedures,
   - challenges, opportunities, suppliers’ rights, and other legal issues.
2. lack of funding and free access to funds,
3. lack of transparency and free access to the trade market,
4. lack of guarantees and protection for the farmer’s business, property, and income.

Farmers can also be classified as the most ‘unbanked’ or the ‘under-banked’ segment of the population. Without a bank account, they conduct all transactions in cash. However, the absence of a bank account
means they cannot enjoy any trade finance (if such exists). The lack of credit history also hampers their borrowing ability. Thus, farmers will need to self-finance production costs, or raise funds through borrowing from friends and relatives, at still relatively high rates. For instance, in Tajikistan, such borrowing methods still cost 8% to 10% per annum for producing dried fruits.

In Uzbekistan, a special type of organization known as the ‘Farmer Business Entity’ (FEB) exists. These are legally registered business entities that have stronger bargaining power vis-à-vis the individual farmers. FEB owns large tracts of land which it can distribute to farmers. If can dictate to resident farmers what to plant. According to legislation, a FEB is supposed to perform cultivation, pest control, and irrigation of the land on a regular basis, but this may not be implemented fully at times. If such lack of maintenance results in a poor harvest, low crop yield, or even widespread destruction of crops due to diseases or pests, the farmers bear the full consequences while still having to pay land lease fees to the FEB.

BROKERS

A broker acts as an agent connecting farmers to the exporters or directly to overseas buyers, earning a commission in the process. The functions of a broker consist of

- receiving an order from the consumer for a certain type, quantity, packing, and delivery date of goods,
- finding producers (farmers),
- organizing packers who are provided with packaging materials by the customer or broker. Packers are engaged in collecting, packing, and delivering crop-products to the agreed harvesting collection point,
- organizing the procurement collection point within their mahallas / regions.
- acting as a guarantor for the delivery to the customer and for payment to the farmer. Prepayments or post payments of up to two weeks are usually acceptable.

It should be noted that the activity of brokers is not official, but is still an integral part of the supply chain. A broker is an individual who is not officially registered, but who has a wide data base of consumers. Brokers maintain relations with both consumers and farmers. Brokers enter into business relations with farmers based on verbally agreed terms, and act as guarantors for the integrity and timing of the supply of goods and their payment. The commission varies in each country. In Uzbekistan, the broker applies its commission in the amount of UZS 200 to UZS 1000 per kilogram of product, which he receives in cash.

EXPORTERS

Exporters are officially registered legal entities and have an official bank account and conduct economic and operational activities formally. They can own farms legally, where they can both grow agricultural products and carry out intermediary activities such as buying goods from brokers or farmers and selling them for export. In most cases, exporters are mediators for finding goods through brokers or directly from farmers.

Exporters are the next important link in the supply chain of agricultural products for export. They perform many functions, starting with the search for products from the primary source and ending with the sale
goods for export. Exporters perform the following functions; organization of purchases of products, packaging, storage, transportation, processing documentation associated with the preparation of the contract, product certification, customs clearance, receipt of revenue, and settlement with the manufacturers. Thus, it is important to note that the optimization of price depends on the quality of the logistics management of the exporter.

**TRANSPORT OPERATORS**

Agricultural and horticultural exports move from origin to destination in two main ways. In one, the exporter has its own private fleet of trucks to transport products. In the second, the service of a transport operator is engaged to move the goods. The latter is more common because only the biggest exporters have their own fleet to move goods. It is not feasible for most exporters to maintain a delivery fleet when there are no products to move (bearing in mind that the such exports are highly seasonal).

Transport operators are either owner-operator or a registered company. The former is an individual who owns the truck and performs all the transport services. This represents quite a sizable number in Central Asia. The latter belongs to incorporated companies that own the transportation assets and hire drivers to perform deliveries. Typically, these companies are also registered members of a national transport association and a TIR Carnet Holder (for the privilege of simplified border crossings).

**BORDER AGENCIES**

When moving across borders, transport operators will need to pass through multiple border agencies. Typically, the importing side will impose stricter controls and procedures to ensure product safety (for the destination market) or to ensure that no fraudulent activities such as smuggling occur (for the transit country).

In Central Asia, typical border crossing procedures are completed in the following sequence:

a) Border Security (by border guards operating under the Ministry of the Interior)

b) SPS (by SPS agents operating under the Ministry of Agriculture)

c) Immigration Control (by immigration officers operating under the Ministry of the Interior)

d) Transport/Weight Controls and Vehicle Inspections (by transport inspectors operating under the Ministry of Transport)

e) Customs Controls (by customs officers operating under the Ministry of Finance).

A national ‘single window’ has been actively discussed by the countries of Central Asia, and may be featured in the future, but the typically border crossing is still a sequential process. This process is aggravated considering the wait time in queue at a high-traffic border crossing point.

**BUYERS**

Buyers are importers, such as wholesalers, which then distribute to retailers. A retail chain which is large enough can also buy directly. The characteristics of the buyers have been succinctly explained in another report ‘End Market Analysis,’ so this shall not be repeated here.
TRANSPORT MODES

ROAD TRANSPORT

Road transport is the primary mode used to move horticultural exports. This is due to the face that:

- Road transport cost is one of the lowest in comparison with other modes of transport ($0.10 to $0.20 per kg) during normal times, although this could rise up from $0.20 to $0.35 per kg during the peak export season,
- It is the most flexible means of transport, from the collection of goods at packing houses/warehouses/refrigerated centers directly to the customer’s premises. It can complete door-to-door delivery,
- The level of supply chain sophistication is the lowest since neither transport operators nor the shippers need to understand and use multi-modal transport,
- Road transport can be completed in 3-5 days on average to traditional markets like Moscow,
- Transport operators are familiar with the common transport routes and can also estimate costs (including facilitation fees for unofficial functions). Such knowledge is important because shipping via a new transport mode such as trains or via multi-modal can be risky if the transport operator does not understand the tariffs and thus may under-estimate the cost).

Although road transport is the primary mean, it can also be an ‘Achilles Heel’ or constraint. This is because road transport is usually the most effective for deliveries of up to a 500 km radius. Beyond that, the transport economics of trains and even water may be more advantageous. Also, road transport necessitates multiple border crossings, which can introduce uncertainties. And, fuel cost is the main cost driver for road transport and accounts for an estimated 40% to 50% of the vehicle operating cost (to be analyzed in more detail in a later section). While oil prices are low now compared to historical levels, if the oil price surges, the road freight rate will rise as transport operators pass this increase to the exporters. All of this is an explanation as to why the Central Asian Republics do not venture much into new foreign markets due to the significantly longer distances involved and the complications in supply chain.

RAIL TRANSPORT

Railway transportation is more complicated and slower, and thus not acceptable for fresh perishables. However, this could be an effective mode of transport for dried fruits for which time-sensitivity and cold chain requirements are less stringent.

- Sending a train costs approximately $0.10 to $0.20 per kg, which is cost effective compared to road transport.
- However, the lead time could be two to three times longer than road transport. This is because trains leave on a scheduled basis and stop at every major station where the transfer of wagons or goods may take place.
- Trains do not provide end-to-end delivery. At the origin and destination, the shipper and the consignee may still need to arrange a truck to move the goods from and to train stations.
- An advantage of using train delivery is the lower probability of encountering unofficial payments. Such activity, while common for a road border crossing point, is usually less likely at a rail border crossing point. This is because a border officer can easily detain a truck and question the driver, and then order a full examination requiring unloading all goods. This examination does not affect other traffic. On the other hand, a border agency cannot easily stop a shipment and delay an entire
train since they must move on schedule. This fact enhances the cost competitiveness of train versus road.

- In Central Asia, exporters sending goods on trains will have to engage the services of an international freight forwarder. Planning must be done in advance due to the nature of railway operations. It is less flexible, unlike road transport, in which an exporter can call a trucker and come for collection the next day.

Very few respondents in this study use railway transport. In such cases, they send dried fruits to markets farther abroad, such as Europe.

**AIR TRANSPORT**

The cost of air transport is very high, and starts from $1.4/kg when shipping to the most popular destinations:

- $1.4 – $2/kg via Bishkek-Moscow,
- $2/kg via Istanbul-Bishkek,
- $2.20/kg via Bishkek-Berlin,
- The cost of Almaty-Moscow charter flight is $67,000 for up to 20 tons, and $78,000 for up to 27 tons. That’s $3.35 and $2.88/kg respectively.

Generally, logistics companies in Central Asia are less conversant with air freight and transport, as land transport is usually the favored method. Air cargo agents can assist these companies in understanding this kind of transport. There are two primary methods of shipping by air. First, cargo may be placed in the belly of a passenger aircraft during a scheduled flight. The carriage capacity is only 1-5 tons per flight as most space is reserved for baggage. There is also the risk of cargo off-loading if the baggage volume is higher than expected. This will mean that the goods must wait for the next flight. Then, the goods must be returned to a cold room if they are fresh produce. This requires the airport to have the appropriate facility and process to handle these kinds of goods. The second method is by chartering a cargo plane. This is unscheduled, and must be arranged in advance. Typically, the carriage capacity is 40-100 tons.

The main advantage of air transport is the ability to send good in the shortest time possible. But, the main disadvantage is the high cost. Based on the usual cost estimates, it is not feasible for the horticultural products. For scheduled belly cargo carriage, the cost ranges $1.40 to $2.20 per kg. Chartered flights will cost $2.88 to $3.35 per kg. Most horticultural products, except for fresh cherries sell at a price of less than a $1 per kg. It is simply too expensive to send these goods by air.

Having said that, it might be possible for air transport to play a role in increasing export volumes if;

- Specific commodities that can be sent by air are identified and an air cargo strategy is devised. For instance, Africa has been successful in horticultural exports to Europe by sending uncut flowers to Amsterdam, where they are further packaged or cut for re-export. Flowers are light in weight and high in value, and require rapid delivery. This makes flowers an ideal category for air transport.

- Loads are mixed to optimize the weight-cost combination. For example, sending horticultural products alone might not justify the cost of air transport. However, if the those products are mixed with other high-value items, this may be feasible. For instance, high-value horticultural products like fresh cherries could be shipped with carpets. A high-end carpet can go for $15,000 in Europe.
Globally, air cargo is expected to be the fastest growing transport mode compared to land and sea transports. The situation in Central Asia indicates that this transport mode is under-developed, but could be considered as part of an export strategy to penetrate markets like Europe and India, to which road transport is challenging.

**TRANSPORT PERFORMANCE ANALYSIS**

It must be emphasized that transport costs are highly volatile, and depend on the season of the year. In Kazakhstan and Uzbekistan, trucking costs to Russia are more stable due to the presence of a greater number of qualified transport operators. In the Kyrgyz Republic and Tajikistan, however, there are fewer qualified transport operators, and during the peak export season the low availability of trucks can lead to excessive pricing if the exporter secures their services at the very last minute.

<table>
<thead>
<tr>
<th>EXPORTING COUNTRY</th>
<th>ESTIMATED TRUCKING COST</th>
<th>AVERAGE TRANSPORT TIME</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kazakhstan</td>
<td>$3,500 to $5,000 ($0.175 to $0.25 per kg)</td>
<td>3 to 4 days</td>
</tr>
<tr>
<td>Kyrgyz Republic</td>
<td>$4,500 to $6,000 ($0.225 to $0.30 per kg)</td>
<td>3 to 5 days</td>
</tr>
<tr>
<td>Tajikistan</td>
<td>$4,500 to $6,500 ($0.225 to $0.324 per kg)</td>
<td>5 to 7 days</td>
</tr>
<tr>
<td>Uzbekistan</td>
<td>$4,000 to $6,000 ($0.20 to $0.30 per kg)</td>
<td>4 to 5 days</td>
</tr>
</tbody>
</table>

The above cost estimates were made using the following criteria:

- Exports occur in the summer when there is a high export volume,
- A refrigerated truck carrying twenty tons of fresh fruits and vegetables is used,
- The destination is Moscow, Russian Federation, which is the main market of the four exporting countries,
- The price covers only transport related items such as fuel, the driver’s salary, and parking and lodging. It does not cover any other non-transport related costs such as SPS certification,
- Drivers take the most popular and established routes from origin to destination. There is no detour due to unforeseen circumstances (such as a border closure).

At off peak season, trucking costs can be as low as $1,500 to $2,500 per truck carrying twenty tons of goods. The cost estimates used above reflect the supply and demand problem of truck availability. The prices of road transport can easily double during peak season.

Looking at the cost and time data, it appears that Kazakhstan enjoys the best relative performance. Road freight cost constitutes around 20%, assuming the export price is $1 per kg. This advantageous position is due to (1), a better road network system, (2), being an established member in the Eurasian Economic Union (EAEU), and (3), a closer geographical location with direct border access to Russia. It can be seen
in the case of the Kyrgyz Republic and Tajikistan that the cost and time are progressively higher due to the increased distance that necessitates crossing Kazakhstan as a transit country. Even Uzbekistan needs to cross Kazakhstan to get into Russia, but the route taken is typically in the western region. Uzbekistan has a slightly better position compared to the Kyrgyz Republic and Tajikistan due to its better-developed infrastructure and the greater availability of qualified transport operators.

While road is the dominant mode of transport for horticultural exports, it is possible to use railways to send dried fruits. A train of a 55-60 tons capacity going from Tajikistan to Russia costs $8,700, which represents $0.145 per kg. This is more economical than using road transport for the same journey which can cost $0.225 to $0.324 per kg. However, railways take 10-20 days, compared to road transport which takes 5-7 days. The uncertainty in using railways can be higher (10-20 days variance).

There is other significant cost factor that can affect the final delivery cost to the end destination.

- **Facilitation fees.** Customs and traffic police are empowered to detain a truck along its journey. When the truck carries perishables, they become easy targets for corrupt practices due to the need for rapid movement. As such, the transport cost can become 2 to 3 times higher when carrying fresh fruits, as compared to dried fruits. For instance, a truck carrying dried fruits from Tajikistan to Russia costs $1,500 to $2,500 and that price remains stable all year round. The same truck carrying fresh fruits can cost $5,500 to $6,500 during the summer.

- **Truck Availability.** It is important for exporters to secure refrigerated trucks early. During peak export season, the spot rate surges significantly. Many exporters are interested in owning and operating a private fleet of trucks so that they can service buyers directly during the export season without losing business, which can happen when exporters cannot find refrigerated trucks even after agreeing to higher prices. In the Kyrgyz Republic and Tajikistan, transport operators with qualified trucks are very limited, and this creates a pricing power that can disadvantage exporters.

- **Trans-loading.** A supply chain is the most efficient when the truck that carries the goods can cross a border rapidly and move from origin to destination. However, this is not the case. Within the four exporting countries, Tajikistan is at the most disadvantage, because there is a need to trans-load at the border to either a Kyrgyz Republic or Kazakhstan registered truck before the goods can continue to Russia. This requires more time and cost.

- **Condition of the Truck.** Transport becomes more complicated when exporters try to send to Europe, which requires European-compliant trucks. In general, the condition of the fleet in Central Asia can be regarded as non-complaint, especially for smaller fleet operators due to their lack of finances. Thus, the usable lifespan of a truck is maximized in order to earn a decent return, resulting in excessive wear and tear. The operation cost of using an outdated truck is higher due to its lower operating efficiency.
COST ANALYSIS

Continuing the transport pricing discussed in the last section, here a more detailed cost analysis is conducted.

This is an estimation of the cost breakdown for a 20-ton carriage using a standard refrigerated truck per trip. The vehicle operating cost is the highest, accounting for almost two-thirds. Unofficial costs account for 27%, followed by parking fees and lodging/meals for drivers.

<table>
<thead>
<tr>
<th>Cost Drivers per km</th>
<th>Cost/$</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fuel Cost</td>
<td>$0.23</td>
<td>36.51%</td>
</tr>
<tr>
<td>Refrigeration Related Expenses</td>
<td>$0.01</td>
<td>1.59%</td>
</tr>
<tr>
<td>Drivers' Pay</td>
<td>$0.14</td>
<td>22.22%</td>
</tr>
<tr>
<td>Technical Maintenance</td>
<td>$0.04</td>
<td>6.35%</td>
</tr>
<tr>
<td>Repairing of Engines/Body</td>
<td>$0.03</td>
<td>4.76%</td>
</tr>
<tr>
<td>Spare Parts and Tires</td>
<td>$0.05</td>
<td>7.94%</td>
</tr>
<tr>
<td>Overhead</td>
<td>$0.03</td>
<td>4.76%</td>
</tr>
<tr>
<td>Depreciation Expenses</td>
<td>$0.10</td>
<td>15.87%</td>
</tr>
<tr>
<td>Estimated Vehicle Operating Cost</td>
<td>$0.63</td>
<td>100.00%</td>
</tr>
</tbody>
</table>

The vehicle operating cost (VOC) is the prime cost. Here, the VOC is further itemized into the relevant cost drivers. The cost is expressed in “per km” as a unit. Fuel expenses account for 43% and is the main cost driver. This is followed by driver's pay which is 26%. There are other maintenance costs and many drivers do their own maintenance and repair to conserve costs. Depreciation is a non-cash expense (19%). Thus, it is estimated that the VOC is $0.63 per km. This forms the minimal level for pricing road transport services. The transport operator will have to quote a higher level per km to earn an operating profit. This analysis assumes a standard refrigerated truck. For older trucks, the VOC can be higher due to lower operating efficiency.
TRANSPORT ROUTES

OVERVIEW

The common routes adopted by exporters and transport operators from Kazakhstan, the Kyrgyz Republic, Tajikistan, and Uzbekistan are illustrated below. Note that these are the heavy traffic routes, so alternative routes are also possible.

Kazakhstan

![Map of Kazakhstan with border crossing points](image)

the Kyrgyz Republic

![Map of the Kyrgyz Republic with border crossing points](image)
KAZAKHSTAN

Having a direct border with Russia and being a founding member of the Eurasian Economic Union (EAEU) certainly puts Kazakhstan in a very advantageous position for exporting horticultural products to the Russian Federation, the main market for Central Asian produce. Note that Kazakhstan is not self-sufficient in many food produce spheres, and imports from the other Central Asian Republics for re-export to Russia. Agricultural products are mainly planted in the south in such regions as Shymkent and Zharkent which then are transferred to Almaty in its capacity as a consolidation center (green arrows). From here, produce is typically sent to cities along two primary routes. The first is Almaty-Karaganda-Astana-Kostanai, crossing the border at Kairak. The second is along the ‘Western-China to Western Europe’ corridor, moving from Almaty-Shymkent-Kyzlorder-Aktobe, crossing the border at Zhaisan. Since Kazakhstan and Russia are EAEU member states, there is no customs border between the two nations, so border crossing is relatively fast.

THE KYRGYZ REPUBLIC

The Kyrgyz Republic exports a large quantity and variety of fresh produce to Kazakhstan and the Russian Federation. Due to the lack of cold chain facilities, the supply is not consistent throughout the year. Production occurs mainly in the Naryn and Issykul regions. Trucks will cross the border at Ak Tilek into Kazakhstan and then continue on to Almaty. The distance between Almaty and Bishkek is only 250 km. From Almaty, the truck will move along the Karaganda-Astana-Kostanai-Kairak route. Kyrgyz operators prefer to use this road to enter Russia instead of taking the other, more circuitous route in the western direction. The highway linking Astana and Almaty is in better condition. Kyrgyz operators are also active in exporting produce to cities in the eastern region of Russia. Trucks will move from Almaty-Taldykorgan-Aktogai-Semey and cross the border at Aul.

TAJIKISTAN

Tajikistan transport goes through the Kyrgyz Republic in order to export produce to Kazakhstan and Russia. The country is a key supplier of dried fruits to these destination markets. A bilateral transit trade agreement exists between the two countries. On the other hand, political tensions between Tajikistan and Uzbekistan result in higher uncertainty, and thus a route through Uzbekistan is less popular with Tajik exporters. (note after the change in political leadership in recent years, there is a renewed optimism and sentiments are improving between Tajikistan and Uzbekistan). Tajikistan transport operators cross the border in the Batken region. The trans-loading of goods between trucks is done at Kyzlbel where procedures for this are quite established. Kyrgyz operators then take over the goods and continue to Kazakhstan using the routes defined earlier. From Kyzlbel, trucks will go to Osh and then cross into Kazakhstan at Ak Tilek under a transit regime.

UZBEKISTAN

Although serving the same principal markets, Uzbekistan uses different transit routes to reach Kazakhstan and Russia. The only reason for Uzbekistan to send to the Kyrgyz Republic for re-export to Kazakhstan is to label the items as produced within the Kyrgyz Republic and thus qualify for preferential treatment in the EAEU. Production is mainly centered in the fertile Fergana Valley cities. From there, the trucks will cross the border at Yallama and go on to Almaty. Trains will cross at the Keles-Sarygash station. Items are either sold in Almaty or re-exported into Russia using the Almaty-Astana-Kairak route. For exports
to Russia, it is more common for Uzbekistan to ship using the westerly route. Trucks will drive to the border point at the northwestern tip at Dautota and enter Kazakhstan. Then trucks will move through Beyneu-Makat and cross Kurmangazy into Russia. From there, the trucks proceed to Moscow, St. Petersburg, and other cities.

**KEY ISSUES**

This research identifies a list of pertinent issues in the transport and logistics for horticultural exports in Central Asia. These are summarized in the framework below.

<table>
<thead>
<tr>
<th>Policies and Regulations</th>
<th>Physical Infrastructure</th>
<th>Private Sector Competency</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Transit Trade Agreements</td>
<td>• Transport Networks</td>
<td>• Logistics Proficiency</td>
</tr>
<tr>
<td>• Vehicle Specifications</td>
<td>• Transport and Logistics</td>
<td>• Market Structure</td>
</tr>
<tr>
<td>• Visa and Immigration</td>
<td>• Centres</td>
<td>• Transport Assets Imbalance</td>
</tr>
<tr>
<td>• Transport Regulations</td>
<td>• Temperature Controlled</td>
<td>• Service Guarantee</td>
</tr>
<tr>
<td>• Border Crossing Procedures</td>
<td>Warehouses</td>
<td>• Packaging</td>
</tr>
<tr>
<td>• Customs Regimes</td>
<td>• Refrigerated Trucks</td>
<td>• Trade Finance</td>
</tr>
<tr>
<td>• Sanitary and Phyto-Sanitary</td>
<td>Laboratories</td>
<td>• Capacity Building</td>
</tr>
</tbody>
</table>

The issues can be broadly classified into the three ‘P’s, namely:

- **Policies and Regulations**
  What are the institutional barriers and problems? These usually take the form of non-tariff trade barriers. They can be addressed by regional cooperation between policy makers and more coordinated public-private cooperation.

- **Physical Infrastructure**
  What are the limitations caused by the absence or inadequacy of roads and other structural elements? Investment interventions from international donor organizations, augmented by foreign private investors, are most effective here.

- **Private Sector Competency**
  Competency = Capacity + Capability. What are the constraints faced by the private sector? Financial and technical assistance as well as capacity building can produce tangible results to improve the private sector productivity here. Productivity is the only long-term driver of growth and results.
POLICIES AND REGULATIONS

The four countries exporting countries of Central Asia typically have a more harmonized system of transit trade, border crossing procedures, and regulations. However, due to the legacy and historical development during the post-Soviet era, the region's standards and regulations are generally not harmonized with the neighboring trade blocs such as East Asia and South Asia. For instance, a vehicle's maximum load limit in Central Asia ranges from 38 tons to 44 tons, but in China the maximum load may be 49 tons. This is due to better road infrastructure in China. This results in the need to trans-load trucks at the border between Central Asia and China.
POLICIES AND REGULATIONS

<table>
<thead>
<tr>
<th>ISSUES</th>
<th>EXPLANATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>Transit Trade Agreements</td>
<td>Lack of inter-regional agreements. This constrains exports to the seaports of other countries. In general, Kazakhstan has been aggressively working on access to Lianyungang and the Black Sea. Uzbekistan actively imports and exports from Bandar Abbas, but the Kyrgyz Republic and Tajikistan are limited in their options to export to seaports. Some regional trade agreements such as the Cross Border Transport Agreement (CBTA) and the Quadrilateral Transit Trade Agreement (QTTA), both facilitated by ADB, offer new transit routes to export markets but are not implemented in full force due to a lack of political will.</td>
</tr>
<tr>
<td>Vehicle Specifications</td>
<td>Vehicles can normally move within the four countries but vehicle standards are yet to be fully compatible with East or South Asia. This implies the need to trans-load cargo at the border. Since Afghanistan, China, and Pakistan have formally acceded to the TIR Convention, new opportunities arise for transit.</td>
</tr>
<tr>
<td>Visa and Immigration</td>
<td>Drivers can move visa-free within the four countries, but Uzbekistan and Tajikistan impose visa restrictions on each other, which partially explains the low transit flow through Uzbekistan. Interestingly, all of the four Central Asian export countries need visas to enter Turkmenistan, but yet the country has good demand and pays good prices for agricultural produce.</td>
</tr>
<tr>
<td>Transport Regulations</td>
<td>The issuance of weight certificates is an often mentioned problem. There are repeated inspections at weigh stations. This means a shipment from Tajikistan to Russia, which crosses the Kyrgyz Republic and Kazakhstan, must be weighted multiple times to obtain a valid weight certificate in each country. At times, the weight scales might malfunction and delay the shipment. A unified weight certificate, mutually recognized at the country of origin, could improve the transport efficiency of the whole supply chain.</td>
</tr>
<tr>
<td>Border Crossing</td>
<td>Border crossing procedures are cumbersome matters. Multiple agencies are present at the border, so the driver needs to visit each one in a sequential manner. The waiting time alone takes 3-4 hours, and sometimes, during the peak export season, over 2-3 days. There is little incentive for local administrations to improve these imperfect situations themselves create the perfect condition for rent-seeking behavior. Thus, changes must be instituted from the top down. In general, agricultural shipments are put into the green channel for faster processing. No problems occur at internal the EAEU border.</td>
</tr>
<tr>
<td>Customs Regimes</td>
<td>For transit shipments not covered by TIR, customs escort is needed (e.g. Tajikistan). For traditional markets, the exporters and transport operators are generally familiar with the customs regimes, but this becomes a major constraint if new markets, such as those of Europe, are considered.</td>
</tr>
<tr>
<td>SPS</td>
<td>SPS control in Russia poses a significant problem for Kyrgyz and Tajik exporters. Russia requires all agricultural produce to be registered in the unified export register ‘Argus’ and obtain a unique code for the imported goods. If the unique code is not obtained in advance and registered in the system, the goods cannot be sold even if they physically arrived in Russia. The Russian SPS service called Rosselkhoznadzor will reject such goods. This register is available neither in the Kyrgyz Republic nor Tajikistan. The driver must obtain the code upon entering the border of Russia and then send the items to be tested at the destination. This can cost upwards of $1,340.</td>
</tr>
</tbody>
</table>
PHYSICAL INFRASTRUCTURE

Transport infrastructure was cited as a major area for improvement.

<table>
<thead>
<tr>
<th>ISSUES</th>
<th>EXPLANATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>Transport Networks</td>
<td>Trucks in Central Asia generally move at speeds of 30 kph to 40 kph. In Europe cargo trucks can move in excess of 60 kph. The vast geographical area, mountainous terrain, adverse climatic conditions that requires additional maintenance, and the over-loading of the trucks all result in deterioration of the paved road surface. Despite initial challenges, exporters are trying to penetrate the Chinese market, which represents a huge opportunity. Kazakhstan, the Kyrgyz Republic, and Tajikistan all have a direct border with China (in the case of Tajikistan, the Kulma Pass operates only three days a week from December to April due to heavy snow). Most trucks returning to the China border are empty. So this is an area of opportunity for exporters to load produce and ship to China. The expected impediments are likely to be SPS, packaging, and competition from local producers in the Xinjiang Uygur province. Rail networks are being expanded, particularly in Kazakhstan. The Kyrgyz Republic and Tajikistan do not have an integrated national railway network. For dried fruits, railways can be an effective means of reaching markets farther abroad, such as Europe. An interesting development is the container express train from Chongqing (PRC) to Duisburg (Germany). This trans-continental train has the potential of completing the journey of 12,000 km in just 13 days. This requires comprehensive agreements with, the and cooperation of, the transit nations and their border agencies so that repeated examinations and inspections are avoided.</td>
</tr>
<tr>
<td>Transport and Logistics Centers (TLC)</td>
<td>All the Central Asian Republics identified the need to establish more TLCs and the creation of a nation-wide distribution network. TLCs can perform many functions, such as storage and cross-docking. In addition, these facilities can also serve as packing centers, where sorting and grading can be done so that premium quality products are sold at a higher price, rather than mixing different grades of products and selling it at an average price. This research highlights the respondents’ feedback that each country needs to have a more developed TLC network.</td>
</tr>
<tr>
<td>Temperature Controlled Warehouses</td>
<td>A temperature controlled warehouse is a special type of TLC in which the environment can be controlled and adjusted in order to store different products (ambient, chilled and frozen). The Almaty city administration indicated that they are open to buying more from Kyrgyz producers if the supply can be maintained consistently throughout the year, thereby reducing price volatility and alleviating the need to import from supplies farther abroad, such as Poland and Belarus when Central Asia is under-production during the off season. Investing and operating such facilities requires a huge investment, though. This is an area in which CTJ can collaborate with other development agencies and work on a coordinated plan. Otherwise, there is a risk of regional over-supply.</td>
</tr>
<tr>
<td>Refrigerated Trucks</td>
<td>Refrigerated trucks are always in high demand during the export season, thus transport costs can escalate rapidly. This problem is more aggravated in the Kyrgyz Republic and Tajikistan.</td>
</tr>
<tr>
<td>Laboratories</td>
<td>The EAEU has a SPS system which requires the exporting country to enforce sophisticated testing methods and equipment in accordance with SPS standards. In the Kyrgyz Republic and Tajikistan there are no such SPS facilities available. According to Kyrgyz operators, there was an initial agreement between EAEU member states to finance SPS laboratories in the Kyrgyz Republic, though this has yet to materialize.</td>
</tr>
</tbody>
</table>

PRIVATE SECTOR COMPETENCY.

This area highlights the problems between exporters and transport operators.
PRIVATE SECTOR COMPETENCY

ISSUES | EXPLANATION
--- | ---
Logistics Proficiency | To many transport companies, the idea of logistics is simply to collect goods and send it on to the destination. The concept of integrated logistics or third-party logistic service providers (3PL) is very new. As such, such services are performed by different specialized entities in the supply chain (freight forwarders, customs brokers, truck carriers, warehouse operators etc.). In the developed nations, 3PL can perform all of these activities within one company, lowering the coordination and communication cost of the supply chain.

Market Structure | The limited number of qualified and reputable transport companies can command advantageous terms during the export season viz-a-viz exporters. Such companies have more experience in preparing the entire set of trade documents (commercial invoice, packing list, road waybill, CMR document, and TIR Carnet). Individual owner operator truck drivers may quote a low price but may be less proficient in the cross-border delivery, thus subjecting themselves and their clients to paying unofficial fees. There is a need to expand the number of qualified transport and logistics companies in order to reduce the monopolistic effect and encourage more price competition. Uzbekistan is commendable in this regard. JSC Uzagroexport used to be a monopolistic agriculture exporter, but after the enactment of the Presidential Decree of 01.06.2017, other companies can now export directly to buyers.

Transport Assets Imbalance | The shortage of refrigerated trucks causes price volatility during the export season when such trucks are needed to deliver long-haul shipments to Russia. In Tajikistan, the transport cost to Moscow can rise up to $6,500 per shipment!

In Uzbekistan, there are sufficient cold rooms in the Fergana Valley, but a shortage of refrigerated trucks constrains the volume of exports. There is also a shortage of tractors and trailers. Another problem is the shortage of TIR parks for large delivery trucks carrying international shipments to park and refuel, and for drivers to rest.

In terms of railways, Kazakhstan has carried out a series of railway reforms beginning in 2013 which permit private companies to own and lease out rolling stocks, such as locomotives and rail wagons. This is a good initiative to encourage the private sector participating in increasing transportation assets. Uzbekistan ‘UTY’ remains a monopolistic railway operator and their private sector opines that the lack of rail cars hampers the transport capacity of the railways.

Service Guarantee | The road trucking industry consists of enterprises with different reputations. Consumer protection is an issue because, if anything happens to the shipment in transit, the transport operator and the exporter may enter into a dispute in which there is no official recourse for recovering damages. Thus, there is a need to improve service guarantees.

The problem today is that there are many carriers involved in this business today. For instance, there are 252 transport companies registered in Uzbekistan as legal entities, but many smaller enterprises or individuals provide road transport service illegally. Thus, there is a need to develop grading and qualifications. This could then be helpful to exporters in that they would possess some kind of service guarantee, rather than trying to cut cost, the result of which is an endless dispute with an unqualified operator.

Packaging | During field trips and visits, the consulting team observed that packaging could be better improved. There appears to be a lack of standardized packing materials and little marking and labeling. For exports to Russia this is acceptable as the language is common and there are fewer requirements. This becomes a constraint when sending to new markets where Russian is not used, where product information is important, and where protective material is required to reduce defect rates.

Trade Finance | The cost of borrowing is typically 16-28% per annum. This is prohibitively high for enterprises and farmers. There is also limited access to trade financial services such as export credit insurance or supplier invoice discontinuance coverage in addition to traditional business loans. One idea to improve this is to use ‘aggregation’ to achieve economies of scale. For instance, CTJ can help to develop a Farmers’ Union in each country and facilitate discussion with the leading financial institutions to offer micro-finance services. For a transport company, it is typically expensive to get transport insurance for goods if they meet the bank on their own. CTJ can work with the national transport association and the banks to negotiate a blanket rate for lower insurance premiums.

Capacity Building | This research shows that capacity building will be highly effective. In this regard, CTJ can commission formal needs analysis on training. This will avoid mistakes in providing training that is of little value or relevance. This capacity building can target different audiences, such as policy makers, the private sector, and operational staff, to improve their know-how in transport and logistics.
In summary, this chapter provides an overview of the horticulture supply chain. In the next chapter, the specific findings of each country will be further discussed.
CHAPTER 4: FINDINGS AND ANALYSIS

The chapter consists of: (1), country specific findings, and (2), company specific insights.

COUNTRY SPECIFIC FINDINGS

KAZAKHSTAN

During the study conducted, ten transport companies directly involved in the export and import of products were interviewed. The table below shows a list of companies and contact persons.

List of enterprises in Kazakhstan

<table>
<thead>
<tr>
<th>Company name</th>
<th>Contact person</th>
</tr>
</thead>
<tbody>
<tr>
<td>Afdal Logistics</td>
<td>Sherimov Pazylbek Nurjanuly</td>
</tr>
<tr>
<td>Aysberg</td>
<td>Gorshunov Avel Yurevich</td>
</tr>
<tr>
<td>Archi-Design-2008</td>
<td>Baltabaev Mirzafar</td>
</tr>
<tr>
<td>Private entrepreneur</td>
<td>Zhadko Alexandra</td>
</tr>
<tr>
<td>Private entrepreneur</td>
<td>Petrova Galina</td>
</tr>
<tr>
<td>LLC &quot;Nurdaulet&quot;</td>
<td>Zhusupov Dinmukhamed Orazbaevich</td>
</tr>
<tr>
<td>LLC Fahr Sauda</td>
<td>Orynbaev Fakhriddin Nasirovich</td>
</tr>
<tr>
<td>LLC &quot;Fruit Tale&quot;</td>
<td>Serik Aygerim</td>
</tr>
<tr>
<td>LLC &quot;Frut Holding&quot;</td>
<td>Isayev Talgat Batyrkhozaevich</td>
</tr>
<tr>
<td>LLC &quot;Ekibastuz TransNek&quot;</td>
<td>Kaskenev Timur Askargaliyevich</td>
</tr>
</tbody>
</table>

It should be noted that some of the respondents were unwillingly to give interviews and in providing information about specific issues. It is also important to note that companies involved selling products often do not understand the complexities of the logistics chain. Many respondents stated that they only do the tracking of products until the loading stage. After that the transport companies are responsible.

Almost all of Kazakhstan’s export products are sold without some of the difficulties encountered elsewhere. Demand for products from the Russian Federation is unlimited, and well-established trade agreements between the countries involved in the Customs Union contribute to developing exports. There is a deficit of some products, so entrepreneurs import them from neighboring countries. These are mainly imports of fruits from Uzbekistan and dried fruits from Tajikistan. Cooperation with Kyrgyz entrepreneurs is insufficient. Some respondents are interested in working in this direction, but many, for a variety of reasons, are negative about products from the Kyrgyz Republic. The reasons are as follows:
1. Non-conformity of product quality,

2. No certificates,

3. An overestimated cost of production.

At this time, mostly fresh fruits are among the export products studied. Besides fruits, most export products are fresh vegetables. However, some respondents noted that the price in Russia this year is lower, so it is more profitable to sell these products on the local market. The distribution of the exported products researched under this study is shown in the diagram.

![Distribution of exported products](image)

As can be seen from the diagram, the largest exports are for fresh apples and dried apricots. Fresh apples are both locally produced and imported from Uzbekistan. Dried apricots are mostly imported from Tajikistan and Iran.

The main export destinations are the Moscow region, as well as the West Siberian Federal District.

The average purchase price for the primary products is:

- Apples – $0.5
- Fresh grapes - $0.9
- Dried apricots – $2.5

However, respondents provided information on the cost of production hesitantly, citing the seasonality of goods and price volatility.

The main means of transport used for export products is trucks with a load capacity of 20 tons. The use of trucks equipped with refrigerators depends on the products transported. As was noted by all exporters, the transportation cost has increased sharply lately, and the presence of the intermediary services (freight forwarders, who add extra charges to traffic) has also influenced this cost. According to information provided by exporters, the sample average cost for the transportation of fresh fruit from Almaty to
Moscow is around $3,500 to $5,000. However, a lower cost of $3,000 was cited during interviews with transport company representatives. The average transportation time is around 3-4 days.

The importance to exporters of various factors within the logistics chain, and exporters’ degree of satisfaction with those factors, was researched during the study. But, as was mentioned above, exporters usually lack knowledge of logistics issues. The study’s data is as follows:

<table>
<thead>
<tr>
<th>Factor</th>
<th>Importance</th>
<th>Service satisfaction</th>
</tr>
</thead>
<tbody>
<tr>
<td>Transport infrastructure</td>
<td>8.8</td>
<td>5.4</td>
</tr>
<tr>
<td>Vehicle technical characteristics</td>
<td>8.1</td>
<td>8.5</td>
</tr>
<tr>
<td>Sanitary and phyto-sanitary conditions</td>
<td>8.8</td>
<td>5.4</td>
</tr>
<tr>
<td>Custom clearance</td>
<td>8.7</td>
<td>7.8</td>
</tr>
<tr>
<td>Documents submission and visa issuance</td>
<td>8.3</td>
<td>7.8</td>
</tr>
<tr>
<td>Cold chain</td>
<td>7.8</td>
<td>6.6</td>
</tr>
<tr>
<td>Financing of the supply chain</td>
<td>5.9</td>
<td>4.9</td>
</tr>
<tr>
<td>Transit trade agreements</td>
<td>6.6</td>
<td>5.6</td>
</tr>
<tr>
<td>Road quotas</td>
<td>5.8</td>
<td>5.1</td>
</tr>
<tr>
<td>Transport operations</td>
<td>5.8</td>
<td>4.6</td>
</tr>
</tbody>
</table>

As is seen from the diagram, the most important factor for respondents is that of transport infrastructure, though there is a low degree of satisfaction. The lowest satisfaction rating is that of the financing factor. Transportation companies also noted poor road quality. Other important factors include the technical characteristics of vehicles, the phyto-sanitary conditions of transport, customs control, as well as the receipt and submission of documents. The satisfaction rating with these factors among respondents was high, and mostly they did not note any complexities with processing documents or with the passage of goods across the border.

Transport operation and road quotes came in as low-importance factors among respondents. Other factors and problems in the transport and logistics chain as indicated by respondents were:
Issues:

1. The high cost of transport services,
2. Drivers not maintaining vehicle cargo temperature conditions in order to save fuel,
3. The presence of forwarding services and intermediaries,
4. The poor transport infrastructure.

Recommendations:

1. Subsidies for developing logistics, particularly the creation of logistics centers,
2. The simplification of transportation procedures,
3. The creation a common information site in which there will be the opportunity to direct work between exporters and transportation companies without the services of intermediaries.

THE KYRGYZ REPUBLIC

During the study, 12 companies involved in the export of fruit and vegetable products were interviewed, including the transportation companies engaged in international transport. The table below shows this list of companies and contact persons.

**List of enterprises in Kyrgyzstan**

<table>
<thead>
<tr>
<th>Company name</th>
<th>Contact person</th>
</tr>
</thead>
<tbody>
<tr>
<td>Oberon LLC</td>
<td>Erkinov T</td>
</tr>
<tr>
<td>LLC &quot;Customs Cargo Service&quot;</td>
<td>Shirshova Natalia</td>
</tr>
<tr>
<td>Rin Cargo LLC</td>
<td>Muhamed</td>
</tr>
<tr>
<td>Estiay Logistic LLC</td>
<td>Manas</td>
</tr>
<tr>
<td>Private entrepreneur</td>
<td>Eugene</td>
</tr>
<tr>
<td>Mol Tushum</td>
<td>Abdirasht</td>
</tr>
<tr>
<td>Private entrepreneur</td>
<td>Vladimir</td>
</tr>
<tr>
<td>Private entrepreneur</td>
<td>Zamir</td>
</tr>
<tr>
<td>Private entrepreneur</td>
<td>Kairullo</td>
</tr>
<tr>
<td>Private entrepreneur</td>
<td>Orman</td>
</tr>
<tr>
<td>LLC Agroproduct Asia</td>
<td>Mirlan</td>
</tr>
<tr>
<td>Kulnazar farm</td>
<td>Bukaraev Marajbek Kumazarovich</td>
</tr>
</tbody>
</table>
The largest portion of exports is fresh fruits and vegetables. Only two companies deal with dried fruits and beans. There is also a high level of cherry and sweet cherry exports. The other portion of exported products is for potatoes, carrots, cabbage and onions.

More detailed data on the distribution of exports is shown in the following diagram.

![Export Distribution Diagram]

The largest portion of products are exported to other the countries of the Customs Union (EAEU): Russia and Kazakhstan. However, as we can see from the cross-sectional analysis of Kazakhstan’s respondents, many importers are reluctant to work with entrepreneurs from the Kyrgyz Republic, protecting the interests of local producers.

According to information provided by the respondents, there is an unlimited demand for products from the Russian Federation, therefore exports to Russia are a priority. The main export products, as well as their cost, are presented in the table below.

<table>
<thead>
<tr>
<th>Exports of products</th>
<th>Importing country</th>
<th>Procurement price</th>
<th>Export price</th>
<th>Markup %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cherry</td>
<td>Russia</td>
<td>$0.65</td>
<td>$1.00</td>
<td>54%</td>
</tr>
<tr>
<td>Apples</td>
<td>Russia, Kazakhstan</td>
<td>$0.40</td>
<td>$0.70</td>
<td>75%</td>
</tr>
<tr>
<td>Fresh apricots</td>
<td>Russia, Kazakhstan</td>
<td>$1.00</td>
<td>$1.35</td>
<td>35%</td>
</tr>
<tr>
<td>Fresh grapes</td>
<td>Russia</td>
<td>$0.90</td>
<td>$1.15</td>
<td>28%</td>
</tr>
</tbody>
</table>

It should be noted that the transport companies were also involved in the survey, but often they are not able to provide reliable information on the production costs.

As can be seen from the table, the highest markup is that of the export of fresh apples. Most likely, this fact is due to the high demand for this product in the Russian Federation. The same conclusion can be drawn regarding the export of cherries, especially those to the Siberian Federal District. The most promising areas for export are:

- Moscow and Moscow Region,
- Siberian Federal District in particular Novosibirsk, Krasnoyarsk, and Surgut,
Kazakhstan: Almaty, Astana, and Shymkent.

Most respondents chose road transport. This is due to its simpler process and lower cost compared to other modes of transport. Railway transport is less used, because it is not always possible to deliver products directly door-to-door. Refrigerated trucks with a capacity of 20 tons were used primarily.

The cost for transportation varies depending on the direction of delivery, the type of products, and transportation conditions. The cost for transportation from Bishkek to Moscow is upwards of $4,500, and $3,000 from Bishkek to Novosibirsk. Transportation costs to Moscow thus average about $0.2 per kg. Delivery times vary from 3-5 days.

The importance to exporters of various factors within the logistics chain, and exporters’ degree of satisfaction with those factors, was researched during the study.

As can be seen from the diagram, each of the proposed criteria is quite important to the respondents. The participation of transport companies in the survey lent itself to increasing the importance rating. The most important are as following:

As can be seen from the diagram, each of the proposed criteria is quite important to the respondents. The participation of transport companies in the survey lent itself to increasing the importance rating. The most important are as following:
1. Supply chain financing for both the development of each individual element in the chain and the chain as a whole,

2. Sanitary and phyto-sanitary conditions provided by transport companies

3. The presence of the cold chain.

However, the rate of satisfaction with these factors is not very high, especially in terms of compliance with sanitary and phyto-sanitary conditions, where the average level of respondents' satisfaction was estimated below the average rate. The least important factors for respondents are such criteria as road quotas and documents submission.

The satisfaction rating of the factors together is about average. In general, the respondents are satisfied with the vehicle technical characteristics at 6.7 points out of 10. The lowest satisfaction rate is for transit-trade agreements and phyto-sanitary conditions. Perhaps this is due to the complex trade relationship with the Kazakhstan, which involves product import prohibitions and phyto-sanitary control.

For providing further development such directions as exports and transport/logistic the respondents also expressed the following complexities, wishes and recommendations.

The respondents also expressed the following issues and recommendations:

**Issues:**

1. The lack of refrigerated cars, resulting in the high cost for delivery due to the low number of trucks. There is a need to increase the transportation base,

2. The high cost of fuel; the average fuel cost is $0.15-0.25 per kilometer,

3. Lack of accredited laboratories for testing the quality of products,

4. Complexities in obtaining documentation and certification,

5. Difficulties in customs clearance control for exports outside the EAEU.

**Recommendations:**

1. Support and development for the export of dried fruits by the Kyrgyz Republic,

2. Building trade and transit agreements with Kazakhstan,

3. Refrigerated terminals are required for the storage of products.

According to the respondents’ opinions, resolving these factors will allow for increased export volumes as well as production volumes. Currently, the most acute issue is building a better trade relationships with Kazakhstan, because prohibitions and the difficulty of getting goods through the border reduces the growth potential for exports.

Based on this study, we can conclude that the transport and logistics system does not fully meet the requirements of the respondents, and needs further development.
TAJIKISTAN

During the study conducted in the Republic of Tajikistan, eight key companies engaged in the export and import of fruit and vegetable products were interviewed. The most promising products for export were identified. The table below shows the list of companies and contact persons.

**List of enterprises in Tajikistan**

<table>
<thead>
<tr>
<th><strong>Company name</strong></th>
<th><strong>Contact person</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>LLC &quot;Barasat-Isfara&quot;</td>
<td>Ahmedov Umarkhon Mirzohomidovich</td>
</tr>
<tr>
<td>LLC &quot;Fruit Valley&quot;</td>
<td>Ortukov Lutfullo</td>
</tr>
<tr>
<td>LLC &quot;Directservice&quot;</td>
<td>Fazulloev Ikbol Hukmotullovich</td>
</tr>
<tr>
<td>LLC &quot;Isfarafud&quot;</td>
<td>Buzurukov D.X</td>
</tr>
<tr>
<td>Private entrepreneur</td>
<td>Tursunov Nuriddin</td>
</tr>
<tr>
<td>Private entrepreneur</td>
<td>Radtabov Hayibali</td>
</tr>
<tr>
<td>LLC &quot;Sogdiana&quot;</td>
<td>Rakhimov M.R.</td>
</tr>
<tr>
<td>LLC &quot;Isfara&quot;</td>
<td>Abdufatoev Firdavs</td>
</tr>
</tbody>
</table>

The most common export products are dried apricots and dried grapes. Fresh grapes and apricots also are a significant part of exported products. The smallest part of the target group products is the export of beans. More detailed data on the distribution of products supplied by respondents is demonstrated in the diagram below:
The largest portion of products is exported to Moscow and to the Moscow Region of the Russian Federation, the most profitable commodities begin fresh apricots and fresh grapes. These products are perishable and do not withstand long-term transportation well. The cost of dried apricots and dried grapes is higher due to less risk of damage during transportation. The most popular products, together with an average cost of distribution, are listed in the table below:

**Products exported**

<table>
<thead>
<tr>
<th>Products</th>
<th>Importing country</th>
<th>Procurement price</th>
<th>Export price</th>
<th>Markup %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dried apricots</td>
<td>Russia, Kazakhstan</td>
<td>$1.10</td>
<td>$1.40</td>
<td>27.3%</td>
</tr>
<tr>
<td>Dried grapes</td>
<td>Russia, Europe, Kazakhstan</td>
<td>$1.10</td>
<td>$1.40</td>
<td>27.3%</td>
</tr>
<tr>
<td>Apples</td>
<td>Russia, Europe</td>
<td>$0.50</td>
<td>$0.75</td>
<td>50%</td>
</tr>
<tr>
<td>Fresh apricots</td>
<td>Russia, Kazakhstan</td>
<td>$0.20</td>
<td>$0.60</td>
<td>200%</td>
</tr>
<tr>
<td>Fresh grapes</td>
<td>Russia, Kazakhstan</td>
<td>$0.20</td>
<td>$0.40</td>
<td>100%</td>
</tr>
</tbody>
</table>

All companies interviewed use road transport to deliver products to international markets. Among these, three respondents use railway and air transport to export to Russia, and air transport to export to Europe.

Transportation costs vary depending on the destination and delivery capacity. For example, the delivery cost to Moscow by road is between $2,000 and $4,000, or about $0.10 to $0.20 /kg. Delivery costs depend on the route of delivery, the season, the type of cargo, and the availability of all necessary shipping documents. Road transportation issues are quite complex, and cannot be sufficiently discussed based on the number of interviews conducted. Based on the opinions of participants involved in the process, as well as on experts’ opinions, we can emphasize the main criteria on which the cost of transport depends:

1. The time of the year. In the summer, the cost of freight transport with refrigeration from Tajikistan to Kazakhstan and to Russia is at its highest because this is the peak season for harvesting fresh fruits for export (apricots, grapes, peaches, and apples), which creates both a high demand and some deficit. The average cost of one truck shipping (about 18-20 tons) can reach $4,500 to $6,500.

2. The type of goods. The transportation cost of perishable fresh fruit is 2-3 times higher than that of goods with a longer shelf life. This is due to the increased requirements of customers regarding delivery times and a higher liability for transported cargo by shipping carriers. Additionally, the higher cost is due to the high level of corruption among customs authorities and traffic police officers along the route of the truck. These authorities are entitled to hold a truck for a certain period, during which a perishable product may deteriorate. So, when transporting fresh fruit, the drivers must give higher bribes. For example, dried fruits can be transported by a 20-ton truck covered by a tarp with no refrigeration from Tajikistan to Kazakhstan and to Russia at a price of $1,500 to $2,500. The prices remain virtually unchanged year-round. The transportation cost of fresh fruit by refrigerated truck in the summer period on the same route can reach $5,500 to $6,500.

3. The presence of all authorized documents. Delivery costs directly depend on the number of violations of existing laws while the products are delivered. Often value chain participants, either trying to save money or lacking the ability to fulfill all necessary legal requirements, transport a shipment with an incomplete package of documents, subjecting the transport company and its shipment to additional risk. That leads to increased corruption payments resulting in an increased product delivery cost. This practice is typical for both fresh fruits and dried fruits. A high-volume
exporter has a full package of documents, including permanent regulation permits and export permits. Small suppliers frequently have an incomplete package of documents.

4. The direction of delivery. The cost of delivery also depends on the availability of return freight from the point of delivery. Usually, there is a high probability of return freight from the major trade/production centers of Russia (Moscow, Novosibirsk, Yekaterinburg, etc.) and Kazakhstan (Almaty, Astana, etc.). The delivery cost to other cities in Russia and Kazakhstan will depend on the distance to these destinations.

The delivery cost by railway from Tajikistan is, on average, $8,700 per railway car (at about 55-60 tons), which is about $0.15 per kg. But, the delivery time by railway is about 2 to 2.5 times longer than by road. Compared to truck transportation, which is about 5-7 days, the delivery time by the railway is about 10-20 days.

During the interviews of exporters and importers from Tajikistan, the respondents identified primary factors in transport, as well as their degree of importance and satisfaction with these factors. It is worth noting a certain pattern among respondents that, if a respondent raises more requirements and issues with a given factor, then usually that factor is more important to the respondent.

<table>
<thead>
<tr>
<th>Factor</th>
<th>Service satisfaction</th>
<th>Importance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cold chain</td>
<td>5,5</td>
<td>9,4</td>
</tr>
<tr>
<td>Transport infrastructure</td>
<td>4,2</td>
<td>8,8</td>
</tr>
<tr>
<td>Documents submission and visa issuance</td>
<td>5,0</td>
<td>7,8</td>
</tr>
<tr>
<td>Custom clearance</td>
<td>3,8</td>
<td>7,5</td>
</tr>
<tr>
<td>Financing of the supply chain</td>
<td>5,8</td>
<td>6,8</td>
</tr>
<tr>
<td>Transport operations</td>
<td>6,8</td>
<td>6,8</td>
</tr>
<tr>
<td>Vehicle technical characteristics</td>
<td>6,3</td>
<td>7,6</td>
</tr>
<tr>
<td>Sanitary and phyto-sanitary conditions</td>
<td>6,3</td>
<td>7,6</td>
</tr>
<tr>
<td>Transit trade agreements</td>
<td>5,5</td>
<td>6,2</td>
</tr>
<tr>
<td>Road quotas</td>
<td>5,5</td>
<td>6,2</td>
</tr>
</tbody>
</table>
As we can see from the diagram, the most important factors are the cold chain, the availability and development of transport infrastructure, the submission of documents, and visa issuance. As the study showed, respondents were the least satisfied with these factors. Poor transport infrastructure development is due to a lack of funding in this area. The average respondents' satisfaction with this factor is 3.8 out of a 10-point scale.

The respondents are most satisfied with the sanitary and phyto-sanitary conditions for the transit of products. It should be noted that such a criterion as the technical characteristics of vehicles represent average values; the main technical criterion for choosing a vehicle for the transportation of fresh products is the presence or absence of refrigerators with the presence of “climate control”. Usually, during the transportation of dried fruits, trucks without a cooling system are used, and in this case the transportation cost is the primary factor.

The least important factors for respondents are road quotas and transport operations, because these factors are more responsibility of the transportation companies. As it was revealed from the study, a product’s customs clearance procedures do not cause any special difficulties, and respondents rated the degree of satisfaction with this factor as above average.

Also, the respondents noted the difficulty in maintaining the export documentation for taxation requirement. The following issues in the logistics chain noted by respondents are:

1. Prohibitions imposed by the Russian Federation for importing products from Tajikistan. The periodic prohibitions on the import of products, particularly on dried fruits, negatively affect exporters and lead to losing regular customers. But, at the same time it was noted that in such periods the exporters worked through retailers located in Kazakhstan.
2. Insufficient development of the transport and logistics systems. The respondents noted the limitations in the logistics centers and vegetable stores.
3. Limitations in the refrigeration equipment in warehouses.
4. Quality and capacity of raw materials. In addition, respondents talked about the need to increase a product’s line. Currently, the largest volume products are dried apricots and dried grapes. According to exporters’ opinions, it is necessary to increase the export capacity for such products as; prunes, walnuts, apricot kernel, peanuts, and juice mixtures.
5. Issues with packaging materials.
6. High assessed taxation within the Republic of Tajikistan
7. The difficulty and expense of receiving HACCP certification.

Companies have enough experience and understanding in the sphere of transport/logistics for an objective perception of the market and how resources may be used optimally. However, the resources of transport/logistics companies available for the collection, storage and transportation of products are limited, and required additional financing. In general, logistics supply in the country can be assessed as at an average level.

**UZBEKISTAN**

The survey was conducted in the Tashkent, Fergana Valley, and Samarkand regions. In total, twenty one organizations participated in the survey (nine logistics companies, four trade associations, four banks, and four public agencies).
<table>
<thead>
<tr>
<th>#</th>
<th>Company name</th>
<th>Contact person</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Association ADBL</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Ark Logistics LLC</td>
<td>Razzokov Jurabek</td>
</tr>
<tr>
<td>3</td>
<td>TRANSBOJ-SERVICE LLC</td>
<td>Ayrapetyantc Arsen Olegovich</td>
</tr>
<tr>
<td>4</td>
<td>Association AMBIT</td>
<td>Yusupov Kadir</td>
</tr>
<tr>
<td>5</td>
<td>TURON Transit &amp; Logistics LLC</td>
<td>Rakhmetov Khurmatullo</td>
</tr>
<tr>
<td>6</td>
<td>LLC C. Spaarmann Tashkent</td>
<td>Mamasaliev Nozimjon</td>
</tr>
<tr>
<td>7</td>
<td>Central Asian Trans LLC, (Head of International Relations)</td>
<td>Farkhod</td>
</tr>
<tr>
<td>8</td>
<td>LLC Cargo Management</td>
<td>Aykhodjaev Rustamkhodja</td>
</tr>
<tr>
<td>9</td>
<td>Dioyr LLC</td>
<td>Marupov Akrom</td>
</tr>
<tr>
<td>10</td>
<td>Uzbek Agency of Automobile and River Transports</td>
<td>Mirazim,</td>
</tr>
<tr>
<td>11</td>
<td>AgroNam LLC</td>
<td>Sultonov Behzod</td>
</tr>
<tr>
<td>12</td>
<td>Agricultural Export Department of Andijan Khakimiyat</td>
<td>Abdulkhakim</td>
</tr>
<tr>
<td>13</td>
<td>SCB “Mikrokreditbank”</td>
<td>N/A</td>
</tr>
<tr>
<td>14</td>
<td>SCB “Ipak Yoli Bank”</td>
<td>N/A</td>
</tr>
<tr>
<td>15</td>
<td>AO “KDB Bank Uzbekistan”</td>
<td>N/A</td>
</tr>
<tr>
<td>16</td>
<td>SCB “Asaka Bank”</td>
<td>N/A</td>
</tr>
<tr>
<td>17</td>
<td>Association of Brokers of Uzbekistan</td>
<td>Ayrapetyantc Arsen Olegovich</td>
</tr>
<tr>
<td>18</td>
<td>SC “Uzagroexport” Andijan branch (logistics center).</td>
<td>Kamoliddin</td>
</tr>
<tr>
<td>19</td>
<td>State Custom Committee of The Republic of Uzbekistan</td>
<td>N/A</td>
</tr>
<tr>
<td>20</td>
<td>Chamber of Commerce and Industry of Uzbekistan</td>
<td>N/A</td>
</tr>
<tr>
<td>21</td>
<td>State Tax Committee of the Republic of Uzbekistan.</td>
<td>N/A</td>
</tr>
<tr>
<td>22</td>
<td>10 agrifirms, 3 agri-brokers.</td>
<td></td>
</tr>
</tbody>
</table>
Export Prices

The study’s findings reveal that the range of prices/kg for the selected horticultural exports as of September 2017 are as follows (note that prices are highly volatile and prices here are for high-grade species):

- Cherry $1.7-$2.08
- Beans $0.81-$1.06
- Apple $0.64-$0.78
- Fresh Apricot $0.44-$0.55
- Dried Apricot $1.4-$1.70
- Fresh Grapes $0.88-$1.07
- Dried Grapes $1.4-$1.72
**Exports to Russia**

The main mode of transport used to export products is by truck with a load capacity 20 of tons. Refrigerated trucks are necessary for such shipments. The average cost from Tashkent to Moscow for transportation of 20 tons fresh fruit is around $6,000 to $9,000. Thus, **transport cost is $0.30 to $0.45 per kg**. The average delivery time is around 5-7 days. Exporters do not trust the transport companies and tend to manage all transport operations by themselves. Respondents also indicated that transportation costs have surged recently. In a normal period, a shipment of 20 tons of fresh fruit by road would cost only $4,000, which equates to $0.20 per kg. In terms of price differentials, they are: $0.50 (at the farmer’s gate), $1.10 (to export), $1.30 (for wholesale import), and $1.50 (at retail destination). This means the price per kg increased three times from farm to shelf, with exporters taking the hardest hit.

Uzbek sends dried products by railways due to the fact that there is less delivery urgency and the fact that railways are cheaper. Shipping 60 tons of dried grapes from Tashkent to Novosibirsk in Russia costs from $6,500 to $10,000. Thus, the transport cost is from **$0.11 to $0.16 per kg**. Shipping by train is about 3 times cheaper than trucking. The lead time is 7-12 days. The price at the farm gate is estimated between $0.60 to $0.70 per kg, and the export price ranges between $1.30 to $1.70 per kg.

**Competitive Factors**

The main mode of transport used for the export of products is by truck with a load capacity of 20 tons.

![Chart showing service satisfaction and importance](chart.png)

(ADJUST CHART: Service satisfaction and Importance)

Uzbek respondents opined which factors are the most important and they generally indicated a desire for greater improvements. The only exception appeared to be ‘transport operations’ for which they expressed satisfaction. This is due to the ‘in-sourcing’ culture in which they can control the supply chain. Also, respondents expressed less dissatisfaction for ‘SPS’. One reason for this is that exporters focus on traditional markets such Russia where huge demand and compatible SPS standards create fewer problems.
However, SPS is likely to be a problem if exporters explore shipping to Europe, where SPS requirements are stricter.

The areas where sizable gaps exist between importance and satisfaction level are; (1), transit trade agreements, (2), customs controls, (3), cold chain, (4), transport infrastructure, and (5), supply chain financing.

**Customs Procedures Steps in Uzbekistan**

Step 1. It is important to load the exporting products under the monitoring of a customs clearing specialist, a customs specialist on declarations, and an exporter representative who will fill-in and sign the inspection report. Then the truck is sealed by the exporter and customs officials.

Step 2. The declaration application is submitted before the loading the cargo.

Step 3. All information is entered into the invoice and waybill/CMR.

Step 4. The customs broker (declaring specialist) prepares the necessary documents.

Step 5. The following documents are submitted to the customs service:
- Original contract.
- Waybill
- Invoice
- Product certificate
- Confirmation of payment for customs clearance
- Confirmation for payment of customs check
- Inspection report
- Hygienic certificate
- SPS certificate
- Quarantine report
- Disinfection report

Step 6. The declarant enters all necessary information into the Cargo Customs Declaration.

Step 7. The declarant submits the following documents to the customs inspector:
- Contract
- Cargo Customs Declaration
- Invoice, Quality Certificate, and Packing List
- Product Certification
- License (if required by law)
- Confirmation of fee payments

Step 8. The customs inspector checks these documents, approves them in the Unique Information System of International Transactions, and stamps the document.
COMPANY SPECIFIC FINDINGS

EXOTICA, LLC

During a meeting with Exotica LLC., one of the largest exporters and transportation companies (Director Sergey Vasilievich Golinko), an important aspect that hampers the logistics process was discussed. According to information provided by the respondent, a complex situation occurs during phyto-sanitary control in Russia. Certificates received in the Kyrgyz Republic, in Kazakhstan, and in the Russian Federation are accepted. However while in Russia the system requires entering products into the unified export register "Argus" and obtaining a unique code for the transported products. However, there is no access to this register in the territory of the Kyrgyz Republic. When exporting goods, the entrepreneur should enter the products in the register in the territory of Russia, which means repeating the laboratory control procedure and confirmation of a product’s quality. As explained by the respondent, if this number is absent in the register, the Russian phyto-sanitary service (more precisely, Rosselkhoznadzor) located at the destination point will not be able to accept the product for examination and, therefore, the product cannot be sold. The process of obtaining the number from the register is as follows. Upon crossing the border, the driver submits documents to the phyto-sanitary control service and asks them to enter the products in the "Argus" register (http://www.argusfito.ru/rp/#pl). After that, the product undergoes a laboratory examination at the destination.

Another aspect noted during the interview was the presence and operation of the "single window." According to information provided by respondent, the "single window" in Russia works without any difficulties as "simple, clear, and understandable," however, in the Kyrgyz Republic, searching for any documents in the system using the search modes available is very difficult.

The respondent also noted that almost all dried fruits from Tajikistan pass through Kyrgyzstan. In Batken there is a well-established system for transferring products to cars of the Kyrgyz Republic, and for sending these cars on to Russia and Kazakhstan. However, this system does not work with Uzbekistan, as Uzbek products are mainly transshipped on the border with Kazakhstan at Chernyayevka.

The respondent noted that there is a large amount of illegal export from Tajikistan. According to his estimate, only about 10% of the volume of dried fruits are officially registered. The same situation applies to the export of fresh grapes from the Kyrgyz Republic.

Regarding the transport and logistics system as a whole, it currently does not work in a uniform way, and requires additional inputs and investments for future development. Currently, the work of each element is organized in a separate way. There is no single information source from which it would be possible to find the whole product transport chain visually.

ABBADA COMPANY, LLC

A separate interview was also conducted with exporter Abbada Company, LLC. According to information provided by the respondent, their main problem is the high cost of transportation associated with the insufficient number of local transport vehicles. It is possible to find a truck with an acceptable price (up to $2,000) under certain circumstance. However, it often happens that there are no available vehicles and the company can only call the services of transport companies from Russia and Kazakhstan. In this case, the transportation cost is doubled, especially if there is a need for refrigerators.

Abbabda Company, LLC did not indicate any problems with cargo documentation. The respondent also noted the importance of expanding the company’s vehicle fleet. Currently, the company is considering the possibility of creating its own fleet but, so far, it does not have the finances for it. The development and
expansion of the company fleet will reduce transportation services cost, as well as reduce increased prices during the peak season due to a shortage of trucks.

FARMER’S ORGANIC GARDEN, LLC

During an interview with Abdykapar Kaipov, General Director of the company Farmer’s Organic Garden, LLC, many difficulties related to export to the near and far-abroad were discussed. Issues related to exporting to China, to countries of the Customs Union, and to Europe were covered. When considering export issues to China, the respondent explained that there is no well-established system for reconciling trade agreements between the countries. There are high customs duties and quotas for the import of products to China. However, the transportation of products to China by private means (buses or taxis) is possible, but in small volumes. According to information provided by the respondent, it may be possible to establish permanent export routes into China if intergovernmental agreements are made. It has become more difficult to work with the EAEU countries, because there is a unified system of product quality certification and a register of manufacturers. There are no EAEU laboratories in the territory of the Kyrgyz Republic. If there were, it would make it possible for entrepreneurs to enter into the EAEU register. It is difficult and expensive to complete this procedure in the territory of the Russian Federation (according to the respondent, entering one product name costs 80 thousand rubles, the equivalent of $1,340).

According to the respondent, not all cars can cross the border into Europe, as transportation by outdated vehicles is prohibited. The absence of new vehicles in the Kyrgyz Republic creates problems for transportation to Europe. Trucks which are permitted transport into Europe are only available in Almaty and Tashkent, where it is possible to find vehicles from some of Europe’s own transportation companies. The cost of any Almaty transportation company shipping by truck is more expensive than that of an analogous transportation company from Europe, therefore the respondents work mainly with European partners. The transportation process is as follows. A car hired in Kyrgyzstan delivers the cargo to Almaty or Tashkent, and then reloads into a car of a transportation company from Europe. According to the respondent, the cost of a truck from Almaty to Paris by a European company is around €7,000, comparing to a Kazakhstan company in which the cost is about €10,000. Regarding the internal system of logistics in the Kyrgyz Republic, the respondent stated that the cost for transporting products is overstated. In addition, there is no confidence in the carriers. The transport market is small, and represented mostly by owner-drivers who have a fictitious TIR to guarantee their cargo., And, they do not provide any official guarantees. During transportation, changing the temperature can lead to a product’s deterioration. For these reasons, the owner-drivers are hired in exceedingly rare cases. These deficiencies in the major transportation companies in the Kyrgyz Republic is the primary reason for using transportation companies from neighboring countries.
The respondent sees the reason for the high cost of transportation in the low competition among transportation companies, and in the insufficiency of cars in the Kyrgyz Republic. During the peak season, vehicle transportation costs increase sharply, especially if there was no preliminary agreement with a company or driver. Greater competition in this area could decrease the cost of transportation.

According to the respondent, there are no other difficulties in the transport system. The border crossing is also without difficulties, unless corruption at the border causes a delay, especially if the cargo contains perishable goods.

The respondent noted that further development of the transport/logistics system is possible by increasing the number of specialized vehicles in the cold chain supply.
CHAPTER 5: RECOMMENDATIONS

This chapter extends the findings and analysis of the above chapter, and elaborates on the competitive factors and the corresponding recommendations.

OVERVIEW OF FOCAL AREAS

1. **Customs Modernization**
   Goods in transit, exports, or imports, need to undergo customs controls at the border and at the inland customs offices. This is a subject of interest as many studies show that such controls can result in a significant delay. Customs modernization aims to simplify the process to reduce time and cost.

2. **Sanitary and Phyto-Sanitary Standardization**
   Differences in food safety standards can also result in lengthy transit delays. There is a need to harmonize SPS standards and provide laboratories.

3. **Cold Chain Capacity**
   This refers to the fixed and mobile infrastructure (e.g. the availability of cold rooms and refrigerated trucks) as well as to the logistics competency of transport operators to handle, store, and move horticultural products. Limitations in the cold chain capacity are often cited as a key constraint to agricultural exports.

4. **Transport Infrastructure**
   The condition, quality, and connectivity of transport infrastructure, such as roads, railways, and other modes of transport, often determine the efficiency of a supply chain. The absence of poor conditions can drive up the transport cost and limit market access.

5. **Transport Operations**
   The competency of the transport operators and the use of multi-modal transport allow for the rapid movement of horticultural goods. Conversely, the absence of these factors can limit market access and make exports incompetent.

6. **Trade Finance**
   This refers to the availability and attractiveness of financial services such as corporate loans to support capital investment or the working capital of shippers and transport operators. This is often an under-looked means of increasing exports.

7. **Market Diversification and Development**
   This is to intensify the move from over-reliance on traditional markets and to explore new opportunities in new markets.
FOCAL AREA 1: CUSTOMS MODERNIZATION

LPI 2016 Scores for ‘Customs’ in the Central Asian Republics

<table>
<thead>
<tr>
<th>Country</th>
<th>Score</th>
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<tbody>
<tr>
<td>Kazakhstan</td>
<td>2.516</td>
</tr>
<tr>
<td>Uzbekistan</td>
<td>2.319</td>
</tr>
<tr>
<td>Tajikistan</td>
<td>1.933</td>
</tr>
<tr>
<td>Kyrgyz Republic</td>
<td>1.8</td>
</tr>
</tbody>
</table>

Customs tend to be ranked at the bottom half of the six-metrics assessed in LPI studies. In fact, KGZ and TAJ did not even achieve a score of 2.0. The average value is 2.14. Note that LPI uses a perceptual based methodology, so the value itself is merely an indication of the satisfaction level of respondents. Nonetheless, this gives an estimation of how transparent and efficient customs is.

Sometimes customs is synonymous with border crossings, and thus get blamed for all the problems at a border crossing point. There are many border crossing agencies, of which customs is only one. The reason for this phenomenon is due to customs acting as the ‘gatekeeper’ to ensure compliance with national laws (including SPS, transport regulations, etc.). But, when customs stop or detain a shipment, the underlying problems could be something else.

Common issues related to customs are:

- The absence of a **single window**. No country has yet implemented a national, single window. Kazakhstan started a one-stop shop at Aktau earlier in 2016. But, usually, there are still several border agencies at border crossing points, and the driver must complete each procedural setup.
- The absence of a **green lane**. In Uzbekistan, agricultural exports go through the same standard customs controls. There is no expedited clearance or green lane.

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1 LPI stands for “Logistics Performance Indicators,” a World Bank sponsored study.

2 The Kyrgyz Republic and Tajikistan have embarked on Time Release Studies in cooperation with the International Financial Centre. Efforts to process-map the customs procedures and the cost/time performance were conducted in May and June of 2017. Such studies can reveal more detailed findings.
Recommendations

<table>
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<th>COUNTRY SPECIFIC CUSTOMS REFORMS</th>
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<td>COUNTRY</td>
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| Kazakhstan | The country has already embarked on building a network of ‘Customs Clearance Zones’ (CCZ) which function as inland centers for the one-stop shop clearance of goods. The CCZ is also planned to be located adjacent to an international logistics park run by reputed companies, such as Damu Logistics, so that importers and exporters can engage their services, such as temporary cold room storage, consolidation and deconsolidation, as well as packing, labeling and marking. The country is now implementing a national one-stop clearance and ASYCUDA World.

Customs modernization efforts can focus on:
- Support Kazakhstan to roll out more CCZs in the country, particularly those that are located along the agro-supply chain routes, such as Shymkent.
- Explore the possibility of automated customs data exchange between Kazakhstan and other neighbor countries to expedite cross border shipments, starting with agricultural products.
- The current Priority Border Crossing Points are Khorgos-Alynkol (KAZ-PRC for road and railways), Koneysbaeva-Yallama (KAZ-UZB for road), Sarygash-Keles (KAZ-UZB for railways), and Almaty International Airport. The Airport has the potential to serve as an international transshipment hub for Kyrgyz Republic and Tajik exports but the customs regimes need to be further studied. CTJ may consider commissioning further research, including site visits to assess border crossing efficiency, in particular for horticultural products. |
| Kyrgyz Republic | In 2016, the country started pre-arrival declaration, which allows exporters and importers to log a customs declaration in advance. If the declaration is logged at least two hours before the shipments arrive at the border point, the customs officials are obligated to complete customs control and release the truck within 30 minutes. The customs administration is also very occupied with aligning the national customs codes to the EAEU system.

Customs modernization efforts can focus on:
- Support the Kyrgyz Republic to introduce a one-stop-shop for overall border crossing efficiency. Currently, the documentation and crossing procedures are administered by multiple, disparate agencies. Besides Customs, the Ministry of Transport and the Ministry of Agriculture are equally important players.
- Customs has established a platform called Customs Consultative Council in which businesses are represented and attend meetings on a regular basis to discuss issues. CTJ can request permission to attend, and then suggest setting up a Working Group on Agriculture as this is a major export commodity. |

Noting that things in Central Asian Republics work top-down, implementation must have a legal backing. This applies to customs reforms, which must start with a legislative review. The following action items depend on the legislative changes before implementation can start. The positive news is that many aid development organizations such as Asian Development Bank, IFC, and GIZ are actively engaging the customs administrations to various degrees for the modernization of the customs program.

FOCAL AREA 2: SANITARY AND PHYTO-SANITARY

Trade and procurement operations, as well as the marketing of agricultural products in the Kyrgyz Republic and Tajikistan, are largely ad-hoc. Mainly, agricultural products are sold in large, medium, and small open-style markets where there is no compliance with sanitary and veterinary standards, and there are no laboratories for conducting quick analyses in these markets. As a result, outbreaks of infectious diseases in consumers may be caused. In vegetable and fruit pavilions, where intense selling is done, there is no compliance with sanitary norms, especially during the summer.
In accordance with the EAEU Agreement to ensure the sanitary and epidemiological welfare of the population, and in accordance with quarantine phyto-sanitary security in the EAEU countries, a coordinated policy is being implemented. This is being realized through the joint development, adoption, and implementation of international treaties and commission acts in the application of SPS measures by member states. However, EAEU SPS also creates some challenges for Kyrgyz operators (see the case study, below).

**Case Study: the Impact of Eurasian Economic Union (EAEU) on the Kyrgyz Republic**

**Background**
The Kyrgyz Republic officially became the fifth country to join the Eurasian Economic Union in 2015. Since August 12, 2015, customs controls were eliminated at all border crossing points with other member states. Phyto-sanitary inspections soon followed likewise on November 19, 2015. At the BCPs, only border security and veterinary controls remain operational. The country decided in favor of becoming part of the EAEU with the belief that such integration will enable the Kyrgyz Republic to further increase exports and maintain their market access to Russia and to Kazakhstan, which are traditionally important export destinations for the republic. According to the agreement, the Kyrgyz Republic will receive 1.9% of the total customs revenue in the EAEU. The Ministry of Finance projected that the treasury could receive 1.5 times more revenue after accession to EAEU.

**Positive Benefits**

*Easier border crossing*
Trucks with cargo can now cross borders, such as Ak Tilek – Kordai (KGZ-KAZ) in a shorter time, due to the removal of customs controls and phyto-sanitary inspections.

*Benefits for migrant workers*
The country has many migrant workers in Kazakhstan and Russia. Joining the EAEU allows them to move more easily to work. They also enjoy the same rights as local citizens in the work environment.

Despite these benefits, the Kyrgyz Republic has encountered significant issues.

**Adverse Impacts**

*Reduced Exports*
The economic sanctions imposed by the European Union on Russia, and the subsequent currency devaluation in Russian rubles and Kazakhstan tenge resulted in a dual impact of less aggregate demand and less competitiveness of Kyrgyz exports. The Kyrgyz som did not drop as much and as a result, and became more expensive relative to domestic products in the two above-named countries in the EAEU. In fact, the real GDP growth was at -2.3% for the first half of 2016, and was caused by decreased exports.

*The National Revenue Project was over-optimistic*
In contrary to the projected increase in national revenue due to increased trade and the split of customs revenue, the national revenue increased only slightly, from 82 billion som in 2014 to 84 billion som in 2015. The expected 1.5 times increase in the national budget failed to materialize.

*Unilateral and Unlawful Trade Protectionist Measures from EAEU members*
According to the Ministry of Agriculture, Kazakhstan did not waive phyto-sanitary inspections at the border as per the EAEU agreement. A new inspection laboratory and quarantine center was put in place at Kordai, and all shipments from the Kyrgyz Republic were subject to inspection. The Russian Federal Service for Veterinary and Phyto-Sanitary Surveillance also detained trucks on an ad-hoc basis, citing the need to inspect Kyrgyz products. This explained why CPMM detected very long delays at Veseloyarsk BCP in Corridor 3 at times. The detention period could last for 5 days or more. According to Kalysbek Zhumakanov (Head of the State Veterinary and Sanitary Safety Inspection), “Russia was supposed to finance $6 million worth of laboratory equipment to the Kyrgyz Republic to improve their competency. This did not materialize.

**New Regulatory Barriers in Transport**

Besides anti-trade measures, Kazakhstan also instituted barriers to restrict the free movement of goods. The country introduced a ‘transit permission’ document to and from third-party countries. This means if a transport operator from the Kyrgyz Republic carries a transit shipment across Kazakhstan, it is necessary to obtain and pay for this additional document. Kyrgyz Republic transport operators also reported that the transport agencies in Kazakhstan have increased checks on their delivery vehicles, subjecting trucks to multiple checkpoints. This encourages rent-seeking behavior, and increases the transport cost for Kyrgyz Republic transport operators.

**Disagreement on Transit Guarantees**

Transit shipments are typically conducted by qualified international road carriers who need to register and deposit a guarantee to customs authorities. In the Kyrgyz Republic, this sum is approximately $13,000. However, the Russian Federation proposed to make the guarantee deposit €1 million in the EAEU countries. This caused widespread concern in the Kyrgyz Republic, and the private sector vehemently opposed the increase in the guarantee deposit. The local operators were less financially equipped compared to their Russian counterparts, and such a law would render many Kyrgyz Republic operators out of business. EAEU members are still negotiating the increase. This is just one example of how there is still an extensive effort to align the national customs and tax legislation with the EAEU.

In summary, it seems that EAEU membership brought both hardship and benefit to the Kyrgyz Republic. Some of the impacts could be measured quantitatively by the CPMM, but the above-mentioned developments also affect areas not included in the CPMM, such as reduced exports, trade barriers for exporters, and the possible impact on employment.

**Source:** The information reported in this Box Story derived from two sources. First, the CPMM team attended a Consultative Council with the State Customs Committee of the Kyrgyz Republic on February 17, 2016, in which the private sector provided feedback on EAEU issues. Second, information was collected from the presentation conducted by Mr. Temirbek Shabdandaliev, Chairperson of the Freight Operators Association (FOA) at the Central Asian Trade Fair in Almaty, September 2016.
Recommendations

To prevent an infections outbreak and to increase the shelf life of fresh and dried fruits, it is necessary to build warehouses that meet the necessary technical requirements. CTJ can support the construction and operation of laboratories and related SPS facilities in the future. When choosing the location of a future facility, it was important to follow the following criteria:

- compliance with sanitary norms and distance to settlements of at least 500 meters,
- veterinary safety,
- minimization for major renewal of buildings - proximity to highways and power lines,
- absence of modern logistics centers in the region,
- proximity to consumers,
- availability of a railway and asphalted road to the facility,
- proximity of construction materials,
- availability of labor in the area,
- availability all utilities (electricity, water supply, etc.),
- presence of a developed infrastructure.

At a strategic level, CTJ can also adopt the following actions to resolve SPS issues:

- Publicize Russian SPS requirements and ease the access of Kyrgyz Republic and Tajikistan exporters to the unified export register ‘Argus’ for obtaining the unique codes. This is currently the primary problem for the exporters who currently may need to spend approximately $1,340 to attain an ‘Argus’ code.
- Work with other donor organizations to improve SPS standards in the Kyrgyz Republic and Tajikistan by establishing laboratories, test labs, and other necessary equipment and instrumentation.
- Conduct capacity building in the SPS and quality management system such as the Hazards Analysis Critical Control Points (HACCP).
- Setup national standards and certification to recognize qualified supply chain players (producers, value added processing enterprises, transport operators, etc.).
- Encourage transport and logistics companies to adopt the Good Manufacturing Practice (GMP) and the Good Distribution Practice (GDP) by attending seminars and getting certification.
- Countries with a reputation for trade facilitation, such as Georgia in the Caucasus, have moved towards integrating customs controls with other inspectorates such as SPS in order to streamline trade and border crossing procedures. In Central Asia, understandably, SPS still functions as a different organization. However, this complicates documentary and border controls. Where feasible, CTJ can explore the integration effort as a long-term endeavor. The support of the Ministry of Agriculture is critical. Though tremendously difficult, this integrated service can result
in significantly higher productivity and efficiency regarding trade facilitation for moving horticultural products.

- Encourage phyto-sanitary authorities in the region to exchange data, including quarantine pest lists, on a regular or ad-hoc basis.
- CTJ can explore the possibility of effective electronics access to phyto-sanitary data for each country in the region, as well as the requirements for existing and new markets (which will be explored in Focal Area 7, later in this paper). The lack of such information and requirements is a significant barrier for market diversification.
- CTJ can also facilitate public-private cooperation by setting up phyto-sanitary test laboratories in the Fergana Valley that will be cost-effective and available to horticultural exporters.
FOCAL AREA 3: COLD CHAIN CAPACITY

The most important issue is the pre-cooling of horticultural products immediately after harvesting and before the subsequent processing (if any), storage, packaging, and delivery to consumers. Pre-cooling is a process of rapidly lowering temperature from the initial (after harvesting) temperature to a lower target zone. This slows down the growth of pathogenic micro-organisms and lengthens the shelf life of horticultural products.

One day of the plant fruit cells' life at a temperature of 25 °C equals two days at a temperature of 15°C, four days at 10°C, eight days at 4°C and sixteen at 0°C. Quick-cooled fruits and vegetables are more resistant to pathogens (bacteria, molds, and yeast). Hence, there are reduced defects from the fruits and vegetables being overripe, losing weight, or having diseases.

Currently, these existing pre-cooling methods for fruits and berries are used:

1) Cold air in a conventional storage chambers at a relatively low air speed (up to 1 meters/second) and a small air exchange rate (30-40 volumes per hour).

2) Cold air in a special tunnel or other type of chamber for intensive cooling at relatively high air velocities (up to 3-4 meters/second) and at an extensive air exchange rate (60-120 or higher volumes per hour).

3) Iced-water cooling (hydro-cooling);

4) Ice/crushed ice/frozen suspension.

This study showed that respondents interviews mostly do not use the pre-cooling or quick cooling, and they are compelled to ship internationally at a loss of 20% of the commodity weight due to damage and moldering.

Recommendations

Training and Certification

● It is important to establish a permanent regional training center for conducting training courses of all cold chain participants on the proper usage of technologies and to assist them in acquiring the appropriate equipment.

● Certification to qualified companies who are trained in conducting cold chain shipments.

Storage

● Construct and operate temperature-sensitive cold storage facilities, with different chambers that can be set to offer a different temperature environment (e.g. ambient, chill, frozen) for different products.
- Deviations of the temperature inside the chamber, at any point of its volume, should be within the difference tolerance for temperature deviations established by the Regulatory Technical Documentation for this product.
- Product storage should not over-stack and cut off the free flow of cold air circulation, which is important to ensure an even temperature in the chamber.
- Deploy First Expire First Out (FEFO) product rotation, so that items with nearest expiry date are delivered first. This may necessitate the use of a warehouse management system (WMS).

The technical specifications for a cold storage facility vary depending on actual conditions and requirements. The below specification can serve as a reference.

1. Refrigerated chamber for vegetables; 2,000 tons, (refrigerated chamber; F = 2,000: 0.8: 2: 0.8 = 1,584m²) turnover of 60 days, daily turnover (35 tons + 35 tons).

2. Refrigerating chamber for fruit; 1,500 tons, (refrigerated chamber; F = 1,000: 0.8: 2: 0.8 = 1,188m²) turnover; 30 days, daily turnover (50 tons + 50 tons)

Especially for a logistics center, the following actions can control losses within 3% to 5% of inventory;
- cooling of products from +20°C to -20°C,
- storage of products at temperatures from 0°C to -25°C,
- storage of products at 96% humidity.

Cold stores provide the storage of products at medium temperatures from 0°C to +10°C and at low temperatures down to -25°C, and at ambient temperatures up to +40°C.

**Displays Samples (at counters and showcases)**
- Place the samples under shade to avoid direct sunlight,
- Install temperature measuring devices to track how temperature changes,
- Do not overload contents above a marked line that could obstruct the circulation of cold air,
- Maintain a back-up refrigerator.

**Transport**
- The transport of refrigerated products should be carried out by a refrigerated truck. For short transportation distances, for example, to a farm’s central storage, it is possible to use a vehicle with an isothermic box.
- Pre-cool the vehicle before loading.
- Install plastic flaps at the vehicle’s doors which can impede hot air from entering the load compartment during the loading or unloading process.
- Load the products to an optimal height without over-stacking which can cut off cold air circulation to the four corners of the load compartment.
- Purchase, install, and maintain the condition of the thermostat, heat-insulating elements, car body, and door seals.
- Perform loading and unloading within the minimum time and avoid strong and direct sunlight.
- Plan the load to follow the Last In First Out (LIFO) storage procedure so that the products for the first drop point are loaded last. This minimize the time of the door being opened while the driver searches for goods. If possible, put the goods for the same destination on one pallet or containing unit so as to minimize material handling time.
- Measure the air temperature upon arrival, preferably with the client/consignee as a witness.
- The use of telematic devices such as a temperature monitoring solution in a truck (e.g. electronic thermometer with RFID and SMS) can alert the command center and driver if temperature fluctuations are observed.

FOCAL AREA 4: TRANSPORT INFRASTRUCTURE

The Central Asian Republics inherited their core transport infrastructure from Soviet times. Among the four exporting nations, Kazakhstan has been the most aggressive in modernizing the road and railway network, as well as the inland seaport Aktau. The key modal transport infrastructure per country is summarized below.
Kazakhstan

<table>
<thead>
<tr>
<th>TRANSPORT MODES</th>
<th>ANALYSIS</th>
</tr>
</thead>
</table>
| Road            | • Road length is 96,353 km.  
                    • Road transport freight turnover is 160,837 million tons/ km.  
                    • An important initiative is “Western-China Western Europe” initiative that links Orenburg in Russia to Khorgos in China, stretching 2,300 km within Kazakhstan territory. New highways are being constructed along this route, notably at Almaty-Khorgos where a six lane carriageway is being completed. |
| Rail            | • Contains 15,530 km of railway track using the broad gauge (1,520 mm). This necessitates a gauge change operation at the Chinese border (which uses 1,435 mm) at Dostyk and Altynkol.  
                    • Kazakhstan Temir Zholy (KTZ) was the national railway operator but has re-fashioned itself into an integrated logistics service provider that will operate a network of modern transport and logistics centers (TLC) within Kazakhstan and overseas.  
                    • Kazakhstan has 1,725 locomotives, 56,504 freight wagons, and 73,135 rail cars (287 publicly owned and 72,848 privately owned).  
                    • The country has completed reforms in the railway sector, notably by privatizing ownership of rolling stocks, which explains the high percentage of private sector participation in rail cars. |
| Air             | • Almaty and Astana are the two major international airports.  
                    • The national air carrier, Air Astana, is well connected to other regional aviation hubs such as Bangkok, Seoul-Incheon, Beijing, Moscow, Istanbul, and Dubai.  
                    • The aviation sector moved 18,015 tons and 43 million tons/ km. |
| Water           | • Aktau is the major port serving Trans-Caspian ferry movement to Baku.  
                    • Maritime transport moves 2 billion tons / km of goods. There is active movement between Turkey-Caucasus-Kazakhstan.  
                    • Major developments are occurring at Aktau, and a new terminal is being constructed at Kuryk, which will further add to capacity.  
                    • Inland waterway (e.g. rivers) cargo movement is negligible. |
# The Kyrgyz Republic

## Overview of Transport Infrastructure in the Kyrgyz Republic

### Transport Modes

#### Road
- Road length is 34,000 km (18,810 km are national and 15,910 are private or community).
- A total of 7,228 km of road have paved surface (4,969 km with asphalt concrete, 2.28 km with black gravel, and 11 km with cement concrete).
- Road networks contain enclaves in Tajikistan and Uzbekistan. This inconveniences drivers due to the need to cross the border. Bypassing such enclaves requires the construction of new roads.
- The annual budget for maintenance is only 20% of the total required amount. The road surface deteriorates due to over-loading, adverse weather, and lack of maintenance.
- Road transport accounts for 95% of the total cargo.

#### Rail
- Contains 423 km of railways tracks using the broad gauge (1,520 mm).
- Locomotive fleet consists of 50 diesel locomotives and a rolling stock of 2,000 rail cars.
- Profitable operations permit the Kyrgyz Railways to re-invest and keep the infrastructure in relatively good condition, as well as hire qualified personnel.
- The network consists of five main sections linked to the other Central Asian states, but are not integrated within the country. The north section connects to Kazakhstan. The south section connects to Uzbekistan. The largest two stations are Osh and Jalalabad.

#### Air
- Two international airports serve the country (Manas at Bishkek and Osh).
- Manas has a 4.2 km by 60 m runway that meets ICAO’s Class I standard and can serve wide-body aircraft.
- The US. military used to operate an airbase at Manas, but later withdrew.
- Air cargo volume is low. The Kyrgyz Republic does not have a strong national carrier to attract tans-shipments. The main carriers come from Aeroflot (Russia), Flydubai (UAE), and Turkish Airways (Turkey).
- Manas contains a cargo terminal. But, the equipment is old and the capacity to repair and maintain aircraft is low.
Tajikistan

### Overview of Transport Infrastructure Sector in Tajikistan

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<tr>
<th>Transport Modes</th>
<th>Analysis</th>
</tr>
</thead>
</table>
| **Road**        | Roads account for 96% of all domestic freight traffic but only 3.5% of international freight traffic.  
Road length is 13,968 km. They are decomposed into local roads (8,670 km or 62%), national roads (2,120 km or 15%) and international roads (3,178 km or 23%). Only 29% of the roads have a paved asphalt surface.  
The road network orientates towards Russia and Eastern Europe. The links to China are mainly through the Kulma Pass, which is improving due to increasing trade.  
Since Tajikistan is mountainous (93%), the high attitude, difficult terrain, and adverse weather deteriorates the road surface rapidly.  
Average road haul distance is 22 km. |
| **Rail**        | Railways carried 3.4% of domestic freight traffic but 95.9% of freight is international traffic.  
Contains 943 km of railway track using the broad gauge (1,520 mm).  
Locomotive fleet consists of 59 diesel locomotives and a rolling stock of 439 rail cars and 2,119 wagons.  
The rail network is divided into three sections, namely north, central, and south. |
| **Air**         | Airways carried virtually no domestic freight traffic and 0.6% of international traffic.  
Tajikistan has four airports (Dushanbe, Khujand, Kulyab, and Kurgan Tyube), 13 domestic airports, and 12 freight planes. Tajikistan is connected to 21-27 countries (some flights to destinations are seasonal).  
Tajik Air is the national carrier. In 2008, a new private airline, Somon Air, started operations. The main foreign carriers that service flights into and out of Dushanbe are Aeroflot (Russia), Flydubai (UAE), and Turkish Airways (Turkey).  
There are 3,700 international flights per year and the freight tons carried is estimated at 1,200 tons, a negligible number compared to road freight traffic. |
Uzbekistan

OVERVIEW OF TRANSPORT INFRASTRUCTURE IN UZBEKISTAN

<table>
<thead>
<tr>
<th>TRANSPORT MODES</th>
<th>ANALYSIS</th>
</tr>
</thead>
</table>
| Road            | • The road length is 83,000 km, 90% of which is well paved.  
• The road system handles about 10% of international freight traffic and 88% of short haul cargo traffic.  
• There is substantially more inbound traffic than outbound traffic. Road transport is an instrumental link between the Bandar Abbas seaport and Tashkent, carrying containerized goods (exports and imports). The price for transporting from Bandar Abbas to Tashkent can be 2-3 times higher than in the opposite direction, reflecting the imbalance of traffic between these two nodes. |
| Rail            | • The railway system has over 6,995 km of track and lines.  
• The standard is broad gauge (1,520 mm).  
• Uzbekistan Temir Yollari is the railway operator and has a well-equipped and trained workforce to conduct railways maintenance, construction, and rehabilitation.  
• During the export season for major products like cotton, the load tonnage can increase dramatically. Thus, the load tonnage can fluctuate in a volatile manner through these months. |
| Air             | • There are 11 airports and all of them are considered international, but with a limited number of international flights (primarily to Russia, Ukraine, and Korea). The Tashkent International airport (named after Islam Karimov) is connected to 40 overseas destinations.  
• Airways carried 4% of international cargo that passed through the country.  
• Air transport is used to carry high value fruits and vegetables to Russia and Dubai.  
• Navoi has a Free Industrial Economic Zone (FIEZ), where an international airport is located. Korean Air is the operator, and flies daily to Incheon Airport at Seoul, and the flights carry perishables to East Asia. |

Respondents in the Central Asian Republics opined that infrastructure is a key competitive factor, but are significantly dissatisfied with it.

<table>
<thead>
<tr>
<th>Country</th>
<th>Competitive Importance</th>
<th>Satisfaction Level</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kazakhstan</td>
<td>8.8</td>
<td>5.4</td>
</tr>
<tr>
<td>Kyrgyz Republic</td>
<td>8.5</td>
<td>5.6</td>
</tr>
<tr>
<td>Tajikistan</td>
<td>8.8</td>
<td>4.2</td>
</tr>
</tbody>
</table>

These can be attributed to the following challenges:
Road Transport
- The Kyrgyz Republic and Tajikistan have mountainous terrain and harsh climatic conditions (particularly in winter). The road network generally needs constant maintenance.
- This constrains the speed of vehicles to a range of 30 kph to 40 kph (based on speed maps in the CAREC Corridor Performance Measurement and Monitoring Study). This contrasts with average speed of 60 kph of a delivery truck in Europe, which runs on a better paved road infrastructure.
- A lack of proper parking space for trucks. By nature, cargo trucks are classified as ‘heavy’ and separate parking lots should be created for them. Drivers may park cargo trucks in a haphazard manner, posing safety risks to other motorists. For instance, the consulting team observed that there is no single cargo truck parking lot in the 350 km journey to Fergana city, and only one such facility on the way to Samarkand.
- A lack of road-side amenities such as petrol stations, restaurants, and coffee shops.

Rail Transport
- The network of railways was inherited from Soviet times and tends to radiate to major Russian cities. Since the disintegration of the Soviet Union, the railway network did not make sense from the perspective of the new country’s’ boundaries and, as such, a train may pass through a transit country unnecessarily. This results in ‘enclave’ areas. For instance, the Kyrgyz Republic and Tajikistan have this problem as their railways enter and exit the territories of Kazakhstan or Uzbekistan.
- The existing railway network in the Kyrgyz Republic and Tajikistan are not integrated into one national system. For instance, the Tajikistan railway has three separate lines that are not connected and completely rely on Uzbekistan’s railway network.
- Kazakhstan is a major player in the regional rail service, and led in terms of privatization and deregulation. However, there is still a need to update laws concerning the railways as there are ongoing conflicting issues with the stakeholders, including; the national railway operator KTZ, private rolling stock owners, freight forwarders, and consignees and consignors. Now there is confusion over who is ultimately responsible for ensuring the timely delivery of wagons or rail cars to the point of loading.

Water Transport
- This is a no dominant water transport mode for shippers of perishables. However, there is a need for the trans-loading from trucks or trains to vessels at Aktau sea port.

Air Transport
- Airports in Central Asia is generally not well-connected, and the main air corridors link the international airports to hubs such as international centers at Dubai, Istanbul, and Moscow. Almaty is arguably the most well-connected airport.
- Air transport is expensive and most products have an export value of less than $1 per kg, except for cherries. Thus, this rules out using air cargo for most shipments.
- On the other hand, the large geographical distance, cumbersome border crossing procedures, and the perishable nature of horticultural exports may justify air carriage for selected items to new markets. Some airports like Almaty fly to Urumqi in China irregularly, while most airports are not directly linked to India.
Recommendations

Road Transport

- Many countries have already developed infrastructure development plans, with the collaboration of international donor organizations such as, most notably, the Asian Development Bank. CTJ does not need to commence on a new study, but can selectively work with the ministries and the donor organizations to improve the infrastructure plans as needed. A list of ongoing transport infrastructure projects is given here. (http://www.carecprogram.org/index.php?page=carec-projects).

- The CAREC Corridor 5 (at its northern and central parts) has the potential to reduce the route for cargo transit from China to the ports of Bandar Abbas and Chabahar (Iran), Karachi (Pakistan), and Istanbul (Turkey), and further on to Europe via Afghanistan, as compared to alternative routes through Uzbekistan and Turkmenistan. A comparison of the transit times of different routes is given in the Table. CTJ can support the development of the CAREC Corridor 5 with the Asian Development Bank, which already has a framework agreement called the ‘Cross Border Transport Agreement’ or CBTA.

- Related to the CBTA is the question of whether the Karamyk border point (at the Kyrgyz Republic / Tajikistan border) can be opened to international transit traffic. This will provide the shortest distance for connecting movements in this corridor. Now, trucks have to detour an additional 250-300 km and cross at KyzlBel-Gulistan as Karamyk was not designated for international transit traffic by the Kyrgyz Republican Parliament.
### Transit routes from Kashgar, China to Bandar Abbas, Iran

<table>
<thead>
<tr>
<th>Route Description</th>
<th>Length</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kashgar (China) - Saritash (Kyrgyzstan) - Karamik (Tajikistan) - Dushanbe - Lower Pyandj - Kunduz (Afghanistan) - Kabul (part of CAREC Corridor 5) - Kandahar - Zahidan (Iran) - Port Bam - Bandari Abbas</td>
<td>3,479 km</td>
</tr>
<tr>
<td>Kashgar (China) - Saritash (Kyrgyzstan) - Karamik (Tajikistan) - Dushanbe - Termez (Uzbekistan) (part of CAREC Corridor 3b) - Buhara - Chorchu (Turkmenistan) - Mary (part of CAREC Corridor 3a) - Lyetfobod (Iran) - Bandari Abbas Port</td>
<td>3,948 km</td>
</tr>
<tr>
<td>Kashgar (China) - Saritash (Kyrgyzstan) - Osh - Andijan (Uzbekistan) - Kokand - Khojant (Tajikistan) - Jizza (Uzbekistan) - Samarkand - Navoi - Bukhara - Chorchu (Turkmenistan) - Mary (part of CAREC Corridor 2b) - Sarakhs (Iran) - Meshhead - Kerman - Sarchan - Port Bandar Abbas (part of CAREC Corridor 3a)</td>
<td>3,584 km</td>
</tr>
</tbody>
</table>

- Where possible, the Ministry of Transport (or the responsible agency for automobile transport) should plan and construct ‘TIR parks’ at strategic locations along the high traffic routes. If financing such facility is a constraint, the government can invite private enterprise to develop and operate such a facility, which generally earns an ‘entry gate fee’. For example, TIR parks in Georgia are run by private enterprises who win an open bid. They then impose an average of 30 Georgian Lari or about $12 per truck per entry (regardless of the duration of stay). The TIR park also consists of road-side amenities such as cafes and motels.

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3 Despite the name ‘TIR parks’, the facility can be used by non TIR operators.
FOCAL AREA 5: TRANSPORT OPERATIONS

While transport infrastructure deals with the ‘hardware’ such as automobile roads and railways tracks, transport operations cover administration, processes, procedures, and management of materials. Also known as logistics, it is a rapidly evolving area as shippers and transport operators seek to optimize their business processes. The common practice in Central Asia is to have different parties perform discrete activities. This results in less effective communication, longer lead-time, and higher costs. Contemporary trends in modern economies illustrate that by using a third-party logistics service provider, an organization can enjoy greater economic benefits due to economies of scale.

Current Problems

- Horticultural exports from the Kyrgyz Republic, Tajikistan, and Uzbekistan flow into Kazakhstan, which is not self-sufficient in domestic production to fulfill national demand. Typically, the domestic production is in the southern regions such as Shymkent, and move north to satisfy local demand. Some amount is also re-exported to Russia. However, the horticulture from the producing countries tend to share the same harvest period (due to geographical proximity). During the off season, Kazakhstan must import from suppliers farther abroad such as Poland and Belarus. The price per kg can surge two to three times higher. If there were proper transport and logistics centers (TLC) that offered cold storage, local producers could sell at a higher price during the slow season.

- According to an estimate of Assylbek Kultayev, Head of Warehouse Terminal, Continental Logistics, LLP, using TLC’s could also benefit potato producers greatly.

<table>
<thead>
<tr>
<th>Sale Price (Harvest)</th>
<th>35 KZT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Production Cost</td>
<td>25 KZT</td>
</tr>
<tr>
<td>Profit</td>
<td>10 KZT</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Sale Price (Off Season)</th>
<th>100 KZT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Production Cost</td>
<td>25 KZT</td>
</tr>
<tr>
<td>Storage Cost</td>
<td>15 KZT</td>
</tr>
<tr>
<td>Profit</td>
<td>60 KZT</td>
</tr>
</tbody>
</table>

Traditionally, agricultural producers and buyers face a disadvantage when selling their produce. The crops ripen at the same time and prices drop due to a bountiful supply. However, in the off season, the limited supply increases the price. In this example of a potato producer, the profit is 10 KZT assuming the producer sells at spot rate immediately after harvest. If the producer stores the potatoes, the profit is 60 KZT (6 times higher!) even after accounting for cold storage costs. During the off season, potatoes from Belarus and Azerbaijan are imported and sold in Kazakhstan at 300 KZT.

- The license application procedure and fee structure for transport operators is complicated. For instance, in Uzbekistan, there are different license types for different types of international cargo shipments, such as urban, suburban, and intercity. Each requires a separate license and fees.
It is expensive to maintain transport vehicles. For instance, due to the high customs fees and tax payments (min. 70% applied on the customs value plus €1.5 - 5.7 per cm$^3$ of engine capacity of a vehicle) for importing of new vehicles into Uzbekistan, local transport companies can’t afford the price. As a result, they must lengthen the working lifespan of transport vehicles and avoid upgrading to new models unless absolutely necessary. These old models are not accepted under international standards and most cargo carriers thus cannot provide qualified service for international shipments. **Reviewing and decreasing the customs fee and tax payments on newly imported trucks will be highly appreciated and will positively influence on the effectiveness of local cargo carriers.** By way of example, the local truck manufacturing company “MAN-Auto Uzbekistan,” of Samarkand, does not have enough capacity to cover demand for assembly lines in Uzbekistan and only two (EORU-4, EURO-5) of the ten producing tracks of MAN-Auto Uzbekistan comply with European standards. The rest of the models are not permitted to enter into European countries according to the Ecologic Standards implemented in 2009.

In one single journey, a truck may be weighed multiple times at different stations. Commonly the truck will be weighed at a border control point run by Ministry of Transport. During movement within a country, the driver may be ordered to be weighed again. A weight certificate is given. Sometimes, the weight-bridge may be malfunctioning, and cause unnecessary delays. At other times, the driver simply pays ‘facilitation fees’ to avoid the process.

**Recommendations**

- Simplify the license application procedure and fee structure for transport operators. National transport associations such as KazAto (Kazakhstan), AIRTO-KR (Kyrgyz Republic), ABBAT (Tajikistan) and AIRCUZ (Uzbekistan) can lead in such initiatives by consulting with the relevant ministries.

- Modernizing the fleet of transport trucks requires a multi-pronged approach. First, policy makers should review the customs tariffs on imported transport vehicles. Second, a market for the used transport vehicles market can be encouraged. Third, a regulation should be passed to impose mandatory inspection of vehicles at regular intervals, and thus limit the maximum lifespan of a vehicle. This can be done in conjunction with existing mechanisms, such as the need for re-assessment of vehicles under the TIR system to attain a Certificate of Approval (CoA) every two years, and to simplify control.

- Harmonize the requirements and format of the weight inspection. The vehicle only need to be weighed one time at the source and avoid the hassle of repeated weight checks (unless there are partial drop loads along the journey). At the origin, weight certificates should only be issued using an operational and automated weight-bridge, preferably connected to the customs information system. This will cut down on corruption and help avoid repeated data entry on weight data for each truck.
FOCAL AREA 6: TRADE FINANCE

The lack of trade finance solutions for agricultural exporters in Central Asia is a major constraint. Issues identified include:

- The problem of ‘un-banked or under-banked’ entrepreneurs and farmers. Many farmers are living in the cash community and may not even have a bank account. This creates difficulties for banks to offer financial services and there is no credit history for assessment of loan eligibility.
- Borrowing interest is relatively high at 16% to 24% per annum, which makes it expensive to obtain loans even if an individual qualifies.
- Loan application is a cumbersome procedure requiring multiple documents for approval.
- The low liquidity ratio of the commercial banks hampers their ability to lend money.
- Insurance companies have strict requirements and transport operators would rather deliver cargo without insurance coverage, which poses significant risks if the cargo is damaged in transit.

Recommendations

- Develop credit and micro-finance organizations that provide solutions to ease working capital. (this can take the form of a cooperative such as a farmers’ union).
- Establish specialized financial institutions that accept warehouse receipts and/or futures for the upcoming harvest.
- Arrange a pilot scheme between large insurance companies and national transport associations on ‘risk pooling’ to lower insurance premiums. This means corporate insurance coverage is given to all qualified members in a national transport association so that the enterprise can obtain insurance at a lower rate. The insurance company enjoys a large pool of clients and can average out the risk. The national transport association can take a small commission from this arrangement to cover administrative fees, thus resulting in a win-win for all parties.

FOCAL AREA 7: MARKET DIVERSIFICATION AND DEVELOPMENT

The short-term prognosis does not support exports to new markets such as Europe and China. This is invariably true if one considers the huge market of the Russian Federation, which some respondents describe as of ‘infinite size.’ However, it is unwise to over-rely on one or two markets. Such concentration can disrupt normal trade flows and impact export earnings if there are political disputes or long-range transport is disrupted. One must also bear in mind that the increased imports from Russia is a consequence of the economic sanctions from Europe. Countries such as Poland cannot export to Russia. Once the sanction is lifted, exports from Central Asia may be lessened.

Market diversification is always an important trade and economic consideration for policy makers and private sector enterprises alike. Unfortunately, this cannot be done over-night. Familiarity with the customs, trade policies and procedures, documentary compliance, end market characteristics, and the transport routes are all essential. This requires that exporters build up expertise over time, and for policy makers to have trade and transit agreements. Thus, it can be argued that it is never too early to start such diversification efforts, only too late.
Using the Boston Consulting Group (BCG) Market Attractiveness Matrix, one can classify existing and potential markets as illustrated. Kazakhstan and Russia are ‘Stars,’ or the most attractive markets. Russia is facing demographic change and its population is shrinking, and its economic growth has been stalling. On the other hand, the ‘Question Mark’ box includes some huge markets such as China and India, as well as the Europe (with its high spending power) and nearby Turkmenistan offers another market for exports.

**Recommendations**

- Develop the **Chinese** and **Indian** markets. The absolute size of the population (1.3-1.4 billion each) is staggering. They are also located near Central Asia. But, transport cost data are not available, particularly in the case of India. The access to the latter is challenging due to the need to move through Afghanistan and Pakistan. India now imports a substantial amount of fruits and vegetables from Afghanistan.
- Develop **European** markets. But, this region has strict requirements for SPS and packaging. Investment will need to be secured for improving the competency of the exporters. CTJ can facilitate this as well as trade missions and business-to-business forums to connect buyers and sellers.
- Develop trade with **Turkmenistan**. Further studies would be useful. This is the only core Central Asian country that is quite isolated from the other four and imposes visa restrictions on its neighboring countries. Nonetheless, the country does import fruits and vegetables, mostly from Turkey, Iran and, to a lesser extent, from Afghanistan and Pakistan. For instance, Pakistan is sending regular shipments of produce from Quetta to Ashgabat. The proximity of the country to the exporters is also another important consideration. Uzbekistan, due to its proximity to Turkmenistan, has started to supply it with fresh and dried fruits recently, and has the potential...
to increase its export volumes if the supply chain can be better organized. Other Central Asian Republics also have this potential (although the longer distance can hamper export feasibility), and further studies can be commissioned to determine export feasibility for exporters in the Kyrgyz Republic and Tajikistan.

There are also marketing programs that CTJ can support. These marketing programs can be directed at either existing markets or new markets.

**Fruits & Berries Tourism**

There is a necessity in developing “Fruits & Berries Tourism” throughout the Central Asian region. This will allow a multiplier effect in terms of creating new jobs and maintaining existing jobs in the region. Production may be obtained in the gardening and growing of berries by using tourists who will participate in harvesting during the ripening period, and during the so-called harvest holidays of fruits and berries. Some parts will be sent to the tourists after drying (personalized dried fruits) with all necessary documentation. Then, part of the harvest may be taken out by tourists and other passengers (not necessarily from the “Fruit & Berries Tourism” group) via airports that have the necessary equipment for storing perishable products. In order to sell fruits and berries to passengers at the airport at a reasonable price it will be necessary to develop a standard-sized box with thermal insulation for the storage and transport of fresh produce. This may be luggage of up to 158 cm total in three dimensions with a weight of up to 23 kg, or hand luggage of 55x40x20 cm with a weight of up to 10 kg. This method is widely used in the transportation of seafood from Russian’s Far East to Moscow. In order to provide for a hassle-free experience for the passenger, all necessary phytosanitary and other documents for customs on both sides of the borders should be provided. This approach can significantly increase the export of fresh fruits and berries from the Central Asian countries, and can have a direct influence on the creation of jobs in the hotel and tourism businesses.

**Product Extension**

The provision of dried plum and apricot kernels to the food and confectionery industry is a very promising direction. Dried plum and apricot kernels can act as a substitute for almonds and pistachios, and warrant an in-depth study to determine their viability as a commodity. Dried plum and apricot kernels, along with other nuts, such as walnuts, hazelnuts, peanuts, and pecans, do not have special temperature requirements, and are easily packed.
CHAPTER 6: CONCLUSION

Azim sat in the lounge of his hotel, enjoying some fruits and a beverage after a long business meeting in Dubai. “The grapes here are different, not as sweet as back home. And instead of this Pina Colada, how I wish I can sip a glass of Kompot now!” Coming from Central Asia, Azim sure appreciates fine fruits and vegetables. Despite the proximity of Dubai to Central Asia, Azim notices that most fruits and vegetables are supplied from Turkey, Pakistan, and Iran. “I wonder why this is so?” Azim ponders.

Recognizing that agriculture is a significant element in the economy and cross-border trade, CTJ aims to improve the competitiveness of this sector that can lead to greater jobs and trade. This study focuses on diagnosing the transport and logistics of this sector in Central Asia. The aim of identifying the problems and prescribing actionable tasks for the public and private sectors is this study’s goal.

Gathering primary information from exporters and transport operators in Kazakhstan, the Kyrgyz Republic, Tajikistan, and Uzbekistan, this research identifies problems under (I) Policies and Regulations, (2) Physical Infrastructure, and (3) Private Sector Competency. Being land-locked and having an under-developed infrastructure certainly disadvantages agricultural exports from the Central Asian state, viz-a-viz major exporters in the region such as Turkey and Pakistan. The cost of shipping products, on top of the requirements to meet a limited shelf life, limits the threshold market of these exports. As such, exporters face strong competition and huge constraints to venture outside of their traditional markets. One message this report tries to deliver is that man-made problems are arguably more insurmountable and a lack of regional cooperation further adds to ‘supply chain friction.’ This can take the form of burdensome trade procedures, lengthy controls at border crossing points, unharmonized SPS systems, and transport regulations and operations. The private sector also has a critical role, and the various constraints and issues there are also highlighted.

Developments can be instrumental, but their effectiveness is confined due to their status as an external participant. Finance, while important, is certainly not the only solution to the various problems. More importantly, the political will to drive reforms, and the spirit of regional cooperation, may be more essential in transforming the region from land-locked to land-linked. Central Asia, with its rich agricultural production and strategic location, has a role to play.

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4 This is a famous drink in Central Asia made from boiling peaches, apples, or other fruits.