



# ECONOMIC PROSPERITY INITIATIVE (EPI) VALUE CHAIN ASSESSMENT REPORT

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# **VALUE CHAIN ASSESSMENT**

## REPORT

USAID ECONOMIC PROSPERITY INITIATIVE (EPI)

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DELOITTE CONSULTING LLP

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# ABSTRACT

Georgia benefits from strategic location, beautiful physical features and historical treasures, and talented, energetic people. In recent years, a democratically elected, forward-looking government has created an empowering, laissez-faire business environment, complementing these natural endowments with an atmosphere in which business can flourish. Recognizing that this combination of assets and opportunity is rare in the world, the U.S. Government wishes to strengthen, deepen, and institutionalize these developments to ensure continued peace, stability, and democratic political and economic growth.

The Economic Prosperity Initiative (EPI) project has conducted 18 assessments for value chains in agriculture and non-agriculture sectors in Georgia. In addition, two deep sector assessments are underway, for ICT and Transport & Logistics. Through these assessments, the EPI team has identified 17 priority value chains as target partners for project implementation. EPI's work with the ICT and Transport & Logistics sectors, which are elements of many value chains, will contribute to the competitiveness of the entire economy.

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# EXECUTIVE SUMMARY

USAID designed and procured the Economic Prosperity Initiative (EPI) – a four-year USD 40.4 million program – to build upon Georgia’s substantial progress in creating a business environment that provides opportunity for competitive investment and economic growth. EPI’s broad goal is as follows:

*“EPI will improve enterprise, industry, and country-level competitiveness by identifying and targeting key external and internal factors to enhance the growth rates and productivity of enterprises in the economy, thereby enhancing the economic well-being of workers in the economy.”*

EPI contract sections –Component 2 – Improve the Competitiveness of Targeted Agriculture Sectors” and –Component 3 – Improve the Competitiveness of Targeted Non-Agriculture Sectors” require the evaluation of agriculture and non-agriculture sectors, and specify that that value chains must be selected from the priority sectors. Soon after EPI was mobilized, teams of value chain analysts began the process of prioritizing economic sectors based on their competitiveness potential and their ability to meet EPI productivity, employment, investment, access to finance, and exports targets. The Sector Assessment Report identified 10 priority sectors, and within these sectors, 23 priority value chains for further assessment.

This Value Chain Assessment Report presents the results of EPI’s further investigations into 18 value chains and 2 sectors and identifies the value chains with which EPI recommends engagement to support Georgia’s competitiveness growth. The Report is the EPI deliverable for –Work Plan Level 22120 Priority Agricultural Value Chain Selection”, –Agricultural Sector Selection Report #1”, –Work Plan Level 32120 Non-Agricultural Value Chain Selection”, and –Non-Agricultural Value Chain Selection Report #1”.

EPI carried out the Value Chain Assessment activities during January-February 2011.

Many of the priority value chains identified during the Sector Assessment phase were ultimately selected for recommendation. The Value Chain Assessments enabled EPI to validate several value chains that should be recommended for EPI’s implementation partnerships, most of which were the same as those identified through initial strategic hypotheses.

The Value Chain Assessment process met two important objectives:

- Enabled EPI to identify value chains for initial implementation partnerships
- Enabled EPI to develop strong dialogue and linkages with key value chain actors, allowing the program to identify with whom it should engage to develop the value chains’ action plans. As a result of the assessments, EPI is already working with many of the actors who will be key to the action plan development process.

Additional benefits of the Value Chain Assessment process:

- Through investigations and discussions with value chain actors, several ideas for quick win activities were identified, some of which are already underway.
- An understanding of the potential competitiveness strategies and entry points for each value chain was developed.

- Several short-term Georgian and international subject experts were mobilized during the Assessment. Their participation has in effect “jump-started” the strategizing (and supporting analytics) process, enabling EPI to progress beyond value chain selection.

Information and data for the value chain assessments was obtained from:

- Available reports
- Print and online data sources
- Government statistical sources
- Meetings with value chain actors (more than 275 meetings)
- Expertise of Georgian and international experts
- Numerous field visits in Georgia

The assessment of each value chain is presented in the annexes formatted in such a way so as to allow users to extract any particular value chain of interest.

Each value chain is assessed in terms of its (1) competitiveness potential; (2) impact on the economy and beneficiaries; (3) quality of leadership (within the value chain); and (4) synergies with other value chains, cross-cutting themes, and other aspects of importance to EPI’s objectives.

EPI proposes to immediately move forward to work with the following value chains & sectors:

Non-Agricultural Value Chains/Sectors	Agricultural Value Chains
<p>Apparel</p> <p>Construction Materials:</p> <ul style="list-style-type: none"> <li>• Basalt Fiber products</li> <li>• Perlite products</li> <li>• Wood products</li> </ul> <p>Packaging</p> <ul style="list-style-type: none"> <li>• Paper/paperboard/corrugated</li> <li>• Plastic crates/beverage bottles</li> </ul> <p>Tourism:</p> <ul style="list-style-type: none"> <li>• Adventure</li> <li>• MICE<sup>1</sup></li> <li>• Wine</li> </ul> <p>Transport and Logistics Sector</p> <ul style="list-style-type: none"> <li>• Details to be determined</li> </ul> <p>ICT Sector</p>	<p>Blueberries</p> <p>Hazelnuts</p> <p>Fruit:</p> <ul style="list-style-type: none"> <li>• Fresh fruit</li> <li>• Fruit juice</li> </ul> <p>Vegetables:</p> <ul style="list-style-type: none"> <li>• Fresh vegetables</li> <li>• Processed vegetables</li> <li>• Root vegetables</li> </ul> <p>Wine</p>

<sup>1</sup> Meetings, Incentives, Conferences, Exhibitions

- 
- Details to be determined
- 

The selected value chains include many synergies. For example:

- Construction firms will be major actors in the growth of the construction materials value chains and many will be involved in initiatives for each of the three selected construction materials value chains. Some initiatives will be undertaken collaboratively.<sup>2</sup>
- The packaging value chains are important for growth of the agricultural value chains, among others.
- Elements of all three tourism value chains are intertwined; initiatives in one will support the growth of the others.
- The wine and wine tourism value chains are inextricably linked.
- The fresh fruits and processed fruit juices value chains are highly linked, as are the fresh and processed vegetables value chains.

The Sector Assessment identified **Transport and Logistics** as a priority sector, with several potentially interesting value chains. However, the sector's importance is so substantial—with huge impacts throughout the economy—that EPI is already carrying out a more in-depth analysis and action plan development effort, to be completed in May 2011. A mid-term report from the Transport and Logistics Analysis is included as an annex to this report.

**Information and Communications Technology (ICT)** was also examined during the Sector Assessment phase. While no ICT-specific value chains were identified for priority partnership, ICT's importance as a cross-cutting support sector was affirmed. ICT applications will be an important element of several value chain strategies, e-Government initiatives, and developing Georgian business capacities and sophistication. Therefore, in parallel to this value chain assessment exercise, EPI is jumpstarting its ICT action plan through (1) an assessment of ICT sector capacities; (2) an assessment of skills, training, and certification needs; and (3) an e-government strategy. The assessment of ICT capacities is included as an annex to this report.

**The Pharmaceuticals Sector**, which was highly rated in the Sector Assessment but not initially listed as a priority sector, will be analyzed in further detail at a later date. The survival and growth of Georgia's pharmaceutical industry appears to depend on pharmaceutical companies achieving Good Manufacturing Practice (GMP) certification. This is a time-consuming process that requires business and government leadership. An initial EPI activity would be to facilitate discussion and awareness of GMP requirements and the certification process, to judge if there is enough demand and interest to proceed. Our experience in other countries demonstrates that to be completed during EPI's timeframe, a GMP-focused initiative must begin early in the project lifecycle.

Further action in the area of **Education Tourism** is not recommended at this time. Education tourism (or more specifically the off-shoring/internationalization of education) was another value chain that was prioritized during the Sector Assessment process. Given that

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<sup>2</sup> This is why the Wood Products value chain is recommended for inclusion, despite marginal assessment results.

USAID was already supporting efforts to analyze the market for foreign students in Georgia, the EPI team decided to hold off on further analyses of this value chain until the results of the assessment become known. The assessment results are anticipated in late April 2011.

EPI also does not recommend **Medical Tourism** as a focus value chain at this time. It became apparent early in the value chain assessment process that long term and highly complex actions and investments would be required to successfully develop this value chain's competitiveness. EPI therefore did not carry out an assessment for medical tourism.

The assessment team also investigated the **Clay Products** value chain. It was determined not to be of priority interest for EPI. This report includes a brief note on Clay Products.

In each of the recommended value chains, we observed organizations, companies and individuals who could emerge as effective champions – EPI did not drop any value chain from consideration on the basis of lack of leadership, interest, or “buy-in” on the part of the value chain actors. EPI anticipates that the action plan design activities will determine if there is sufficient buy-in and championship to move to full-scale implementation in a given value chain.

## Next Steps

Commencing immediately, EPI will facilitate the action plan development process within the priority value chains. We will also begin to implement some of the time-sensitive early actions (especially in the case of the agricultural value chains) and any “quick win” opportunities.

EPI will continue to assess other sectors and value chains, looking for additional opportunities that emerge to support those already identified. Such additional sectors will be included in EPI's work plan as justified.

# METHODOLOGY AND SELECTION CRITERIA<sup>3</sup>

The Sector Assessment identified 23 value chains to be considered for initial EPI support. Following this identification, Value Chain Assessments examined each value chain to determine realistic competitiveness opportunity, the potential impact, leadership, and important linkages and synergies.

The goal was not simply to identify the best value chains for Georgia’s economy, but to identify value chains with a high likelihood of sustained growth, that are able to grow with strong constituent leadership, and are consistent with EPI’s mission, resources, project duration, and goals. Together, the selected value chains constitute a substantial portfolio that will contribute powerfully to Georgia’s economic growth.

The Value Chain Assessments required deeper data mining and more extensive interviews with value chain stakeholders than the initial Sector Assessment. The involvement of specialists with expertise in specific value chains, and close interaction with many Georgian value chain actors, enabled EPI to jumpstart discussion and collaboration with the value chains, collect a large amount of information that will be used during the development of sector action plans, and identify and confirm likely strategic approaches.

## Initial List of Value Chains

The value chains initially identified for further assessment included:

Sector	Value Chain
<b>Agriculture Sectors</b>	
Wine	<ul style="list-style-type: none"> <li>• Wine</li> </ul>
Nuts	<ul style="list-style-type: none"> <li>• Shelled, sorted, graded Hazelnuts (Innovative)</li> </ul>
Fruits	<ul style="list-style-type: none"> <li>• Blueberry root stock (Innovative)</li> <li>• Fresh fruits.</li> <li>• Processed fruits (juices, concentrates, purées, etc.)</li> </ul>
Vegetables	<ul style="list-style-type: none"> <li>• Fresh vegetables</li> <li>• Root vegetables</li> <li>• Canned vegetables and other processed vegetables</li> </ul>

<sup>3</sup> The methodology for this report is based on Microlinks [www.microlinks.org](http://www.microlinks.org)

	(juices, concentrates, purées, etc.)
<b>Non-Agriculture Sectors</b>	
Tourism	<ul style="list-style-type: none"> <li>• Wine Tourism in Kakheti Region (incl. gastronomy, culture, rural)</li> <li>• MICE Tourism in Adjara</li> <li>• Mountain / Active Pursuits</li> <li>• Educational tourism: University education for foreign students</li> <li>• Medical tourism</li> </ul>
Apparel	<ul style="list-style-type: none"> <li>• Additional apparel investment in Adjara</li> </ul>
Construction Materials	<ul style="list-style-type: none"> <li>• Perlite</li> <li>• Basalt products</li> <li>• Wood product</li> <li>• Clay products</li> </ul>
Packaging	<ul style="list-style-type: none"> <li>• Cardboard and Industrial Paper</li> <li>• Plastic bottles and crates</li> </ul>
<b>Cross-Cutting</b>	
Transport & Logistics <sup>4</sup>	<ul style="list-style-type: none"> <li>• Road, rail, sea, and air logistics – Georgia as a regional hub</li> <li>• Air transport (cargo and passenger)</li> <li>• Road Transportation to rural areas</li> <li>• Cold Storage/Warehousing</li> </ul>
ICT	<ul style="list-style-type: none"> <li>• None<sup>5</sup></li> </ul>

## Information Collection

The team obtained information through the following methods/sources:

- Available reports

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<sup>4</sup> The Sector Assessment identified several Transport & Logistics value chains of potential interest. However, this sector is of such importance to Georgia's economy and to many other value chains that EPI is carrying out a comprehensive sector analysis and action plan development. The deeper analysis of Transport & Logistics will include various Transport & Logistics value chains and other key sector elements. A mid-term summary report for the Transport & Logistics Analysis is included in annex to this report.

<sup>5</sup> No immediate ICT value chains are currently targeted. EPI is carrying out a deeper sector assessment (including sector capacities, skills and certifications, and e-government), to focus on ICT's role within other value chains and in supporting the overall economy. The assessment of sector capacities is included as an annex to this report.

- Published and online data
- Government statistical information
- More than 275 meetings with individuals, businesses, government and other organizations
- Field visits to a number of locations in Georgia
- The team's own extensive knowledge and experience

As with the Sector Assessment, data availability varied from among value chains. For some value chains, relatively little existing data is available. Where possible, the team sought quantitative data; otherwise, relied on qualitative data from various sources (interviews, experience from projects in other countries, etc.) to develop understanding of the value chains.

EPI took care to ensure that the meetings provided opportunity not only to collect pertinent information, but also to meet potential partner firms and organizations and engage them in discussion of EPI's approaches and objectives. The meetings also provided excellent brainstorming opportunities; participants actively considered strategic opportunities and avenues for partnership. They formed an excellent introduction to the strategic discussions with each value chain that will follow value chain selection.

## Value Chain Assessment

The team assessed the value chain sectors based on (1) their potential competitiveness; (2) anticipated impact on beneficiary organizations and populations; (3) potential leadership who could encourage value chain actors to participate and consider, adopt, and implement new strategies; and (4) linkages among value chain initiatives, synergies with business environment improvements, and the ability of EPI to successfully provide assistance in realizing sustainable outcomes.

Competitiveness potential: Ability of the value chain to sustainably compete in the domestic and global market, based on factors such as quality, productivity and value addition, service, cost, unit price, and other factors.

Impact potential: Likely impact of the value chain on economic growth, investment, employment, exports, and other factors of importance to EPI's objectives.

Industry leadership: Evidence of sound and forward-looking organizations, companies and individuals who will provide championship and leadership for competitiveness strategizing and strategy implementation.

Cross-cutting linkages: Likely impact of the value chain on other value chains, on the quality of the business environment and on skills development.

It was clear during the value chain assessment process that each value chain differed in magnitude (number of businesses involved, complexity, extent of exports, number of employees, etc.) as well as the amount of support that was required to meet particular objectives. It was therefore decided that instead of prioritizing value chains for intervention, which would infer a process of value chain comparison, EPI would, instead, focus on a yes or no approach on the basis of whether the Project believed there would be a positive return on investment (time and finance) in engaging the value chain. Each value chain assessment still provides a subjective ranking of the four criteria used during the

assessment on a scale of 1-4 (1 being the least favorable and 4 being the most favorable).<sup>6</sup> However, since no weighting is provided to these criteria according to the value chain being assessed, they should be seen as a summary of each value chain assessment and not as a means of comparison.

The team prepared concise value chain assessment reports organized around the above criteria, which are included in the annex to this report. They are presented as self-contained annexes, which can be extracted by users as needed.

Georgia's economy is not static, and some sectors are particularly dynamic. For this reason, other value chains and even sectors will be identified, investigated, and, if justified, added as partners for EPI during the four-year duration of the project.

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<sup>6</sup> Represented in the annexes as quarter-circles

# AGRICULTURAL VALUE CHAIN ASSESSMENTS

ANNEX 1	BLUEBERRY VALUE CHAIN ASSESSMENT
ANNEX 2	HAZELNUTS VALUE CHAIN ASSESSMENT
ANNEX 3	FRESH FRUIT VALUE CHAIN ASSESSMENT
ANNEX 4	FRUIT JUICE VALUE CHAIN ASSESSMENT
ANNEX 5	FRESH VEGETABLE VALUE CHAIN ASSESSMENT
ANNEX 6	PROCESSED VEGETABLES VALUE CHAIN ASSESSMENT
ANNEX 7	ROOT VEGETABLES VALUE CHAIN ASSESSMENT
ANNEX 8	WINE VALUE CHAIN ASSESSMENT

# ANNEX 1: BLUEBERRY VALUE CHAIN ASSESSMENT

## ABSTRACT

The blueberry value chain has much potential, as there is much that can be done to increase commercial production and thereby increase exports. At the moment, however, there are a few challenges about which this assessment will discuss at length. Berry suppliers in Georgia are wild-berry suppliers, which is a factor that makes supply low; processing equipment is limited to berry producers. As the world consumption of berries, especially blueberries, increases, Georgia has the potential to fill that demand. Another main aspect of blueberry production and the value chain that this report will address is the under-utilization of tea plantations whose soils are suitable for commercial blueberry production development in the Western parts of Georgia. The blueberry sector can increase commercialized production in this country and this assessment will examine the factors that will relate to this.

## ABBREVIATIONS

ADA	Agribusiness Development Activity
CIS	Commonwealth of Independent States
EPI	Economic Prosperity Initiative
EU	European Union
GBGA	Georgian Berry Grower Association
IQF	Individually Quick Freezing
MCC	Millennium Challenge Corporation
MFI	Microfinance Institution
SME	Small and Medium Enterprise
USAID	U.S. Agency for International Development

# EXECUTIVE SUMMARY

The blueberry value chain can be sustainably competitive if the following recommendations are taken into consideration. The value chain must be aware of the challenges it faces, such as lack of equipment to commercialize production and inconsistent supply from wild-berry suppliers. Fortunately, there is growing consumer demand for fresh-marketed as well as value-added berries. The recommendations for the blueberry value chain are as follows:

## *Set Up Nurseries and Assist Existing Nurseries In Obtaining New Cultivars To Propagate*

Creating nurseries and assisting existing nurseries with the propagation of new cultivars can create a sufficient foundation for Georgia’s commercial berry production industry. Commercial berry production can be directly linked to the established nurseries when they are up and running. This recommendation will mitigate the dependency on a supply based solely on wild berry production. The support of existing nurseries can even encourage participation from relevant government players.

## *Improve Technologies*

To increase the added-value of the blueberry value chain, new technologies need to be introduced and improved upon. Technologies such as drying, packaging, pitting, and refrigeration equipment must be introduced for the industry to develop. Such technologies could sufficiently stimulate producers to diversify production and increase focus on new, fresh market opportunities that this value chain provides.

## *Increase Grants Available To Processors*

The lack of available financing can be addressed in several ways. Donor projects can co-finance equipment for selected processors through a grant- matching process. This would encourage processors to make investments in their own enterprises and could also help processors secure additional funding by demonstrating enterprise viability to funders. Additionally, matching grants can be provided to assist processors in establishing berry plantations for on-farm berry production and supply. Another financing option for processing equipment is to work with banks/MFIs to introduce loans and leasing services.

## *Utilize Tea Lands For More Effective Production*

The blueberry value chain can benefit considerably from tea lands in the western parts of Georgia that have been left unused. The soil is highly acidic, needed for Blueberry crop production. The blueberry value chain can benefit greatly by utilizing this pre-existing natural resource.

Competitiveness Potential	Impact Potential	Industry Leadership	Cross-Cutting Linkages	Overall Comments and recommendations
				Average: 3.75 Recommended for inclusion.

# INTRODUCTION

## Background

At present, the blueberry value chain uses non-sustainable berries as its main source of supply. Supply is inconsistent, leaving supply of local fresh blueberries, a market niche, largely unstable and unfilled. Moreover, wild berry collection practices pose a potential risk of environmental damage, which official authorities are starting to recognize.

The Government of Georgia created the Law on Conduct for Forest Products in 2005, which allows the collection of medicinal herbs and berries in public forests for private use only. It is illegal for a collector, processor, or exporter to sell these to a consumer. Nonetheless, several local companies collect, process, and export berries. The government is as yet unable to enforce this law.

While the supply side is not competitive in nature, world demand is growing, including emerging demand in the upscale market segment. These two components, supply and demand, dictate the rationale behind the selection of this value chain within the fruits sector assessment.

Since the tea industry has left its acidic land fallow, the commercially grown blueberry value chain can expand and flourish.

## Methodology

A variety of sources were used to conduct the value chain assessment. Because this is a fairly new value chain, there is not much hard data. There are no available domestic producer or consumer data sets, as there is a lack of commercial supply of blueberries domestically.

The team conducted in-person interviews with all significant producers, processors, producer associations, and managers of berry nurseries: AngoXXI, LLC., Farkoni LLC., I/E Irakli Khozrevanidze, I/E Tamaz Niparishvili and AromaProduct LLC.

A few reports were used as information sources for the value chain analysis: a project summary on commercial small fruit initiatives for Georgia prepared by Richard Dale for an ACDI/VOCA project; as well as an herbs and a medicinal plants sub sector overview. A demand analysis/inventory report for frozen raspberries prepared by the USAID LAMP project was also used. Various additional sources of information available on the Internet were used, such as GeoStat and FAOStat.

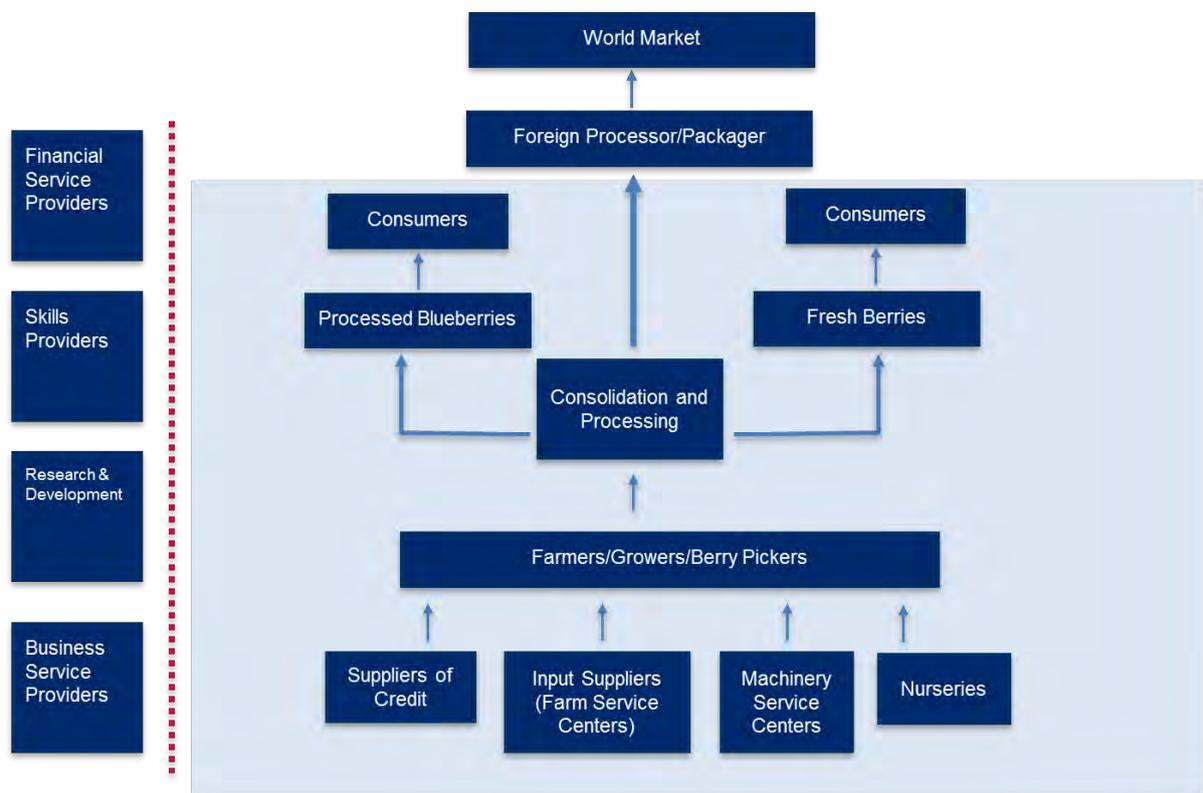
# OVERVIEW OF THE BLUEBERRY VALUE CHAIN

## Summary

Main Products/Services	Berry or blueberry commercial production can include: fresh blueberries; dried blueberries; frozen blueberries; organic blueberries.
Key Markets Served	Georgia exports have been primarily to Commonwealth of Independent States (CIS) countries, specifically Ukraine. Ukrainian buyers frequently re-export Georgian berries to Russia and EU markets. Last year blueberries were exported to China and Italy by one company.
Production	Production numbers are almost completely of wild berries and not commercial production. Commercial production is one of the elements of the value chain that aims to expand. In 2009, 42.8 tons of wild berries were collected. The blueberry sector has the potential to expand to 700 tons.
Consumption	No domestic consumption numbers are available.
Exports	100 metric tons of frozen blueberries were exported to China and Italy in 2010 by a Georgian company.
Imports	There are no import numbers to report.
Revenues	Only one company interviewed noted any blueberry revenue. The company sold frozen and dried berries in the international markets, earning USD 600,000 in 2010.
Employment	Since there is virtually no commercial berry production, employment is seasonal, with an average of 200-250 gatherers working per processor. As currently there are roughly 5-10 medium scale processors operating on the market, the approximate employment figure is 1,000-2,000. In addition 10-15 employees are involved in the production process per facility; thus 100-150 employees work in processing.
Productivity	There are two distinct processes for blueberries: freezing and drying. IQF is a specific type of freezing and another blueberry nursery owner is adding value to their berries by drying them.

Positioning	Wild berries are being supplied (average of 10-30 kg per day) to collection points to have them processed. Wild berries have an organic quality to them, since they are found in the forests of Georgia. This organic quality will be challenging to retain when the industry switches to commercial berry production, but a section of commercial berry production can be labeled.
Key Processes	Cultivation, Freezing, Drying, and/or Production of berries from hectares of fallow tea lands in the Western parts of Georgia.

## Blueberry Value Chain Map



### Vertical Actors

**Nurseries:** Cultivation of commercialized/on-farm berries should be facilitated. Currently, the Georgian berry industry is almost completely dependent upon the unstable wild-berry supply. New cultivars could be propagated. Some cultivars have shown good adaptability to local soil and climatic conditions; demo-plots would need to focus on teaching how to propagate these.

**Suppliers:** The collection process is managed by small-scale processors who organize collection points where many gatherers provide 10-30 kg (on average) of raw, wild berries per day. Production could be diversified by establishing on-farm berry plantations and by

setting up nurseries for a more sustainable supply. The existing wild berry processing could be maintained for a special niche market.

*Plantations:* At present, suppliers do not own berry plantations, which limits production. To move forward with commercialized production, it is important that berry production intensify.

*Processors:* At present there are a few processors who obtain their supply from their wild-berry suppliers. Existing processors are small, but some of them have obtained a grant from CNFA-Agribusiness Development Activity (ADA)/Millennium Challenge Corporation (MCC) to upgrade their equipment (mainly drying equipment and distribution vehicles). Some processors own their own equipment and some outsource their processing/equipment needs to additional companies.

*Equipment providers:* Dryer, refrigeration, and packaging suppliers will be needed to provide services to those processors unable to finance the purchase of their own equipment.

### ***Horizontal Actors***

*The Government* can be considered a value chain actor. The Ministry of Agriculture of Georgia is planning to set up three pilot berry nurseries on five hectare land plots in Adjara, Guria and Samegrelo regions.

In 2006, the *Georgian Berry Growers Association (GBGA)* was formed by the support of AgVantage Small Fruits Initiative. The purpose of the GBGA was to strengthen the working relationships among Georgian small fruits producers, to sponsor research, to share information, and to promote the development of a small fruits industry. However, due to lack of financial resources and strategic approach to sector development, the organization functions poorly, with only occasional activity among members.

### ***Other Actors***

*Banks and Other Credit Providers:* Access to credit is the main barrier existing processors face in developing their business, as most financial institutions view small scale enterprises operating in agriculture sector as high-risk and are thus reluctant to provide them loans. Linking banks and other credit/loan sources with processors could help mitigate risk associated with purchasing additional equipment for drying, freezing, and/or processing, that is needed to add value to the crop.

*Machinery repair services:* These value chain actors focus on ensuring processors' equipment is functioning up to standards. They could be contracted on a case by case basis to service machines as necessary.

## **COMPETITIVENESS POTENTIAL**

Post-harvest technology within the berry industry focuses on freezing, drying, and utilizing proper packaging and transportation services. For freezing, two separate methods could be utilized, the Individually Quick Freezing (IQF) Method and the Block Freezing Method. The quick freezing method freezes blueberries quickly for individual packages, but gives the fruit an individual, recognizable identity through the package, and even outside of the package (it keeps the fruit intact). The Block Freezing method places blueberries in containers and then freezes them. This does not allow the berry to remain identifiable.

Drying dehydrates the fruit to produce a retail snack, or to use the berry in the food processing industry. Drying methods include osmotically drying blueberries, freeze drying, and drum drying. Blueberries may also be processed into a number of liquid forms for use in

beverages and dairy products (such as single strength blueberry juice, blueberry purees, and concentrates) as well as in the canning industry, where blueberries are packed in water or syrup or are prepared into shelf stable pie fillings and sauces. These post-harvest approaches can add value, but new equipment (improved technologies) such as drying, packaging, refrigeration, and freezing equipment must be introduced for these processes to be employed. Such equipment is available in Ukraine at a less expensive price than the state of the art equipment made in Italy and the USA. Italian and American freezing, drying, packaging, and refrigeration equipment is expensive and not cost-effective for Small and Medium Enterprises (SMEs) that are just entering the industry. There are a few larger firms in Georgia who may want to invest in the more expensive equipment.

Commercial blueberry production has doubled globally in the last 15 years. Major increases have occurred in the U.S., which constitutes roughly half of the world's commercial production. Canada and Poland have also considerably increased production.

Rank	Area	Production (Int \$1000)	Production (MT)
1	United States of America	249456	158032
2	Canada	150773	95516
3	Poland	12402	7857
4	Germany	6497	4116
5	Netherlands	6314	4000
6	Ukraine	4735	3000
7	Lithuania	3946	2500
7	Sweden	3946	2500
9	New Zealand	3157	2000

Georgian production of wild berries totaled 42,800 kg in 2009. This will significantly increase as fallow tea lands are used for commercial blueberry production. As seen in the charts below, Adjara maintains the highest average yields of wild blueberries. Adjara is the largest region that grows blueberries, due to its acidic soils. At least one newly established firm is interested in purchasing land in Adjara to commercialize their blueberry production.

Production of Berries by Region (ths. tons, 2009)				
	2006	2007	2008	2009
<b>Georgia</b>	0.6	1.1	0.9	0.4
<b>Imereti</b>	0.2	0.1	0.3	0.1
<b>Kakheti</b>	0.1	0.2	0.3	0.2
<b>Kvemo Kartli</b>	0.3	0.7	0.2	0.0

<b>Other regions</b>	0.0	0.1	0.1	0.1
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Source: GeoStat

<b>Average Yield of Wild Blueberries (Bilberries) by Region (in kg, 2009)</b>				
<b>Samtskhe-Javakheti</b>	<b>Imereti</b>	<b>Guria</b>	<b>Adjara</b>	<b>Total collected</b>
1,000	7,500	1,000	33,300	42,800

Source: CHF Herbs and medical plants sub sector overview

USAID/AgVantage's Small Fruits Initiative contributed to establishing commercial berry nurseries in various parts of Georgia. This pilot project generated a good deal of success for those growers who did not suspend their operations due to technical or economic constraints. To provide the blueberry value chain with new and existing varieties of cultivars that produce higher yields, such cultivars must be propagated. Within the scope of AgVantage Small Fruits Initiative, several educational programs were launched, including a comprehensive blueberry production management course at Senaki Agricultural Technical College.

A key to competitiveness for the Georgian blueberry value chain will be the use of the thousands of hectares of abandoned tea land. Blueberries can thrive in these acidic soils that once supported the tea industry. The revitalization of the western tea regions in Adjara, Samegrelo, Guria, and Imereti will assist in ensuring that commercial berry production occurs.

Since blueberries have gradually started to emerge in the upscale market segments, some supermarket chains have started to offer imported frozen blueberries as a commodity. As prices tend to be high for imported blueberries, producers and processors have an excellent opportunity to capture value for Georgia. As the frozen, and even the fresh, berries market niche remains largely unfilled, the blueberry value chain will take on the mandate to fill it, and will gradually grow these markets.

Georgia's main competitive advantage in a European market is that, due to the nation's southern latitude, Georgian crops could be expected to enter the market three weeks or more ahead of the Polish crop, where a large portion of European blueberries come from. A barrier to European market entry is the middleman who offers low prices for Georgian processed/dried produce, then re-exports the same produce for higher prices to developed Western markets. For this reason, processors and exporters recognize the necessity of establishing direct contacts with the end buyers in the west. Georgia also maintains trade preferences in the EU market, which ensures that goods exported from Georgia to the EU, are not under taxation.

## **IMPACT POTENTIAL**

The AgVantage Small Fruits Initiative experts estimate that a Georgian blueberry enterprise focused on domestic fresh markets has the potential to realize more than USD 8,000 net profit per hectare. For a 500 hectare blueberry enterprise, the reclamation cost for the development would be USD 4.5 million. A 30-year return on that investment would amount to USD 270 million, and over 5,000 seasonal, part-time, and fulltime jobs would be created.

Adjara forest processors have the potential to generate around 700 tons of blueberry yields annually. According to various processors, each processor usually employs 200-250 gatherers and, according to CHF Herbs and Medical Plants Sub-sector Overview, a total of over 3,700 families participate in this activity. According to the same study, collecting herbs and berries accounts for 25 percent – 80 percent of a family's annual income with earnings ranging between USD 120 and USD 2,100.

Currently, the majority of processed blueberries are exported to Ukraine. Blueberries are also exported to other markets, such as Germany, Hungary, Czech Republic, and Poland; recently, Italy and China were added to the list. AromaProduct, LLC, a fruit processing company in Georgia, recently started exporting berry juice to the U.S. As the demand for blueberries (including wild blueberries) steadily increases, there is a strong opportunity for Georgian processors to orient towards western markets, the EU, and likely Asian countries including Japan and China. However the lack of quality assurance systems in the production process, insufficient volumes of produce, and the lack of communication with the western buyers has made the industry almost totally dependent on Ukrainian middlemen. These middlemen dictate prices and usually drive them down based on the claim that Georgian products are of poor quality.

## INDUSTRY LEADERSHIP

Currently, there are approximately 10 processors/exporters operating in the sector, most of which are association members. The main players have substantial experience in cooperation with international donor organizations, on projects ranging from technical assistance to modernization of their production capacities. However, one interviewed company emphasized frozen blueberry production and they export their products. As their initial sales of frozen blueberries generated substantial revenues, the company plans to expand their berry fruit juice production. It has expressed interest in launching their own blueberry and other berry nurseries. Having their own raw material base will allow them to maximize integration of their vertical chain of production.

Some processors have already managed to vertically integrate their business with rootstock propagation and sales. One processor in West Georgia established its nursery with the help from AgVantage, and now successfully propagates blueberry cultivars. Also, this processor obtains a wild berry supply from local gatherers, dries the berries, packages the product in simple bags, and sells the berries directly to foreign markets. The owner of the enterprise is involved in every process of the production.

Another case is an individual entrepreneur who also runs a blueberry nursery. Although he continues to run the nursery, he has shifted to other berries once the demo farm revealed a high pH level in his soils. The soils in Eastern Georgia are inappropriate for blueberry production because of the high pH levels.

Many processors are innovative and willing to adopt international best practices in the blueberry sector. The majority of berry processors participated in a study tour that took place in the U.S., organized by AgVantage Small Fruits Initiative. They received consulting support from U.S. experts while on the tour.

Most of the entrepreneurs who own SMEs, or are interested in owning and setting up SMEs, must improve their marketing skills significantly in order for them to be able make inroads into larger markets.

## CROSS-CUTTING THEMES

Substantial assistance for the AgVantage Small Fruits Initiative in 2006 was provided by the Ministry of Agriculture of Georgia. Recently, the Ministry has undertaken an initiative to support blueberry nursery establishment. This initiative could demonstrate the potential of the sector as a whole, to both domestic and international markets.

This blueberry industry employs female workers in processing facilities. Both women and men work as gatherers, directly linked to the processing activities of the enterprises. As more processing capacities are developed, the demand for women in the workforce will likely increase. Along these same lines, as the industry develops, more youth will also be required to learn the blueberry/berry trade on family nurseries.

## STRATEGIC ENTRY POINTS & RECOMMENDATIONS

The Ministry of Agriculture of Georgia is planning to establish nurseries in three western regions, Adjara, Guria and Samegrelo, and EPI has initiated the process of assisting the associated parties in obtaining quality rootstock from Falls Creek Nursery, based in the U.S.

USAID/EPI could provide a consultant to work with Falls Creek Nursery to secure additional sales of the root stocks for various demonstration plots in Georgia. EPI would also have the consultant provide training to rootstock buyers. This training to numerous nurseries throughout Georgia will include pruning, irrigation techniques, and fertilization processes.

With little access to industry specific equipment, Georgian producers became less efficient and competitive. EPI can address the lack of available financing in several ways:

- Donor/EPI initiatives can co-finance equipment for selected processors. This would not only encourage investment by processors, but also demonstrate enterprise viability to potential funding sources;
- Provide matching grants to the processors to assist them in establishing berry plantations for on-farm berry production;
- Work with banks/ MFIs to introduce a loan product to finance processing equipment. Risk to financial institutions could be mitigated through guarantees, co-financing, and provision of technical and marketing assistance to processors to improve enterprise viability. Banks may be further encouraged to provide loans if provided with forward purchase contracts from established export clients. These initiatives could significantly contribute to the overall sustainable development of the berry industry by giving producers' access to technological innovation and know-how.
- To further the educational work that the AgVantage Small Fruits Initiative focused on, EPI could support the already-established blueberry production management course at Senaki Agricultural Technical College in Samegrelo, and could provide systematic educational assistance. Assistance on wild berry handling practices could also be provided to processors. Currently, processors provide sporadic trainings on berry quality issues to gatherers, which EPI can develop further. These trainings will help to improve the quality of blueberry crops. With improved quality standards, growers will obtain higher prices.
- The above mentioned points are crucial for sustainable development of the industry. EPI support can be provided in research and education as well as value-add and marketing points of the value-chain. All of these factors are

important to the successful establishment of the market-oriented blueberry industry.

# CONTACT DETAILS FOR VALUE CHAIN ACTORS

Company / Organization	Name & Position	Address	Contact Telephone Number	Email Address
Farkoni LLC	Mamuka Alpaidze (Processor/ exporter)	Kutaisi, Imereti	877 71 62 14	N/A
Ango LLC	Anzor Gogitidze (Processor/ exporter)	Goginauri, Adjara	877 45 94 00	N/A
I/E Irakli Khozrevanidze	Irakli Khozrevanidze (Processor)	Khulo, Adjara	899 76 05 50	N/A
I/E Tamaz Niparishvili/Georgian Berry Producers Assoc.	Tamaz Niparishvili Nursery Owner/GBPA President	Kaspi, Shida Kartli	899 10 55 95	N/A
Expert in Horticulture/ Georgian Berry Producers Assoc.	Zviad Bobokashvili Independent Expert/GBPA Member	Tbilisi	898 19 69 55	N/A
Aromaproduct LLC	Vladimir Gugushvili	Tbilisi	899 50 21 23	<a href="mailto:aromapro@geo.net.ge">aromapro@geo.net.ge</a>

## BIBLIOGRAPHY AND REFERENCES

List of laws, regulations, and/or government policies relevant to the VC:

- Hygiene – simplified rule
- Hygiene + inspection
- The law on entrepreneurs
- The consumers rights
- The rule on issuance of permits
- The rule on exercising phyto-sanitary and veterinary control at the border
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- Technological scheme of exercising control at the border
- Hygiene certificate of food containers

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# ANNEX 2: HAZELNUTS VALUE CHAIN ASSESSMENT

## ABSTRACT

As one of the top six producers and exporters in the world, Georgian agriculture relies on hazelnuts. The amount of land currently dedicated to Georgian hazelnut production is expanding, and for good reason. Hazelnuts have a clear-defined value chain, and they are a leading export crop for Georgia, as they continue to attract foreign confectioners such as Ferrero International among other international large companies. Due to the growing global demand for hazelnuts, large companies are able to choose suppliers who produce a large quantity of high quality of goods. Georgia is in a position to attract additional global buyers.

## ABBREVIATIONS

ADA	Agribusiness Development Activity
EBRD	European Bank for Reconstruction and Development
EPI	Economic Prosperity Initiative
HACCP	Hazard Analysis and Critical Control Points
ISO	International Standards Organization
MCC	Millennium Challenge Corporation
SME	Small and Medium Enterprise
USAID	U.S. Agency for International Development

# EXECUTIVE SUMMARY

Hazelnut production is a major element of the Georgian agriculture industry. It accounts for 24 percent of Georgian agricultural exports. Georgia is the world's sixth largest producer of hazelnuts; it is the fifth largest exporter of in-shell hazelnuts and the fourth largest exporter of shelled hazelnuts in the world. Even with this status, the Georgian hazelnut value chain remains largely untapped. Georgian producers are capable of reaching higher standards.

The hazelnut value chain faces several key constraints:

- 1) Georgian hazelnut yields are significantly lower than international averages, thus reducing net income, quantity available for processing by the Georgian hazelnut sector, and amount sold/exported on an international scale.
- 2) Because of the fragmentation and small size of hazelnut producers, they have different varieties which they harvest at different times, and they use different production and storage technologies – which impacts quality.
- 3) Georgian hazelnut processors typically sell directly to the European market on the basis of price, or through Turkish suppliers who “take their margin” before selling on to the European market. In both cases, other non-traditional buyers exist who will pay more for hazelnuts and who wish to develop long-standing relationships with consistent sellers.

The following are recommended next steps for EPI's hazelnut value chain:

*Provide training on production and quality to hazelnut producers to maximize economic yield*

A hazelnut tree takes up to six years to produce nuts that can be harvested (in the case of the planting of three year old seedlings). Thus, the fastest way to increase incomes is to produce and harvest more nuts per tree – the yield is currently below the international norm. Specific training should be provided to farmers on fertilization, pest management, irrigation, drainage pruning and orchard management, and postharvest processing. These trainings will not only increase yield, but will also increase quality and size of the nut. Hazelnut producers need to produce more to sell to additional international markets. Additional topics may include harvesting, management of the hazelnut trees growing technology, pest eradication and weed control, as well as which cultivars to use. Such trainings will help hazelnut growers maximize their economic yields.

*Provide training on harvesting, post-harvesting processing techniques, appropriate harvesting time, and inspection and quality to ensure nut consistency quality*

Quality issues arise when producers harvest hazelnuts at different times and use different growing management techniques for their orchards. The quality and yields of their hazelnuts decrease when the same cultivar is harvested at various times. Trainings on harvesting methods and appropriate times to harvest hazelnuts to maintain consistent level of quality are very important. Trainings on post-harvest handling and appropriate storage facilities for growers and producers would minimize hazelnut losses as well. Moreover, specific training on inspection and international standards will help producers reach larger, more competitive international markets.

All the trainings outlined above can be held with groups of hazelnut producers who encompass a wide-variety of skills to enable growers to learn from each other, and to learn new techniques. Trainings can also be held in various regions of Georgia, tailored to the specific region, beginning with the regions that are the largest producers.

*Connect hazelnut processors to international markets*

Although Georgia is the fifth largest exporter of in-shell hazelnuts, and the fourth largest exporter of shelled hazelnuts, Georgian hazelnut processors typically sell either to Turkish buyers who then re-sell to Europe, or they sell directly to an established set group of European buyers who have experience in Georgia. Due to the growth in hazelnut demand worldwide, there is an opportunity for Georgian hazelnuts to reach new markets. This will depend on Georgia’s ability to meet the specific needs of specific markets or market segments, for example: shelled or unshelled, graded by size and variety, and high premium for very specific types. Nevertheless, it is important that processors are prepared to produce quality, high yielding hazelnuts to sell to these markets. Connecting processors with buyers and ensuring that Georgian hazelnuts have a quality adequate for international buyers will occur simultaneously. These two factors will need to work in tandem to enable Georgian hazelnuts to enter international markets. EPI will work with consultants with vast knowledge about the international hazelnut industry to directly connect the processors with the buyers who need exactly what the Georgian processors can supply. The hope is that in the future, processors will continue these one-on-one relationships to sell directly to clients in Japan, Singapore, or South America, as opposed to entering the bulk commodity market that is prevalent in Europe.

Competitiveness Potential	Impact Potential	Industry Leadership	Cross-Cutting Linkages	Overall Comments and recommendations
				<p>Average: 3.5. Recommended for inclusion.</p>

# INTRODUCTION

## Background

The hazelnut value chain has the ability to carry the Georgian nut industry to new heights. Producers have been growing hazelnuts for centuries and as they process the nuts and attempt to sell to additional international markets, they gain better understanding of market demand. Unfortunately new, modern processing techniques are not being used. These techniques are necessary so that higher quality and quantity (through higher yields and reduced shrinkage) can reach these markets. Internationally competitive local varieties of hazelnuts, such as –Anakliuri” and –Dedoplis Titi” are famous hazelnut varieties desired by large confectionary companies. Both of these cultivars originate in Georgia. –Dedoplis Titi” is distributed in the Imereti region of Western Georgia, and –Anakliuri” is a variety that has been distributed throughout commercial orchards of Abkhazi and the Samegrelo Region of Western Georgia.

The hazelnut value chain takes into consideration that producers do not see the hazelnut tree as a depreciating asset. It must be maintained in order to sustain the production of quality hazelnuts. Once trees are regularly maintained, yields will increase and the cost of production will significantly decrease.

Recently, the first National Congress of Georgian Hazelnut Growers invited AgriGeorgia, Ltd, a subsidiary of confectionary producer Ferrero, to attend its meeting. The initiative paved the way for information sharing and established connections between Georgian hazelnut producers to enable them to work together. AgriGeorgia, Ltd. started in February 2007, and owns approximately 3,000 hectares of land in the Samegrelo Region. As the largest hazelnut production firm in Georgia, AgriGeorgia employs many people and maintains international standards and regulations.

## Methodology

Many of the companies that were interviewed were individual Georgian hazelnut companies. The documents that were reviewed in order to write this report and gather data are all Internet-based sources. Most were press releases and news articles about various international events or issues regarding Georgian hazelnut producers. Please see the following list of Georgian nut producers who were interviewed.

Nut Producers			
	Company Name	Contact person	Phone No
1	Nut producing and processing company	Besik Akhaladze	899170698
2	Kartu Group HCP	Irakli Amanatashvili	895222216
3	LLC Keskia	Fridon Kodua	899515194
4	LLC Tskaros Tavi	Koba Gvazava	877431517
5	LLC Didinedzis meurneoba	Goneli Kukava	899584234

6	LLC Kristali	Dato Lashqarava	877419587
7	LLC Kartuli Sio 2000	Begi Sioridze	899989090
8	LLC GN Company	Mokho Khomeriki	899115370
9	LLC Argo Natia	Mamuka Todua	
10	LLC Dioskuria	Ronaldi shelia	899299845
11	LLC Impex	Levan Jorjikia	877544445
12	LLC G-Nut	Shota Bukhaidze	877777374
13	LLC Georgian Nuts	Kakha Bochorishvili	877797574
14	LLC Fima Georgia	Aleko Motserelia	899953737
15	LLC Megobrebi da Kompania	Paata Erqvanidze	899180803
16	LLC Kardiko	Tengo Arqania	899519214
17	Ferrero International	Merab Murgulia	899583658
18	I/E Badri Lorchoshvili	Badri lorchoshvili	899507823
19	LLC Agro+	David Quhilava	
20	LLC Verdzi	Gela dzidzava	895343358
21	I/E Tskvitava Paata	Badri Lorzoshvili	899508852

# OVERVIEW OF THE HAZELNUTS VALUE CHAIN

## Summary

Main Products/Services	Shelled and in-shell hazelnuts
Key Markets Served	<p>The leading Georgian regions that produce hazelnuts are Samegrelo, Guria, and Imereti. There are additional East Georgian Districts as well.</p> <p>Nearly all hazelnuts that are exported go to West Europe. The individual importing countries are listed in Table 7.</p>
Production	The following regional markets produced hazelnuts in 2009: Samegrelo produced 11,400 tons; Guria produced 3,700 tons; Imereti produced 3,200 tons and other regions produced 3,500 tons. In total, Georgia produced 21,000 tons of hazelnuts in 2009. <sup>7</sup>
Consumption	Considering Georgian production was 18,700 tons of hazelnuts in 2007, and considering exports amounted to 11,649 tons of hazelnuts (shelled and in-shell), the total amount consumed is 7,051 tons of hazelnuts, although some may be informally exported. <sup>8</sup>
Exports	Georgia is a top exporter of shelled (#4 in the world) and in-shell (#5 in the world) hazelnuts. In 2007, Georgia exported 562 tons of in-shell hazelnuts, and 11,087 tons of shelled hazelnuts. Total value of exports in 2007 was over USD 65 million. <sup>9</sup>
Imports	Georgia is not an importer of hazelnuts.
Revenues	Most hazelnut yields average 1 MT/hectare. At current prices, farmers are averaging about USD 2,500/hectare in gross revenues.
Employment	Depending upon the size of the plant, each processing plant employs anywhere between 40-180 employees.
Productivity	The average yield per hectare for Georgian hazelnuts is about 1 MT. This is comparative to the quantity of Turkish hazelnuts. Italian hazelnuts yield 1.5 MT/ha and hazelnuts grown in the USA (mostly Oregon) yield 2.5 MT/ha.

<sup>7</sup> GeoStat

<sup>8</sup> Ibid

<sup>9</sup> GeoStat

	Georgian hazelnut production stood at 800 tons in 1995, and reached 9,250 tons in 2007, amounting to an 11x increase.
Positioning	As a key exporter of hazelnuts, Georgia can differentiate itself with its quality and quantity of hazelnuts. There are different varieties of nuts produced that have a variety of different shapes.
Key Processes	Many processors have dryers, shellers, grading/sorting lines, vacuum-packing equipment, cardboard packaging, etc. There is ample opportunity for process improvement and HACCP certification, which can lead to higher prices.

## Hazelnuts Value Chain Map



### **Vertical Actors**

*Suppliers* of the value chain are hazelnut producers, such as individual farmers and commercial/company farmers. Most hazelnut producers are located in three main regions of the country: Imereti, Samegrelo-Zemo Svaneti, and Guria, as well as other regions. Their combined production amounts to approximately 21,000 tons.

The hazelnut sector in Georgia includes about 21 *collection centers* that provide the following services: aggregation, cleaning, sorting, grading, packing, and some may

even remove the shells and process the hazelnut. Some of these collection centers operate roasting, slicing/dicing, grinding, and packaging equipment in an attempt to diversify their production and become an ingredient supplier as well as a raw material supplier.

There are not many *hazelnut processors*. Some have regional collection centers or send out vans to buy hazelnuts from small farmers to amalgamate small loads. Some producers have obtained international investments to start their group. They own nut processing plants and often produce their own nuts as well; occasionally a supplier is also a processor, especially if they are owned by larger confectioner companies.

Georgia exports almost entirely to Western Europe with buyers in Germany, Italy, Belgium, and Switzerland. *Buyers* typically demand high quality hazelnuts at decent prices from larger companies such as confectioners or larger nut companies. They prefer to buy in large quantities from reputable suppliers in order to keep their costs low.

### ***Horizontal Actors***

There is no *technical/agro technical/agronomic assistance* provided to the numerous small individual hazelnut producers. However, the *Georgian Hazelnut Association* was established by 25 hazelnut producing companies in 2008. The association aims to increase appreciation for Georgian hazelnuts to attract larger shares on the international market; protect producer interests; improve communication with hazelnut growers; and increase production quality and quality control. Although the association has met multiple times to discuss various hazelnut issues, the producer companies are debating whether or not the association will be able to carry out all of its responsibilities.

The goals for the Georgian Hazelnut Association are to help growers increase their hazelnut production and quality, implement modern primary treatment or processing technologies, and help in marketing expansion. The board of directors for this association includes representatives from 7 companies: Italian Ferrero International (who recently acquired 1,200 hectares of plantations in Western Georgia), hazelnut planting and processing company (GTH), HCP-CartuGroup, Georgian Hazelnut Sio-2000, AgroNut, Georgian Nuts, and G.N.

The *Hazelnut Growers Association* is another association in the value chain. It is a part of the Ferrero Hazelnut Business Development program, whose mission includes the development of a network of hazelnut growers, to promote information sharing about new technologies, market hazelnuts as a healthy product, and promote hazelnuts as a tool for improving the socio-economic situation of the various value chain actors. This association was founded by 61 hazelnut producing farmers of Western Georgia through World Bank and CERMA assistance.

### ***Other Actors***

*Equipment suppliers and mechanics* are important value chain actors. As hazelnut processors increase their supply, their equipment will need repairs and maintenance services. Ancillary businesses can assist with this. Some hazelnut processors may share loads destined for export or buy from one another, although this is not very common.

*Standards organizations* such as the International Standard Organizations (ISO) can also be considered value chain actors. The ISO is a certification and recognition board that signals to the global market that the food processor or the company that has received its certification

has adhered to rigorous food safety regulations. ISO certification gives the global community the confidence that the company is in strict compliance with quality standards set forth by the ISO.

## COMPETITIVENESS POTENTIAL

It is good timing for Georgia to be seeking to serve new hazelnut markets, as nearly all commercial buyers are searching for additional sources of supply.

The availability of investment and increased interest by investors indicates that the hazelnut value chain is growing globally. Italian Ferrero International in Italy recently acquired 1,200 hectares of plantations in Western Georgia. This investment will lead to greater hazelnut productivity for the company and for Georgia's hazelnut sector. AgroNuts is a joint investment of Local Capital Group B.V. and European Bank for Reconstruction and Development. The group owns a nut processing plant in West Georgia's Zugdidi region and is a key hazelnut producer. The plant has the capacity of 1,200 tons/month and produces five types of hazelnut products: unshelled, roasted, diced, hazelnut paste, and sugar-coated hazelnuts.

The hazelnut value chain has the potential to increase output while maintaining constant the level of input. Training through the help of USAID/EPI's hazelnut production consultant and the hazelnut production guide will increase production. Hazelnuts are dominantly grown in 3-4 main regions in Georgia. These regions are able to produce approximately 21,000 tons of hazelnuts per year. Another possibility is expanding the area of hazelnut plantations in west Georgia. This could be done by encouraging local producers to uproot amortized tea plantations.

Georgian hazelnuts have the ability to enter Japanese and additional European markets. Tokyo Nuts in Japan is the largest user of nuts in Japan and is known for opening the California almonds market in the 1950s and the 1960s. The company is interested in expanding their sourcing outside of California and is looking to expand beyond Turkey. They might be a new growth in market demand for Georgian hazelnuts.

Many other Asian hazelnut buyers could potentially be interested in Georgian hazelnuts as well. Nishimoto Trading Company in Japan, for example, is the leading Japanese importer of frozen blueberries, and is very interested in Georgian hazelnuts.

Through the charts below, it is clear that Georgia is a world producer of hazelnuts and has the ability to increase its production by at least 15-20 percent to enter additional markets. At present, Georgia uses approximately 18,000 hectares of land to produce 21,000 tons of hazelnuts.

Georgia exports approximately 560 tons of hazelnuts with shell, and 11,000 tons of hazelnuts that have been shelled. Germany, Italy, Switzerland, and Belgium are the largest Georgian hazelnut buyers.

**Table 1: Production of Hazelnuts by Region, 2006-2009.**

### Production of Hazelnuts by Regions (thousand tons)

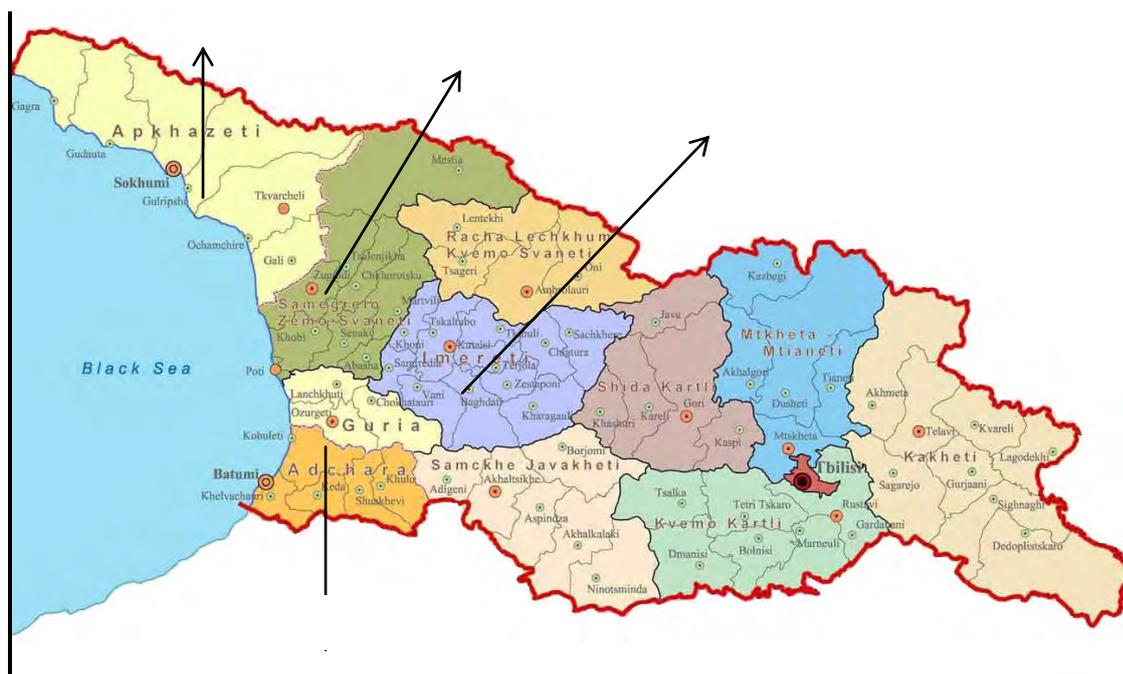
Region	2006	2007	2008	2009
Imereti	3.2	3.2	3.9	3.2
Samegrelo-Zemo Svaneti	13.5	12	9.3	11.4
Guria	5.7	4.5	4.2	3.7
Abkhazeti	N/A	N/A	N/A	N/A
Other Regions	1.1	1.5	1.3	3.5
<b>Total</b>	<b>23.5</b>	<b>21.2</b>	<b>18.7</b>	<b>21.8</b>

Source: GeoStat

Table 2: Hectares of Nuts in Georgia

Area of Hazelnuts and Walnuts (thousand hectares)			
Commodity	2006	2007	2008
Hazelnut	23.7	25	18
Walnut	0.7	0.7	0.5

Source: Ministry of Agriculture, Georgia

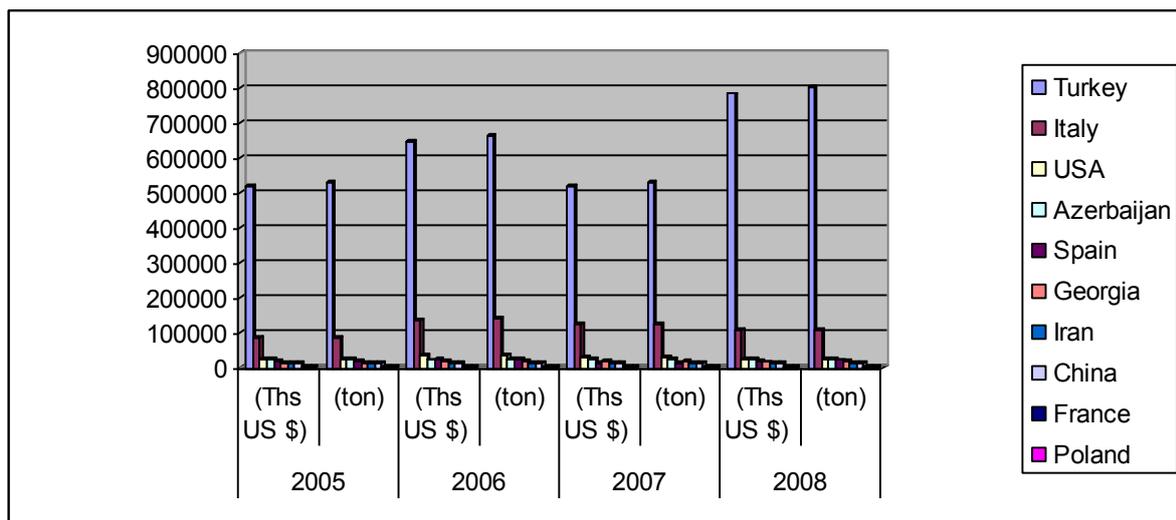


**Table 3: Top Hazelnut Producing Countries**

Top Production of Hazelnuts with Shell								
Country	2005		2006		2007		2008	
	(Thousand US \$)	(ton)						
Turkey	517582	530000	645512	661000	517582	530000	782028	800791
Italy	85820	87879	138779	142109	125226	128231	109220	111841
USA	24451	25038	36323	37195	32781	33568	28349	29030
Azerbaijan	27330	27986	24048	24625	26818	27462	27094	27745
Spain	22487	23027	24228	24810	15755	16134	23437	24000
Georgia	16008	16393	22949	23500	20703	21200	18261	18700
Iran	17469	17889	17578	18000	17578	18000	17578	18000
China	13183	13500	13671	14000	14648	15000	15625	16000
France	4354	4459	5940	6083	5245	5371	4881	4999
Poland	2989	3061	2575	2637	3388	3470	3353	3434

Source: FaoStat

**Figure 1: Top Hazelnut (with shell) Producing Countries:**



Source: FaoStat

**Table 4: Top Hazelnut Exporting Countries (in-shell)**

Top Exports of Hazelnuts with Shell									
Country	2006			2007			2008		
	(Thous and US	(ton)	UV(\$/Ton)	(Thous and US	(ton)	UV(\$/Ton)	(Thous and US \$)	(ton)	UV(\$/Ton)

	\$)			\$)					
<b>USA</b>	39793	21152	1881	62670	28911	2168	56557	23745	2382
<b>France</b>	2351	7141	3037	9337	2764	3378	9516	2497	3811
<b>China</b>	8770	4290	2044	19493	9859	1977	15734	7607	2068
<b>Italy</b>	6311	1889	3341	4739	1218	3891	4719	1280	3687
<b>Georgia</b>	1064	2273	2136	1382	562	2455	4256	2488	1711
<b>Netherlands</b>	502	143	3510	367	87	4218	533	116	4595
<b>Canada</b>	808	492	1642	800	403	1985	845	353	2394
<b>Chile</b>	684	187	3658	2308	982	2350	7121	1923	3703
<b>Turkey</b>	1164	596	1953	544	183	2973	3977	1661	2394
<b>Spain</b>	677	310	2184	444	161	2758	792	221	3584

Source: FaoStat

**Table 5: Top Hazelnut Exporting Countries (shelled)**

<b>Top Exports of Hazelnuts Shelled</b>									
<b>Country</b>	<b>2006</b>			<b>2007</b>			<b>2008</b>		
	<b>(Thousand US \$)</b>	<b>(ton)</b>	<b>UV(\$/Ton)</b>	<b>(Thousand US \$)</b>	<b>(ton)</b>	<b>UV(\$/Ton)</b>	<b>(Thousand US \$)</b>	<b>(ton)</b>	<b>UV(\$/Ton)</b>
<b>Turkey</b>	726668	158583	4582	657223	140117	4691	778965	134663	5785
<b>Italy</b>	55779	7364	7575	136267	20139	6766	104943	14582	7197
<b>Azerbaijan</b>	43826	7150	6130	51069	10023	5095	30119	6304	4778
<b>Georgia</b>	54012	11534	4683	63739	11087	5749	27476	5740	4787
<b>Spain</b>	11874	2032	5844	16481	2914	5656	12257	1941	6315
<b>Germany</b>	22466	3054	7356	30560	4070	7509	30807	3991	7719
<b>Netherlands</b>	16800	2933	5728	18017	2943	6122	14024	2021	6939
<b>USA</b>	6207	2022	3070	9656	1788	5400	15110	2261	6683
<b>France</b>	6896	1019	6767	9635	1425	6761	6778	958	7075

Source: FaoStat

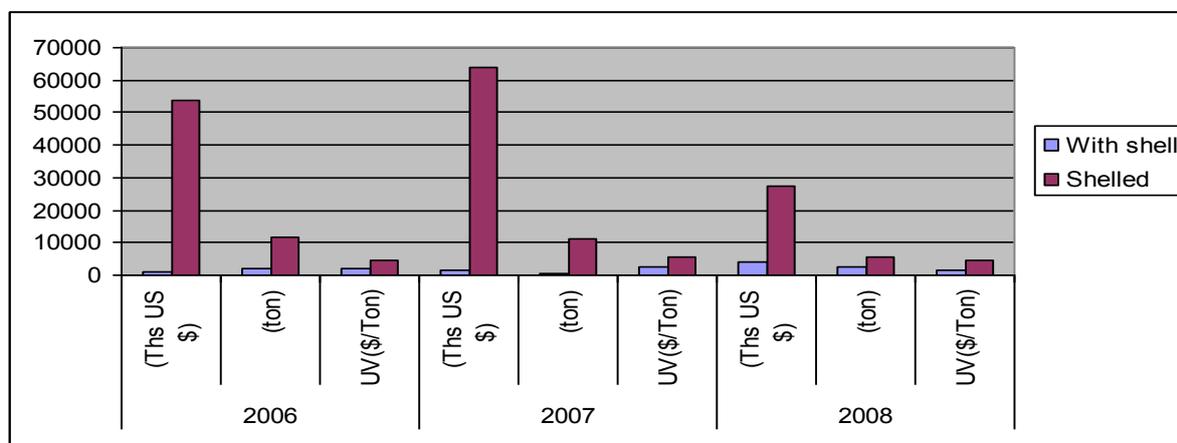
**Table 6: Georgian Exports of Hazelnuts**

<b>Georgian Exports of Hazelnuts with shell and shelled</b>									
	<b>2006</b>			<b>2007</b>			<b>2008</b>		
	<b>(Thousand US \$)</b>	<b>(ton)</b>	<b>UV(\$/Ton)</b>	<b>(Thousand US \$)</b>	<b>(ton)</b>	<b>UV(\$/Ton)</b>	<b>(Thousand US \$)</b>	<b>(ton)</b>	<b>UV(\$/Ton)</b>

<b>With shell</b>	2273	1064	2136	1382	562	2455	4256	2488	1711
<b>Shelled</b>	54012	11534	4683	63739	11087	5749	27476	5740	4787

Source: FaoStat

**Figure 2: Georgian Exports of Hazelnuts, Shelled and In-Shell**



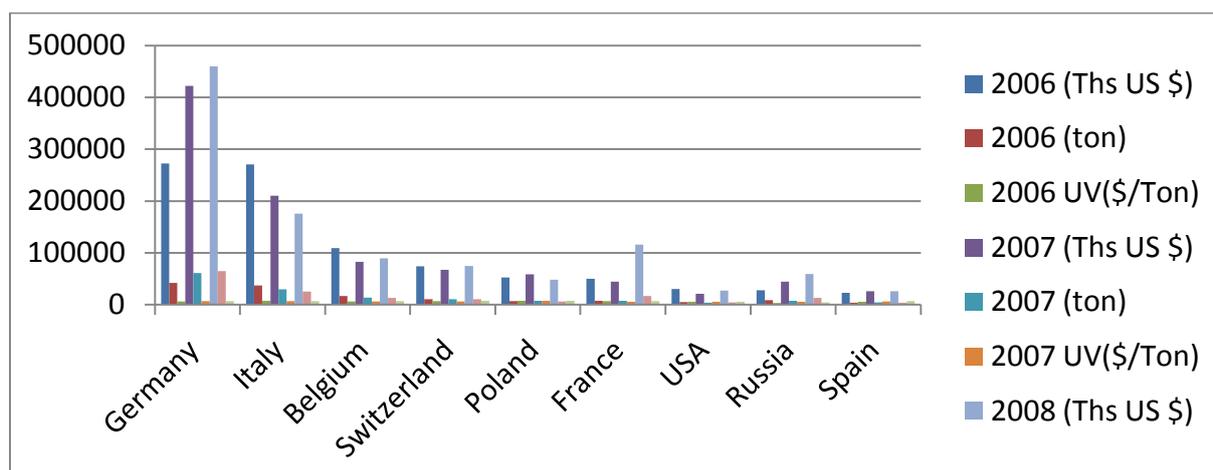
Source: FaoStat

**Table 7: Top Importing Countries**

Top Imports of Hazelnuts Shelled									
Country	2006			2007			2008		
	(Ths US \$)	(ton)	UV(\$/Ton)	(Ths US \$)	(ton)	UV(\$/Ton)	(Ths US \$)	(ton)	UV(\$/Ton)
<b>Germany</b>	272538	42009	6488	422377	61157	6906	459512	65021	7067
<b>Italy</b>	270359	37095	7288	209901	29650	7079	175629	25535	6878
<b>Belgium</b>	109379	16745	6532	82491	13840	5960	89668	13151	6818
<b>Switzerland</b>	73952	10481	7056	66995	10496	6383	74617	10308	7239
<b>Poland</b>	52533	7134	7364	58645	7548	7770	47950	6447	7438
<b>France</b>	49741	7571	6570	44244	7604	5819	116035	16674	6959
<b>USA</b>	29976	5111	5865	21334	3713	5727	27401	4616	5936
<b>Russia</b>	28027	8478	3306	44244	7604	5814	59543	13235	4499
<b>Spain</b>	22712	3929	5781	26060	4328	6021	25755	3874	6648

Source: FaoStat

**Figure 3: Top Importing Countries of Shelled Hazelnuts**



Source: FaoStat

In addition to the previously mentioned Asian firms interested in purchasing hazelnuts from Georgia, Blue Diamond is also interested and eager to obtain Georgian hazelnuts. The company is located in Germany and has a few Turkish producers through which they obtain hazelnuts, but is in need of additional supply.

It is important for Georgia to increase quantities, but it will be difficult without technical support and production training. Production training will increase the quantity of the supply by at least 15-20 percent, as well as the quality of the hazelnuts by harvesting them at appropriate times and maintaining the quality of the orchard.

There are few associations or supporting businesses available for hazelnut producers, and it is important for these associations to flourish as they create a network of producers and suppliers, learning new techniques and gaining awareness of the market conditions together.

Hazelnut producers require more hands-on skills to enhance their production capabilities. They must produce more and increase quality consistency. The quality of the hazelnuts being produced is inconsistent. Without training, when higher yields are produced, the quality will not remain consistent.

EPI created a Hazelnut Production Guide by utilizing Farmer-to-Farmer volunteer trip reports and recommendations from volunteers who worked with hazelnut producers in Georgia. This basic guide includes a pruning and compost section as well as a focus on growing and expanding a pre-existing hazelnut orchard. The guide will be translated into Georgian and will be distributed to various producers through the network of Farm Service Centers and Machinery Service Centers in Georgia. A main objective of the guide is to show growers that their trees must be regularly maintained to produce a consistent quality output and obtain higher yields. The guide will show hazelnut producers that they must prune and appropriately maintain their trees to maintain the levels of quantity needed to attract buyers from international markets.

Georgia's main competition for export markets is Turkey. With 600,000 hectares dedicated to its production and 600,000 tons of shelled hazelnut production per annum averaged over

the past 10 years, Turkey is the world's largest producer of hazelnuts."<sup>10</sup> Some hazelnut producing countries recently increased their competitiveness in foreign markets because their production costs are very low relative to Turkey's. It is forecasted that this situation will reduce Turkey's position in foreign markets, as it faces stronger competitors. However, to maintain its competitive edge with Turkey, Georgia will need to increase its yields.

Hazelnuts are judged not only on their overall quality and taste, but also on their richness. The richness index for Georgian hazelnuts is 62-72 percent, approximately 7-8 percent more than Turkish, Spanish, Greek and Italian varieties. This shows the potential for Georgian hazelnuts to maintain their competitive edge.

## **IMPACT POTENTIAL**

There are many opportunities for this value chain to bring SMEs into the value chain, to engage them, and create SME networking opportunities. Smaller firms can learn from the pioneering larger firms and initiate differentiated products to capture additional sections of the value chain. SMEs may have the potential to work, for example, in the hazelnut shells industry, which could potentially create by-products to heat greenhouses. Ancillary businesses have the potential to stem off of hazelnut shell by-product creation.

The hazelnut value chain has the potential to positively impact the lives of Georgia's younger generations, graduating with business and economics degrees. These ancillary businesses, (transportation, by-product, etc.) have the ability to utilize the capabilities of a burgeoning youth/new workforce.

With improved, consistent quality, additional organizations can be created through the hazelnut value chain. Georgian hazelnuts have the ability to be competitive if producer inspection and quality standards are enforced. As an example, the Dried Fruit and Treenuts Association in the USA is the industry owned and run inspection and quality standard organization. They have a 1,800 point inspection system in place which all packers receive. This includes every possible quality point. Each case that passes inspection receives a Red Seal which is the world-recognized sign of quality for tree nuts, and ensures the product receives the best price consideration. Organizations like these would create additional livelihood opportunities for youth, men, and women alike.

## **INDUSTRY LEADERSHIP**

There are a few large firms focusing on hazelnut production in Georgia: Agroplus, Ecopex, and Geonut are a few that Farmer-to-Farmer volunteers have assisted. AgroNuts is a large group that owns a nut processing plant in Western Georgia. See Impact Potential section for more information about AgroNuts.

Another key player is a company that focuses on the production and sale of hazelnut kernels harvested in Western Georgia. The company owns a production factory located in Tbilisi, which is equipped with an Italian production line specifically designed for hazelnut kernels.

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<sup>10</sup> Fresh Plaza, Turkey: Hazelnut Prices Reach a Peak

The capacity of the factory is 10 MT of finished goods per day; it is one of the largest hazelnut kernel producer companies in Georgia

The company is also one of the first Georgian food processing companies to acquire an International Organization for Standardization (ISO) 9001:2000 Certificate. Obtained with assistance from the USAID-supported AgVantage project, the ISO Certificate indicates that Hazelnut Factory LTD has developed a quality management system that meets international standards. This will increase productivity and profitability and make Hazelnut Factory LTD products more attractive on the world market, and in particular, opening doors to greater European distribution.

It is a continued challenge for Georgian agriculturalists to work together and collaborate. There is an inherent distrust between Georgian hazelnut and non-hazelnut agriculturalists. EPI must remain cognizant of this and work with the challenge.

Larger firms are interested in acquiring additional resources and willing to invest more time to ensure they are able to capture larger market shares and obtain higher profits. A few of these firms have asked for Farmer-to-Farmer volunteers' technical expertise, in exchange for providing all the resources and time for volunteers to teach their staff about hazelnut production including pruning, irrigation technologies, pests, and diseases.

One hazelnut supplying firm who obtained technical production expertise from a Farmer-to-Farmer volunteer, implemented changes to their orchards based on the volunteer's suggestions. The volunteer suggested that the firm increase fertilization to improve the nutrient profile of the soil. New drainage channels on the sides of the orchards were also installed, as a result of the volunteer's explanation to orchard management staff that too much moisture in the root systems of the trees were causing the leaves to turn yellow and wilt. From this example, it is clear that firms are willing to change their techniques if it will result in increased production.

## **CROSS-CUTTING THEMES**

AgroNuts, the joint investment of the European Bank for Reconstruction and Development (EBRD) and the Loyal Capital Group B.V., is located in the Zugdidi region of Georgia, which is a strong-hazelnut growing region. As it is a government priority, there will soon be an international airport in Poti and Kutaisi. Although they have just started their construction, completion of the construction is estimated to take place in 2013. This airport may be a beneficial investment for the company, as the close proximity could make it easier for international buyers to purchase the hazelnuts.

In addition to enhancing the hazelnut market by facilitating the shipping of commodities to international markets, the airport will also extend broader benefits to the transportation sector at large.

It is important to note that two Farmer-to-Farmer assignments in Georgia, through CNFA/USAID, have focused their efforts on the hazelnut producing organizations Ecopex and Geonut. Both of these organizations were also funded by CNFA/MCC's ADA grantee program. These organizations include the leading hazelnut producers and processors, and will likely play a large role in the hazelnut value chain.

# STRATEGIC ENTRY POINTS AND RECOMMENDATIONS

There is a possibility for the hazelnut shell to be used as a by-product with which to heat greenhouses. Greenhouses, as a larger component of the vegetable crops, could potentially stay warm throughout the winter season, allowing vegetable farmers to then increase their revenues and obtain the winter market prices for the vegetables. Additional resources and research would be required to understand the bigger picture and if it could be incorporated into the value chain. There are also other organic uses for hazelnut shells, but these have yet to be fully realized. EPI will also plan to assist in the marketing of hazelnut shells to greenhouse growers interested in heating their greenhouses during the winter season to obtain winter prices for their crops.

Learning new techniques and gaining access to information is a large priority for hazelnut growers, to increase their production and quality. EPI has put together a hazelnut production guide that will be disbursed to all regions and all hazelnut growers, assisting them with production techniques and best practices.

EPI will likely help the smaller hazelnut producers to increase their yields and improve their quality by providing trainings throughout the major regions of Georgia where hazelnut producers exist. There is a large scope for EPI to create and establish trainings to include GlobalGAP and HACCP standards and systems as well as ISO certification.

EPI will bring international hazelnut consultants to Georgia, to assist in teaching producers various techniques that would help increase their yields. Additionally, EPI will bring an international hazelnut marketing consultant to assist larger hazelnut firms in capturing a larger share of the international hazelnut market or enter new market segments.

# CONTACT DETAILS FOR VALUE CHAIN ACTORS

Company / Organization	Name	Address	Contact Telephone Number
1.LLC Kartuli Tkhili Sio 2000	Temur Sioridze	Guria, Ozurgeti	897004708
2.Ecopex LLC	Mirian Dzvelaia	Mtskheta-Mtianeti, Mtskheta	899607760
3.I/E Giorgi Bulia	Giorgi Bulia	Zugdidi Samegrelo	877763278
4.LLCAgro-Plus	Jeneri Belqania	Zugdidi Samegrelo	877440178
5.LTD Dorani	Giorgi Ziraqashvili	Kakheti Akhmeta	899505847
6.LTD AER	Edisher Sanikidze	Senaki, Samegrelo	897132929
7. Ltd Nuts Export Company	Begi Sioridze	Guria, Ozurgeti	899989090
8.Ltd Westnut	Mamuka Todua	Samegrelo, Zugdidi	893364026; 899159003; 877999955;

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# ANNEX 3: FRESH FRUIT VALUE CHAIN ASSESSMENT

## ABSTRACT

Georgian fruit production has long been a tradition due to the country's moderate climate and multitude of micro-climates. Fruit production in Georgia became more commercialized in the late 1960s with a focus on production for export to other parts of the Soviet Union. Unfortunately, fruit production in Georgia, as well as other sectors of agricultural production, experienced a downfall in the 1990s due to the restructuring, infrastructure, macroeconomic, and trade issues associated with the fall of the former Soviet Union. Additionally, Russia placed an embargo on all Georgian products in 2006, so there are currently no imports of fresh fruits to Georgia's formerly largest buyer. Markets are slowly improving as the fruit sector looks to other avenues in international markets and to increase production for domestic consumption.

The fresh fruit value chain will focus specifically on apples, citrus fruits (mandarins, oranges, lemons), and table grapes. This report will take into consideration the amount of hectares of land being used for each fruit, the fruit yields, and the revenue/investment that will result from the focus on these fruits.

## ABBREVIATIONS

ADA	Agribusiness Development Activity
EU	European Union
FSC	Farm Service Center
GFGA	Gori Fruit Growers Association
HACCP	Hazard Analysis & Critical Control Points
MCG	Millennium Challenge Group
MFI	Microfinance Institution
MSC	Machinery Service Center
SME	Small and Medium Enterprise
UNDP	United Nations Development Programme
USAID	U.S. Agency for International Development

# EXECUTIVE SUMMARY

EPI is recommending several initiatives to expand and improve the competitiveness of the fresh fruit value chain:

*Productivity of orchards must be increased significantly to remain viable in the increasingly competitive world market for fresh fruits.*

The mix of varieties grown in Georgian orchards must be diversified to depend less on the market prices of existing/old varieties abundantly produced by competitors in Poland and Moldova. Introduction of new varieties that are popular in developed markets will give Georgian producers new opportunities to enter western markets. In addition, new commercial varieties could substantially strengthen Georgian competitiveness in existing CIS markets, as these markets are gradually becoming accustomed to new western fruit tastes. To promote new varieties, it will be necessary to establish nurseries where modern, highly productive varieties can be tested and propagated, thus ensuring a sustainable, long-term development of the Georgian fresh fruits industry.

*Create availability and channels of access to cold chain technology.*

At present, there are only six operational cold storage facilities in the Shida Kartli Region, the main apple producing region of the country. Their combined capacity is equivalent to 1,500-1,800 tons, which amounts to 2-3 percent of the total production of apples in the Shida Kartli region.

The cold chain units and the related systems that follow constitute an important concept. While it adds to the overall cost of the fresh product, cold chain allows for longer storage periods and higher profits due to off-season trade opportunities, provided the timing of the actual sale is carefully chosen. Georgia’s competitors have embraced this concept; and unless Georgian producers make the necessary investments into cold chain infrastructure, it will become increasingly difficult to successfully compete with producers from China, EU, Poland and Moldova.

*Improve and increase packaging and promotion efforts in order to obtain European markets for exports.*

The absence of minimal standards such as GlobalGAP within Georgia makes Georgian fresh fruit uncompetitive in developed markets. Introducing new marketing approaches to the industry will significantly contribute to increasing the international standards of the Georgian fresh fruits, thus gaining possible entry for the products to these markets. This will be critical for market diversification, as Georgian fresh fruit is heavily dependent on undeveloped and unstable CIS export markets.

Competitiveness Potential	Impact Potential	Industry Leadership	Cross-Cutting Linkages	Overall Comments and recommendations
				Average: 3.25 Recommended for inclusion.

# INTRODUCTION

## Background

The fresh fruits value chain was selected to be a focus of the fruit sector because of its high potential to compete with world markets, its ability to generate high profits (especially with the use of cold storage facilities), to obtain a higher potential for import substitution, and to generate employment.

During the Soviet times, the fresh fruits industry in Georgia had a specific market to export to and was flourishing, with about 128,200 hectares in production, yielding about 645,300 tonnes of produce. Citrus crops, excluded from the above data, were also being produced on 24,700 hectares, yielding about 259,800 tons. After the loss of Russia as a Georgian importer, there was a severe lack of export markets. Georgian producers were at a great loss due to the disappearance of their one main market and ever since then, markets have been challenging to find. The lack of markets, coupled with a lack of finances or options to finance, forced many fruit farmers to replace high-value perennial crops with low-value annual field crops such as wheat and maize, in order to meet their immediate food needs.

Even with these impediments, however, the Georgian fresh fruit value chain has the ability to grow and expand. Gaining access to export markets will be a key factor in improving fruit processors and exporters. It will also be important to focus on cold storage units in order for this value chain to grow and expand.

There are up to 25 consolidation facilities in Adjara for tangerine collection from small farmers. Up to 10 are equipped with relatively modern sorting lines. Additionally, Russia, Ukraine, and Armenia were the major markets for Georgian mandarins. However, at present, the main export market is Ukraine, through Batumi and/or through Poti ports, to Odessa and Ilichevsk.

In the foreseeable future, these areas will remain significant markets for this product. Georgia's historical competitive advantage in mandarin production implies that there are current opportunities for individuals or groups of wholesale marketers to increase their incomes by exporting to Ukraine and Armenia.

## Methodology

To obtain information regarding this value chain, in-person interviews were conducted with producers, processors, and producer associations. The team used several documents from the USAID/AgVantage project as sources of data – the Georgia Apple Demonstration Orchard and Apple Nursery Project reports, the Apples and Table Grapes in Georgia report, and Market Chain Reports on Apples and Mandarins that were written year one of Phase II of the 2004 project. Various sources of information available on the internet were also used, including FAOStat and GeoStat.

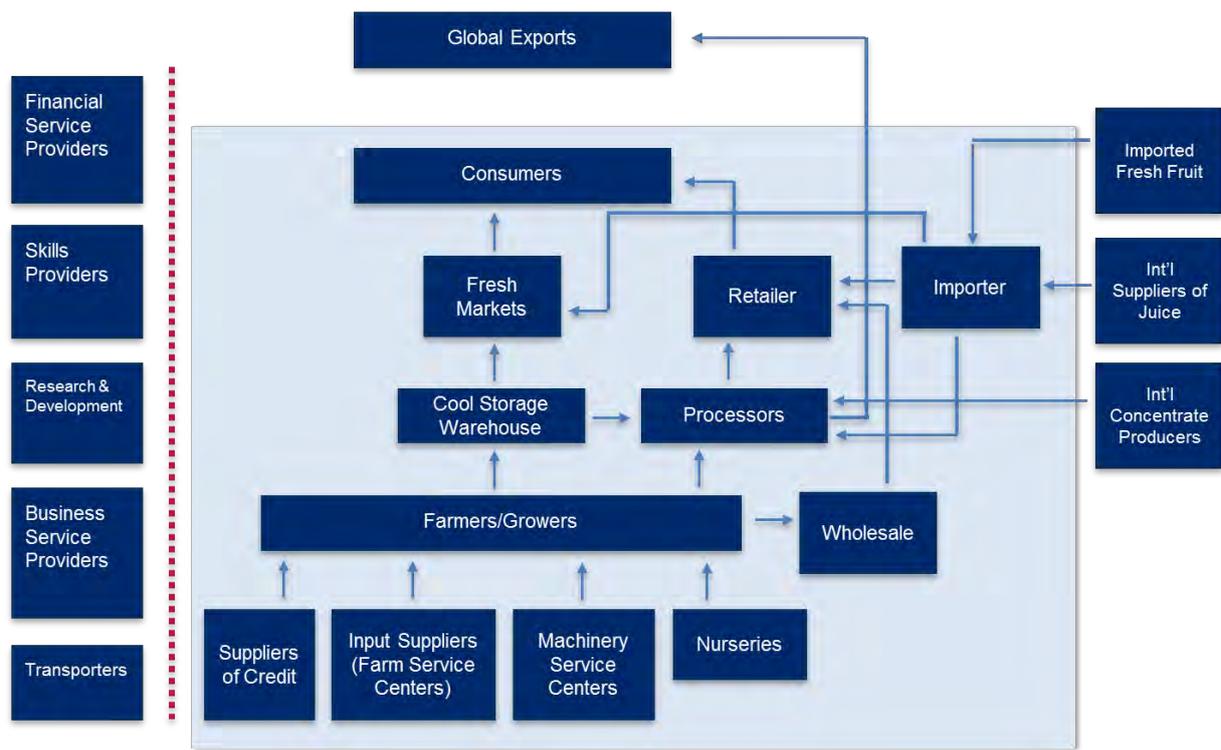
# OVERVIEW OF THE FRESH FRUIT VALUE CHAIN

## Summary

Main Products/Services	Apple, citrus, and table grape production increases
Key Markets Served	Domestic markets International markets include: Ukraine, Armenia, Azerbaijan, Kazakhstan, Baltic States
Production	<p>Orchards produce fewer than 5 tons of produce per hectare on average, compared to 25-30 tons of produce per hectare in the EU and other countries. The average farm-gate price of high quality fresh apples during/immediately after harvest time in 2010 was USD 1,000/ton.</p> <p>At present, the total land area occupied by orchards decreased by more than 60% to about 40,000 hectares out of which up to 12,000 hectares are focusing on apple production and 10,000 hectares are focusing on citrus.</p> <p>The main citrus producing regions in Georgia are in Adjara, Samegrelo-Zemo Svaneti, and Guria. These areas focus on tangerine production. The revenue is approximately USD 280 per ton. The average orchard size does not exceed 0.5-1 hectare of land.</p> <p>Georgia grows grapes all over the country, but these grapes are mainly used for wine production. Over 90% of table grapes are imported from different neighboring countries: Armenia, Azerbaijan, and Turkey.</p>
Consumption	Fruit production in Georgia is closely matched with its consumption, although some processed fruit is exported.
Exports	<p>The volume of apples exported in 2009 is less than the amount exported in 2008, largely due to the war. 20 MT were exported in 2009, versus 21,238 MT in 2008. The value for the exports in 2009 was USD 104,000, and was USD 3,749,000 in 2008.</p> <p>Citrus exports were USD 2,108,400 in 2008, USD 15,702,700 in 2009, and 2010 USD 12,142,900 in 2010.</p> <p>Exports of grapes were USD 85,000 in 2008, USD 4,100 in 2009 and USD 5,900 in 2010.</p>
Imports	<p>576 MT of apples were imported in 2008, valued at USD 393,000.</p> <p>1,811 MT were imported in 2009, valued at USD 1,062,000.</p>

	<p>The value of citrus imports was USD 2,108,400 in 2008, 2009 USD 3,948,200 in 2009 and USD 4,902,900 in 2010.</p> <p>Grape imports were USD 1,159,500 in 2008, USD 1,165,400 in 2009 and USD 1,311,300 in 2010.</p>
Revenues	Revenues from a 1 hectare orchard plantation range between USD 6-15 thousand, according to the crop.
Employment	There are more than 20,000 fruit producer farmers in Shida Kartli and about 40,000 citrus producers in west Georgia, mainly in Adjara.
Productivity	<p>Productivity of apple orchards is less than 5 tons per hectare on average, compared to 25-30 tons per hectare in EU and other competing countries.</p> <p>Mandarin yields average 12 to 15 metric tons of fruit per hectare, but in well-maintained orchards, yields reach 25-30 tons per hectare.</p>
Positioning	<p>Georgian farmers face significant challenges in producing world-class crops, as international and domestic markets are quite competitive. In order to compete with international producers, the farmers have to master new skills to be able to produce large, crisp, well-colored, flavorful fruits and keep them in cold storage for months in order to satisfy the market demand.</p> <p>Apple plantations are 40-50 years old, and the varieties such as “Kekhura,” “Banan” and “Iveria” are very difficult to market. The new varieties, such as Granny Smith, Gala, and even Fuji are grown in limited quantities. Nurseries lack production of modern varieties which require them to import seedlings. The price of the seedling ranges from USD 7-11 per seedling.</p>

## Fresh Fruit Value Chain Map



### Vertical Actors

There are about 20,000 *farmers* producing fresh apples and other fruits in Shida Kartli. Only about 18-20 percent of these own their plantations larger than one hectare. The majority of farmers producing the apples and fruits range between producing on 0.4-1 hectare each.

Typically, mandarins are grown by small farmers, which, in Georgia amount to nearly 40,000 mandarin farming enterprises. The average size of their orchards hardly exceeds 0.3 hectares, and those of two hectares are considered to be large-scale farms. At present, the harvesting, grading and packing is done manually on the majority of farms. The 55-65 grade of fruit targets the export market, whereas the 45-55 grade of fruit is consumed domestically. Fruits are packed in wooden crates, which can hold up to 32 kg of mandarins. New, shorter boxes were introduced in 2005, however, for the export market, with the net weight of 18 kg.

Traditionally, the most common mandarin variety grown in Georgia is Satsuma (Unshui). It is harvested in October-November, cools well, has a good, sweet flavor and taste, and sells well. The yield averages 12 to 15 metric tons of fruit per hectare, but in well-maintained orchards reaches 25-30 tons per hectare. There are up to 25 consolidation facilities in Adjara for tangerine collection from small farmers. Up to 10 of them are equipped with relatively modern sorting lines.

*The fruit processing sector* is also a secondary market for sub-standard fresh fruit. Fruit that cannot be sold to the fresh market can find its way to the processing market, so fruit processors are also a value chain player in the fresh fruit market.

*Wholesalers* deal directly with the local retailers and buy fruits in the amounts of 500-1,000 kg from farming villages. The wholesalers from Azerbaijan are only interested in red apples and they buy 3,000-4,000 kg from farming villages.

*Input suppliers* such as Farm Service Centers (FSCs) were established in the last five to eight years for the stable provision of plant protection means, fertilizers, small tools, and free consultancy. During 2006-2010, 33 FSCs were established in Georgia with the assistance of the Millennium Challenge Group (MCG)/Agribusiness Development Authority (ADA) project. The major suppliers of chemicals are well-known companies such as Bayer, BASF, and Syngenta.

More specifically related to fruit production are Agrokartli LLC, Agrokareli LLC, and I/E T.Niparishvili, FSCs that operate in the Shida Kartli region, the main apple producing area of Georgia. They provide their clients with appropriate apple production trainings and inputs.

The FSCs that specialize in citrus inputs are: Fermerta Sakhli (Farmers House), operating in Adjara, I/E N.Giorgadze in Guria, Gvaza LLC and “Farmers House” LLC in Samegrelo Zemo Svaneti regions. They provide sprayer services, chemicals, and fertilizers that are specific to citrus production as well as trainings for citrus production.

*Cold storage units* are vertical value chain actors. They allow farmers to store their produce in cold storage units until they can obtain an off-season price for their produce. Cold storage units offset domestic imports during the winter times when the fruits are not produced.

### ***Horizontal Actors***

In 2001, the *Gori Fruit Growers Association (GFGA)* was established by USAID/AgVANTAGE to strengthen fruit production, consolidation, and export. The group maintains several tree nurseries for apples, peaches and other fruits and provides technical assistance to farmers. GFGA assisted in site selection; secured the land plot; and provided all labor for land preparation, planting, irrigation, and maintenance of the orchard based on recommendations made by AgVANTAGE consultants and staff. After the Russian embargo, the association only operated one nursery in Bebnisi village to produce high quality modern varieties seedlings.

### ***Other Actors***

*Transport providers* are important to the entirety of the fresh fruit value chain. At present, large exporters ship 50-200 tons of apples and other fruit through Batumi and/or through Poti to Odessa and Ilichevsk on plastic or wooden crates. Historically, wooden crates have been used, but plastic crates are cheaper, priced at about USD 1.50, and are more quality-friendly. Most exporters have switched to using these crates instead of wooden ones.

*Financial Services Providers:* Most Georgian Small and Medium Enterprises (SMEs) complain that the lack of access to finance restrains their growth and competitiveness. According to the 2010 UNDP survey, 43 percent of businesses reported that their businesses failed due to non-availability of free capital. Also, for 66 percent of the respondents, a bank loan was the main requirement to expand or start-up business.

Non-bank financial products —such as, debt and equity instruments, insurance, pension schemes, mezzanine capital, leasing, factoring, and asset-based finance – might serve as potential sources of finance for the business sector.

The availability of agricultural finance is a prerequisite for value chain development and investment. The scarcity of financial instruments and low profitability are reasons financial institutions treat the agricultural sector as high risk area.

EPI finalized a baseline survey of commercial banks/microfinance institutions to identify the loan terms available to SMEs. Information was collected from 19 commercial banks and six Microfinance Institutions (MFIs) (Bank Republic, TaoPrivatBank, TBC Bank, Bank of Georgia, Liberty Bank, Basisbank, VTB Bank, Cartu Bank, Procredit Bank, BTA Bank, InvestBank, International Bank of Azerbaijan, Ziraat Bank, Transcaucasus Development Bank, HSBC Bank, Progress Bank, Kor Standard Bank, Halyk Bank, Bank Constanta, Alliance, Credo, Crystal, Finagro, Finca, and Lazika).

A baseline survey of insurance companies was also conducted. This survey identified types of agriculture-related insurance products. Out of 16 companies interviewed (Aldagi BCI, Imedi L, GPI Holding, IRAO-VIG, IC Group, Kartu, PSP, Europe, Ardi Group, Mobius, Alfa, Archimedes Global Georgia, Standard Insurance Georgia, Partner, Tao and Vesti), only three insurance companies (Aldagi BCI, GPI Holding and Imedi L) provide insurance to agricultural activities such as viticulture, vegetable crops (specifically potatoes), grain crops, and animal husbandry. These are considered lower-risk activities/products than other agricultural activities.

*Laboratories* are needed as additional value chain actors, since they will be needed to provide pesticide residue testing and additional food safety tests. These laboratories do not currently exist, but could potentially be linked to agricultural universities and/or other educational facilities that are focused on agriculture.

## COMPETITIVENESS POTENTIAL

Georgian farmers face significant challenges in producing world-class crops, as international and domestic markets are quite competitive. In order to compete with international producers, farmers have to master new skills in order to be able to produce large, crisp, well-colored, flavorful fruit and keep them in cold storage for months, at least long enough to satisfy the market demand.

Some parts of the country have access to irrigation. There is only partial access to new seedlings since they all must be imported. However, FSCs located throughout the country can help mitigate issues associated with the supply of fertilizers, pesticides, and seedlings.

The majority of apple plantations are 40-50 years old, and varieties such as “Kekhura,” “Banan” and “Veria” are very difficult to market. The new varieties, such as Granny Smith, Gala, and Fuji are present in Georgia, but in limited quantities. The lack of nurseries producing modern varieties requires seedlings to be imported, and the price of any given seedling ranges from USD 7-11 per seedling. However, FSCs might be able to help mitigate the high cost of these quality seedlings.

Fresh market apples are mainly exported to Azerbaijan, Kazakhstan and Ukraine. Approximately 70-75 percent of apples exported to Azerbaijan are red varieties. Unfortunately, the Ukrainian apple market for Georgian fruits decreased during the last three to four years for a few reasons: old varieties were not being bought in the consumer market; high quality fresh apples were being sent to Ukraine by Eastern European countries (Poland,

Serbia, Moldova, Slovakia, Slovenia), and an increase of local production planting new, highly intensive varieties of apples on a yearly basis (800-900 hectares per year).

The production and consumption of apples worldwide has doubled since 1980. Apples have historically been one of the largest exported fruit products, with 11,000 hectares producing 100,000 tons. Although the statistical exports showed apple exports to be 7,000 tons in 2006, some estimates showed exports to be as high as 35,000 tons.<sup>11</sup>

**Table 1: Fruit Products Export**

Commodity	Fruit Products Export				Change in MT, 2008-09	Change in \$ Value, 2008-09
	2008		2009			
	MT	\$1,000	MT	\$1,000		
Fruit fresh or dried	21079	3878	110000	15703	88921	11825
Apples, pears and quinces fresh	21238	3749	20	104	-21218	-3645
Apricots, cherries, peaches plums fresh	1829	624	618	772	-1211	148
Other fruit fresh	5241	1193	1000	1549	-4241	356
Fruit dried	96	514	63	247	-33	-267
Jams fruit jellies	697	1027	342	411	-355	-616
Fruit and veg. juices	6392	8402	3302	2883	-3090	-5519
Marmalades fruits and other edible	228	1568	102	356	-126	-1212

Source: GeoStat

**Table 2: Fruit Products Import**

Commodity	Fruit Products Import				Change in MT, 2008-09	Change in Value, 2008-09
	2008		2009			
	MT	\$1,000	MT	\$1,000		
Dates, Figs, pineapples, avocados, guavas, mangoes and mangosteens			435	444	435	444
Citrus fruit fresh or dried	5847	2108	7865	3948	2018	1840
Grapes fresh or dried	1312	1159	1046	1165	-266	6

<sup>11</sup> <http://www.fao.org/docrep/004/ab985e/ab985e00.htm#Contents>

Melons, watermelons fresh	2429	317	393	268	<b>-2036</b>	<b>-49</b>
Apples, pears, quinces	576	393	1811	1062	<b>1235</b>	<b>669</b>
Apricot, cherries	1611	324	574	221	<b>-1037</b>	<b>-103</b>
Other fruit fresh	1154	558	1249	619	<b>95</b>	<b>61</b>
Fruit dried	176	250	190	283	<b>14</b>	<b>33</b>
Jams, fruit jellies	214	590	277	541	<b>63</b>	<b>-49</b>
Fruit and other edible parts	988	2160	738	1682	<b>-250</b>	<b>-478</b>
Fruit and veg. juices	3806	3571	3628	3188	<b>-178</b>	<b>-383</b>

Source: GeoStat

**Table 3: Fruit Production by Crop**

<b>Fruit Production by Crop (1,000 MT)</b>				
<b>Variety</b>	<b>2006</b>	<b>2007</b>	<b>2008</b>	<b>2009</b>
Apple	32.8	101.3	41.5	80.7
Hazelnuts	23.5	21.2	18.7	21.8
Subtropical fruits	21.2	22.1	23.7	21.4
Peaches	5.3	8.2	13.7	17.6
Pears	22.5	19.6	16.4	11.1
Walnuts	3.9	11.8	6.2	8.2
Sour plums	24.3	18.6	18.0	6.9
Plums	12.8	16.3	12.6	6.3
Cherries	4.8	5.5	4.0	4.0
Quince	1.1	1.5	1.2	2.2
Berries	0.6	1.1	0.9	0.4
Other fruit				0.4
Apricots	0.5	0.3	0.7	0.2
<b>Sub total</b>	<b>153.3</b>	<b>227.5</b>	<b>157.6</b>	<b>181.2</b>

Grapes	162.5	227.3	175.8	150.1
Citruses	52.2	98.9	55.2	93.6
<b>Total</b>	<b>374.6</b>	<b>561.2</b>	<b>394</b>	<b>430.7</b>

Source: GeoStat

Georgia's ability to serve off-season export markets is a function of its diversity of climatic zones. These climatic zones give Georgia the ability to produce and market crops over a longer season, which can serve as an advantage for supplying early, mid, and late season markets to obtain better prices.

There are several obstacles to exporting Georgian apples to EU countries: a) old varieties introduced in Georgia do not meet the market requirements of the EU; b) low quality of apples once they are at market due to a lack of cold storage and sorting facilities; and c) an absence of EU standards such as GlobalGAP in Georgian plantations.

Based on this analysis, it is clear that these challenges will need to be addressed. It will be important to obtain accreditation like GlobalGAP for Georgian fresh fruits to increase their export quantities and value. Another element that would increase Georgian fresh fruit crop exports is cold storage units. Cold storage units and accreditations would ensure the quality of the fruit. Each cold storage unit will increase the quantity of apples available in the market long after the season has been completed as well as provide for higher prices to those who took the storage risk. This off-season fruit availability will inevitably offset off-season imports and possibly lead to increased exports.

At present, there are six operational cold storage units: five in Gori and 1 in Kareli District. The combined capacity of these cold storage units does not exceed 1500-1,800 tons, less than two percent of total apples produced in Shida Kartli. So there is plenty of room for additional cold storage units to assist with the issue of resource availability.

## IMPACT POTENTIAL

The fresh fruits value chain links with and affects other value chains. It of course is particularly related to the fruit juice value chain.

Georgian production of table grapes could readily be increased to become a substitute for imports. See industry leadership for more information about Shanate, a leading table grape firm that obtained an MCG/ADA grant to move its table grape nursery forward. Permanent jobs were created as a result of the project and about 100 grape-growers will indirectly benefit from purchasing these seedlings.

Increased production of apples and citrus will provide considerable new job opportunities.

As this value chain becomes better developed, it will substitute for imports. As domestic production increases, Georgia will have the opportunity to label and brand these fruits as domestically grown, building a culture of consumers centered around the domestic label. Labeling fruit may also be a way to obtain a loyal group of consumers. Regulation might insist that all fruit is origin-labeled. This would increase the sustainability of the value chain.

# INDUSTRY LEADERSHIP

A newly established table grape nursery farm intends to plant a nursery of seedless table grapes, produce and sell high quality seedlings of various table grape varieties, including: "Karaburnu", "Red globe", "Black Magic", "Regina", "Italia", "Sultana", "Crimson Seedlers", etc.

Under the project, 18,500 seedlings of various table grape varieties were imported from Italy and South Africa and were planted on 10 hectares of land owned by the ADA/MCG grantee. A small tractor (40-60hp) was purchased in order to maintain the planted grape nursery.

Currently there are no table grapes nurseries in the country except for this one, and the only table grapes produced are from old, indigenous varieties of grapes, which cannot compete with imported grapes on the domestic market. The long term impact of this project will be increasing the local production of high quality seedless grapes, which are marketable and internationally competitive. The project envisages the sales of table grape seedlings at first, since the production of table grapes is anticipated to start later. It is important to note that 17 permanent jobs will be created as a result of the project and about 100 grape-growers will indirectly benefit from purchasing these seedlings.

This firm is a lead firm for the table grape industry and because of its seedling sales, will be a leader for other SMEs to make provisions to support it, or compete with it and stay in business. The firm will be able to assist other firms with its table grape seedling sales. It is also a firm that is interested in applying organic fertilizers, purchased from a local firm in Georgia. If they are successful in developing their table grapes nursery, they will advertise and market for the sales of their seedlings.

GeoConcentrate is another lead firm. Although GeoConcentrate is focusing on the juices value chain, it is nevertheless a fruit firm and deserves mention in this fresh fruit value chain as having the capacity to take fresh fruit supply and process it. GeoConcentrate is the leading fruit juice and canning firm, and is a large international exporter of juices and concentrate.

## CROSS-CUTTING THEMES

Although the farmers that were interviewed state that they are not specifically interested in focusing on fruit production, this is likely because there is not enough financing for fruit production at the moment. Because of a lack of equipment and lack of available inputs, it is apparent that these are the reasons that farmers are hesitant to move forward.

Projects such as AgVantage were instrumental in assisting the development of Georgia's agricultural capacities. In 2001, the Gori Fruit Growers Association was established with support from AgVantage in order to strengthen fruit production, consolidation, and export.

As agricultural investments are made in the future, and as the fresh fruits value chain creates substantial reform, there will be many more employment opportunities within agronomy and agricultural management. The agricultural sector as a whole will need new a new workforce which will include opportunities for youth and for women.

# STRATEGIC ENTRY POINTS AND RECOMMENDATIONS

The fresh fruits value chain has great potential, but is in need of investments and access to finance for new technologies such as cold storage facilities and units. For example, there are currently only enough cold storage facilities for less than three percent of the total apple crop. This will be a priority for EPI to leverage points along the value chain. Universities and colleges may also be assisted to set up fresh fruit testing laboratories.

As the process of testing the fruit continues, Georgian producers will want to obtain accreditation in order to reach export markets. Accreditation such as Hazard Analysis and Critical Control Points (HACCP) and Global GAP are necessary for Georgian producers to obtain European and Western markets.

EPI also has the ability to focus on ensuring that yields of fruit are increasing by providing training to fresh fruit growers.

# CONTACT DETAILS FOR VALUE CHAIN ACTORS

Name	Activity	Organization/Company
Zviad Bobokashvili	Consultant	Kartu Group
Irakli Merkvilishvili	Director	Akhali Mamuli 2008
Soso Sabanadze	Apple production	Gori, Shindisi
Donara Surmanidze	Deputy Minister	MoA of Adjara
Nodar Khokhashvili	Head of DEP	MoA
Goga Simonishvili	FSC	Agrokartli
Zurab Abalaki	Cold storage	Gori fruit export company
Giorgi Mchedlishvili	Cold storage	I/E Giorgi Mchedlishvili
Vano Goglidze	Fruit processing	KULA
Kote Vekua	Cold storage	Nergeta
Djumber Tugushi	Chamber of Commerce of Adjara	Deputy Chairman
Zaur Putkaradze	FSC	Owner
Gia Metreveli	CITRO LLC	Owner
Vladimir Gugushvili	Director	Aromaproduct

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# ANNEX 4: FRUIT JUICE VALUE CHAIN ASSESSMENT

## ABSTRACT

The Georgian fruit juice industry has the potential to expand and improve its competitiveness. This fruit juice value chain assessment considers the capacities of Georgian fruit suppliers, needed investment in equipment and other capital, the various firms that are involved in leading this value chain. Although relatively few companies are producing fruit juices at present, there is great scope for this industry to grow and compete domestically and internationally.

## ABBREVIATIONS

ADA	Agribusiness Development Activity
EPI	Economic Prosperity Initiative
FSC	Farm Service Center
FDI	Foreign Direct Investment
GFGA	Gori Fruit Growers Association
HACCP	Hazard Analysis and Critical Control Points
MCG	Millennium Challenge Group
USAID	U.S. Agency for International Development

# EXECUTIVE SUMMARY

The Georgian fruit juice value chain is established, but has excellent opportunities to grow. New entrants, suppliers of fruit, processors, and other actors should see opportunities in this value chain. The value chain is not yet complete, as additional supply and processors are needed. EPI's main recommended initiatives to support growth are:

*Increase supply of fresh fruit by providing finance, additional trainings, new cultivars, and improving fruit production*

By improving orchard/nursery techniques, Georgian fruit growers can increase their production. In this regard, the next steps for EPI will be to provide trainings, increase farmers' access to quality inputs, and create a production guide for nursery owners. The guide will coincide with trainings and will be a sustainable, tangible tool for nursery owners. Similar to what table grape nurseries are doing to capitalize on sales, nursery owners will be able to generate revenue by selling high quality seedlings. EPI aims to amplify these sales by assisting nurseries that are involved in these actions to increase the supply of fruits. If the fruit supply in Georgia is increased, the opportunity for Georgian fruit juice processors will also increase.

*Increase fruit processor access to cold storage systems by providing finance*

To mitigate price fluctuations of fresh fruit purchases and control the price of their supply, fruit juice processors require access to cold storage systems. Once cold storage systems are in place, supply will be stable year round. The processes of producing and refrigerating concentrate will no longer be needed, as supply will be bought in bulk if cold storage systems are in use, generating fresh, more cost-effective lines of fruit juices.

*Increase investments made to juice processors for equipment and technology*

As fruit supply increases, juice processors will need to obtain equipment and technology in order to process the fruit into juice and maintain quality standards.

Competitiveness Potential	Impact Potential	Industry Leadership	Cross-Cutting Linkages	Overall Comments and recommendations
				<p>Average: 3.25. Recommended for inclusion</p>

# INTRODUCTION

## Background

The fruit juice value chain has the potential to become a key component of Georgia's agricultural and processing industry. To enable the value chain to grow, much greater supplies of fruit will need to be available for processing, and processors will need to access new technology and equipment.

Georgia's soils and various climates are ideal for fruit production. Georgia has the natural resources and ability to serve many niche markets - e.g. organic juices, all-natural juices, and various juice products. The Shida Kartli region is the center of the fruit industry in terms of scale and quality of fruit. Fertile lands provide for a varied and productive agricultural sector. The soil is rich and ideal for crops. The land is irrigated by fresh mountain water.

Concentrated fruit juice is a product obtained from one or more fruit juices by the physical removal of a specific proportion of water content. The concentrate needs to be diluted with water before consumption. The product can be sold under many names: Fruit Juice, Fruit Juice from Concentrate, Fruit Nectar, Concentrated Fruit Juice, or Dehydrated/Powdered Fruit Juice. Georgian fruit juices have the ability to be highly competitive.

## Methodology

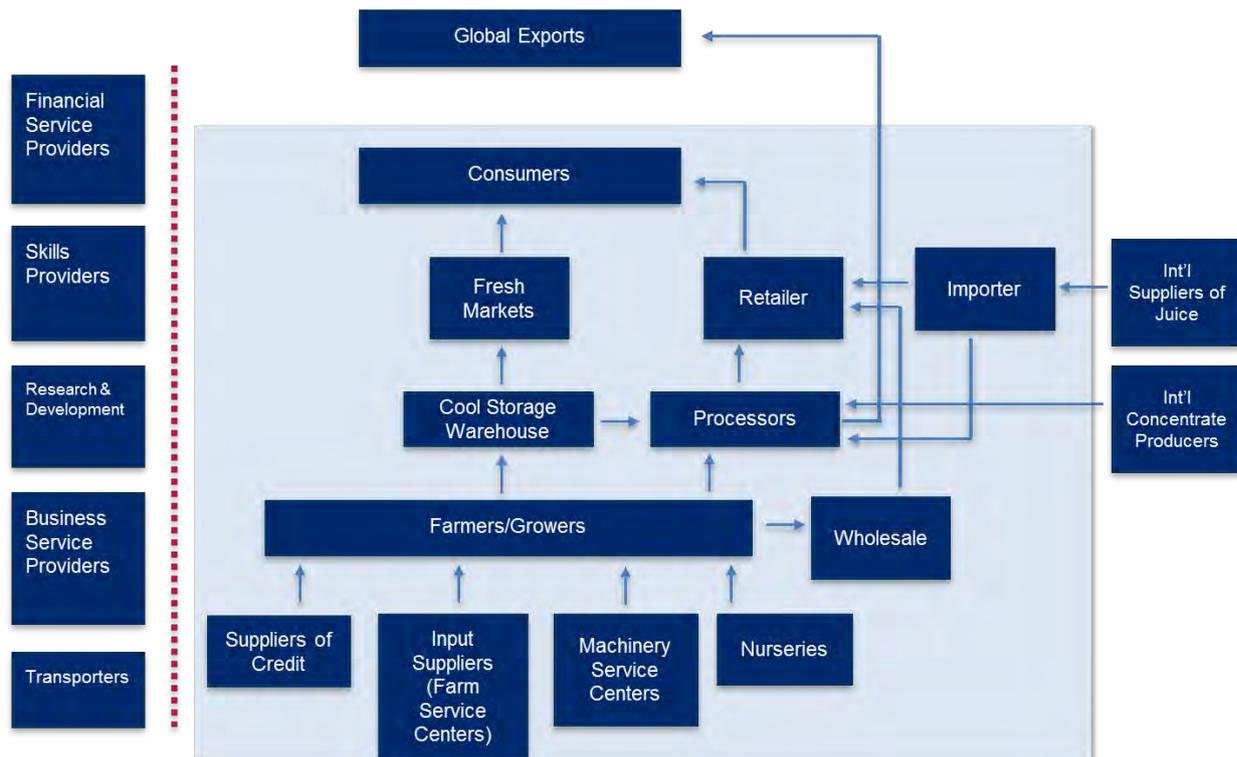
This assessment was primarily based on information obtained through interviews and Internet-based research. Interviews with each of the 5 main fruit processing companies operating in Georgia were conducted. These companies are: Campa, Sante, AromaProduct (Vladimir Gugushvili, General Director), GeoConcentrate and Citro LLC.

# OVERVIEW OF THE FRUIT JUICE VALUE CHAIN

## Summary

Main Products/Services	Apple, orange and grape juices
Key Markets Served	Key markets that are currently served include the domestic Georgian market, larger cities, and tourist ports.
Production	Citrus production will be greatly increased in Adjara, Samegrelo-Zemo Svaneti, and Guria. Production in these districts will initially be increased because these are the areas where fresh fruit is produced. In order to move the processing elsewhere, cold chain management and storage facilities will need to be added.
Exports	AromaProduct LLC started planting its own orchards in 2007 and started producing juices for export. Under its own private label, AromaProduct sells pomegranate juice and bilberry juice. The company exports directly to 25 different countries in the Middle East, Europe, and North America.
Imports	90 percent of fruit juices sold in Georgia are imported from the Ukrainian firm, Samadora, as well as several Russian companies.
Employment	The fruit juice sector has the ability to generate employment among the various value chain actors, including suppliers and cold storage unit equipment repair service personnel.
Positioning	Georgian fruit juices are products that will be differentiated based on their quality and their ability to serve domestic and international markets with natural, fresh juice.
Key Processes	Input Suppliers to Suppliers to Collection Facilities to Processors/Firms to Cold Storage Units to Packaging Companies to Buyers/Exporters.

## Fruit Juice Value Chain Map



### Vertical Actors

*Suppliers/farmers* are the orchard managers or owners who provide fruit to the processors. Since fresh fruit is not presently a large part of the fruit juice industry, suppliers/farmers have strong potential for greater sales within the value chain.

*Input suppliers* to this value chain include Farm Service Centers (FSCs) that provide fertilizers and other inputs to suppliers. Thirty-three FSCs were established in Georgia from 2006-2010 with the assistance of the Millennium Challenge Group (MCG)/Agribusiness Development Activity (ADA) project. The major suppliers of chemicals to these FSCs are well-known companies such as Bayer, BASF, DuPont, and Syngenta.

Most specifically, Agrokartli LLC, Agrokareli LLC, and I/E T.Niparishvili are FSCs that operate in the Shida Kartli region, the main apple producing area of Georgia. They provide their clients with training in apple production and use of inputs.

The FSCs that specialize in citrus inputs are Fermerta Sakhli (Farmers House), operating in Adjara, I/E N.Giorgadze in Guria, Gvaza LLC and "Farmers House" LLC in Samegrelo Zemo Svaneti regions. They provide sprayer services, chemicals, fertilizers specific to citrus production, and trainings for citrus production.

More *nurseries* will be needed as the fruit juice industry expands. They play an important role in ensuring that the best seedlings are propagated and are being grown in orchards. Although this may be a costly endeavor, nurseries currently exist that do sell seedlings. This

nursery imported seedlings from Italy and South Africa, and grew additional seedlings for sale.

*Companies processing and selling concentrate* are key actors in the juice industry. Since juice processors often use concentrate rather than fresh fruit, concentrate imports make up a large portion of the value chain and can be considered the main input to processors. Some companies import their concentrates from Germany and Israel.

*Consolidation centers* are often associated with the processing companies themselves. Most of them are owned by processing companies, although a few consolidation centers are independent.

*Processing companies* are key actors in the value chain. Processing companies often own their own packaging equipment, avenues for distribution, and consolidation centers. As investment is committed to cold storage, these processors may also prefer to own their own cold storage systems. There are currently five main fruit juice processing companies in Georgia. Due to the fact that four out of these five processors were MCG/ADA-funded grantees, there is information available about their operations and their progress. Each of them is detailed below in the competitiveness section.

*Packaging companies* are vertical value chain actors. Most juices sold in Georgia are packed in carton packs, the prices of which vary from GEL 2.80-3.50. The market share of juices sold in glass bottles is small and is represented primarily by imports from western European countries. On the other hand, the segment of juices packed in cardboard cartons is quite large due to the prevalence of low and middle income consumers. The total cost of juice bottling, (including the glass bottles, labels, and caps) ranges from USD 0.43 to USD 0.50 per bottle excluding labor cost, whereas the cost of carton packing material amounts to about USD 0.20 per pack.

*Buyers/Distributors* are important vertical value chain actors. They purchase quality products and sell onward to supermarkets throughout the country. They are usually independent of the processors, although processors in some cases have their own distribution systems. Sante, for example, maintains its own dairy distribution system, which it utilizes for its fruit juice distribution as well.

### ***Other Actors***

*Packaging companies* sell and repair the equipment, such as Tetra Pak and Tetra Brik, which they sell to fruit processing companies

*Cold storage companies* can be seen as horizontal actors. Cold storage systems are not currently in use, but will be used by processors once they gain access to the financing for these systems. These companies that sell cold storage systems will benefit by providing maintenance services to cold storage systems that are purchased by processors.

*Banks and other financial institutions* may finance fruit juice processors' purchases of additional equipment. However, the fruit juice industry and fruit juice processors are currently seen to be high risk, since the industry is not large.

*The government* may be considered a value chain actor due to its potential role of assuring international standards and systems such as Hazard Analysis and Critical Control Points (HACCP) and Global GAP.

*Laboratories* are also necessary to ensure that the juices are being tested for nutrition and microbial issues. Universities may be able to assist with initializing food technology laboratories within the universities themselves.

## COMPETITIVENESS POTENTIAL

Apple production in Georgia was about 80,000 – 100,000 metric tonnes in 2007. Approximately 30-35 percent of apples were processed into apple juice concentrate. The average amount of apple juice concentrate produced is between 4,000 – 5,000 metric tonnes; 99 percent of which is exported (mostly to the EU) and gives USD 6-6.5 million to the country.

A study conducted has shown that prices for raw materials in the world vary from USD 0.1 to USD 0.13. In comparison, the price for raw materials in Georgia is no more than USD 0.05-0.08, which makes local processing competitive with other countries.

It is very important that Georgian apple juice concentrate companies recognize and make use of their comparative advantages vis-à-vis other key juice suppliers (Poland and China). Georgian apple juice concentrate is high in acidity compared with Chinese juice concentrate, and is competitively priced compared with Polish juices. These factors drive strong and consistent demand for Georgian apple juice concentrate.

Adjaran farmers grow around 100,000 tons of citrus per year, a large part of which was exported to the Russian market in past. Exports dropped dramatically after the Russian ban on Georgian agricultural products. There is a shortage of fruit, specifically citrus juice processing/packaging plants because of the inability to compete with the lack of an export market. A resurgent fruit juice industry has the ability to create access to a cash market for approximately 250 new suppliers of citrus crops.

Several ADA funded grantee fruit juice companies have the potential to become leading firms within the industry. Below is a discussion of a few of these firms and their competitiveness potential:

LLC Citro is an ADA-funded grantee company, assisted to reconstruct and install modern equipment for citrus juice production in Batumi. The company produces three types of natural citrus juices: oranges, lemons, and tangerines in .75L of twist-off glass bottles. This ADA-funded grantee generated 18 new jobs. Their produced goods are distributed to 100 local shops and supermarkets in Adjara and Tbilisi.

Another ADA-funded grantee company, Geoconcentrate, has the ability to be a leader as a natural-fruit juice cannery. Geoconcentrate has been processing fresh fruit purees and fruit juices since 2007.

Sante GMC is another processing company. It produces six types of juices: cherries, oranges, tropical blend juice, pineapple, apple, and peach blends.

AromaProduct LLC started planting its own orchards in 2007 and produces fruit juices for export. By utilizing its own private label, AromaProduct sells pomegranate juice and bilberry juice. AromaProduct exports directly to 25 different countries in the Middle East, Europe, and North America.

Campa, established in Georgia in 2009, produces nine types of juices.

In addition, there were 10-12 enterprises located mainly in east Georgia, who were fruit concentrate producers in the past, and with access to finance are capable of restarting production.

It is important to note that a major competitor is based in Ukraine. The company is the largest fruit juice company in Ukraine, and Georgia imports 90 percent of its juices from them. Santal, G7, and Moia Semia are fruit juice companies that can also be considered competitors.

## **IMPACT POTENTIAL**

In Georgia, large exporters and distributors often operate their own cold storage and warehousing facilities. They own trucks and give the farmers two options: distributors/exporters either pick up the produce for a fee or the farmers deliver the produce to the warehousing or cold storage facility.

Growing and improving the productivity of the agricultural sector will require improving the efficiency of fruit collection and increasing the number of cold storage and warehousing facilities. Increasing the number of cold storage facilities and extending the cold chains closer to the producers would enable farmers to increase marketed produce, reduce spoilage, extend the duration of the selling season, and obtain higher average prices. Cold storage and warehousing should be located near the producers and also near the ports (for export).

FSCs are large players within the fruit juice value chain, as they are the main input suppliers. Although they work independently and have their own set of communications among each other, EPI is interested in promoting additional communication between them, and promoting the sustainability of communication among them. By establishing an event that will bring FSCs together through a consulting company, AgroService, the FSCs have the ability to collaborate and speak about constraints or challenges that they all face as well as build a network of FSCs within the country.

Access to finance for the purchase of equipment and technology, such as cold storage units, processing lines, and other inputs, is highly important. Greater availability of finance will be crucial to increasing supply and quality. The National Investment Agency, a government body responsible for attracting Foreign Direct Investment (FDI), is optimistic for the future of the value chain. Agency representatives say that they have targeted some sub-sectors, such as organic production and food processing, and plan to offer potential investors both inside and outside the country projects in these fields in 2011 and 2012. This could potentially mean additional funding for the fruit processing industry in Georgia.

## **INDUSTRY LEADERSHIP**

EPI does not yet see much interest on the part of larger firms to collaborate with each other. Inter-firm collaboration and trust would derive from an understanding that such collaboration is important in order to move the industry forward.

Some lead firms are not obviously interested in moving forward with additional changes. Also, it is important to note that some firms are not primarily focused on fruit juice production. Other firms are, however, very interested in expanding.

See the Competitiveness Potential section for names and descriptions of lead firms.

## **CROSS-CUTTING THEMES**

The MCG/ADA project funded many of the juice processors that are operating in Georgia today. The grantees that were funded are now interested in expanding their businesses. EPI intends to build off of the momentum that was created with MCG/ADA, and focus on ensuring the supply and capital investment the grantees need to expand further and attract export markets.

The fresh juice value chain will benefit from any EPI initiatives in the blueberry and fresh fruit value chains. With the blueberry as well as fresh fruit value chains, the recommendations EPI made are to assist in increasing yields, from which quality produce will be exported directly to larger international markets, and the remaining produce (the majority) will be processed and potentially used for juice processing.

## **STRATEGIC ENTRY POINTS AND RECOMMENDATIONS**

This value chain requires that EPI support the recommendations laid out in the beginning of the document: investment for additional funding of firms who require new equipment, workforce development for additional training, and an increase to the level of cold storage units available.

It is possible that EPI could create an orchard management guide for orchard owners and managers to use. What is important is that suppliers obtain a greater technical understanding of how to actively manage their orchards to the point where they are able to utilize new techniques and achieve higher yields.

# CONTACT DETAILS FOR VALUE CHAIN ACTORS

Company / Organization	Name & Position	Address	Contact Telephone Number	Email Address
Aromaproduct	Vladimir Gugushvili	Tbilisi, 17, Guramishvili ave,	+995 32 61 33 56	<a href="mailto:V_gugushvili@arom.ge">V_gugushvili@arom.ge</a>
CITRO LLC	Gia Metreveli	Batumi, 111 Lermontov str.		<a href="http://www.citro.ge">www.citro.ge</a>
KULA	Vano Goglidze	Gori		<a href="http://www.kula.ge">www.kula.ge</a>
Campa			+99532364072	<a href="mailto:marketing@campa.ge">marketing@campa.ge</a>
Gori fruit export company	Giorgi Mchedlishvili	Gori		
Nergeta Cold storage	Kote Vekua, Director	Zugdidi	+99532459630	<a href="mailto:vekua@nergeta.ge">vekua@nergeta.ge</a>
Akhali Mamuli 2008	Irakli Merkvilishvili	Gori, #4 Tskinvali ave	827072940	<a href="mailto:info@agrotechno.ge">info@agrotechno.ge</a>
Cold storage	Zurab Abalaki	Gori		
Agrokartli	Goga simonishvili	Gori, #4 tskinvali av.	827072940	

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- —FDA Seeks to Stop Juice company’s Processing, Distribution.” Press Release. U.S. Food and Drug Administration. Oct. 7, 2010.  
<http://www.fda.gov/NewsEvents/Newsroom/PressAnnouncements/ucm228695.htm>

# ANNEX 5: FRESH VEGETABLE VALUE CHAIN ASSESSMENT

## ABSTRACT

This assessment describes opportunities for growth and increased competitiveness in the fresh vegetable value chain, provides data and information about the sector, and discusses the EPI team's recommendations. The purpose of the report is to provide the basis for deciding whether the value chain should be included as a priority sector for EPI partnership. There are multiple ways in which the fresh vegetable chain can benefit through EPI.

Fresh vegetables are grown throughout Georgia due to the country's largely available rich soil and natural resources. Multiple systematic resources are now available for the fresh vegetable supply chain as well: farm service centers and machinery service centers. The goal is for all of these systems to be used to their full capacities and to move the fresh vegetable value chain forward as a revenue-generating system.

## ABBREVIATIONS

ADA	Agribusiness Development Activity
CIS	Commonwealth of Independent States
EU	European Union
FSC	Farm Service Center
GFGA	Gori Fruit Growers Association
HACCP	Hazard Analysis & Critical Control Points
MCG	Millennium Challenge Group
MSC	Machinery Service Center
SME	Small and Medium Enterprise
UNDP	United Nations Development Programme
USAID	U.S. Agency for International Development

# EXECUTIVE SUMMARY

The fresh vegetable value chain in Georgia is underperforming and has significant weaknesses, since about 20 percent of total consumption is from imports. The value chain is constricted - but additional supply of vegetables is needed in order to drive down domestic imports of vegetables. To combat this challenge, EPI has developed three initial recommendations: (1) increase quality supply by focusing on additional trainings and cultivars; (2) increase investments being made to create greenhouses; and (3) increase packaging and marketing of fresh vegetables.

## *Increase supply and quality of fresh vegetables by additional trainings*

By improving on fresh vegetable production growing techniques, vegetable yields will increase. To target international markets, yields of vegetables must increase and must reach the level of quality demanded by international markets and obtain GlobalGAP certification for fresh produce exports. As yields increase, the cost of production will decrease, allowing Georgian producers to receive great returns. All exporters of fresh produce will have to be GlobalGAP certified in order to export, particularly to more developed markets.

## *Increase investments to create greenhouses and offset domestic imports*

As additional greenhouses are built, suppliers will be able to offset off-season imports with additional greenhouse vegetable production. Although the cost of producing in greenhouses and maintaining the greenhouses may be costly, off-season prices are higher and will mitigate this cost. Vegetables produced in heated greenhouses will certainly offset imports.

## *Create availability and channels of access to cold chain technology*

Cold chain units and systems play an important role in the fresh vegetable value chain. Even though a cold chain adds to the overall cost of the fresh product, it allows for longer storage periods and higher profits derived from off-season trade opportunities, provided the timing of the actual sale is carefully chosen. A cold chain also prevents deterioration of vegetables: cool vegetables have a much longer storage life than vegetables stored at room temperature. Georgia's competitors have embraced this concept and unless Georgian producers make the necessary investments into cold chain infrastructure, it will become increasingly difficult to successfully compete with producers from Ukraine, Poland, and Moldova.

## *Increase packaging and improve marketing of fresh vegetables in order to reach international markets*

Meeting international market standards and introducing new marketing approaches will enable Georgian fresh vegetables to gain entry to new markets. This will be critical for market diversification, as Georgian fresh vegetable exports are heavily dependent on undeveloped and unstable Commonwealth of Independent States (CIS) export markets.

Competitiveness Potential	Impact Potential	Industry Leadership	Cross-Cutting Linkages	Overall Comments and recommendations
				Average: 3.5. Recommended for inclusion.

# INTRODUCTION

## Background

Georgia's rich soils and natural resources enable the country to produce high quality fresh vegetables. Georgia has much potential to develop the fresh vegetable value chain to more effectively serve the domestic market and to reach export markets.

The greenhouse industry in Georgia is strongly linked to the fresh vegetable value chain. Greenhouses are not a developed industry in Georgia. Georgian greenhouses are typically old-fashioned, handcrafted wooden greenhouses covered with polyethylene plastic, suited for late fall and early spring production; but they are not heated. Almost 80 percent of the greenhouses in Georgia are made from these materials. It is important that the greenhouse industry develop the capacity for year-round production of fresh vegetables.

The fresh vegetable sector earns the largest incomes for farmers (when calculated per hectare), and thus the number of employees in this sector is significant. The fresh vegetable value chain employs more people than all other agriculture value chains and is a vital industry for Georgia.

## Methodology

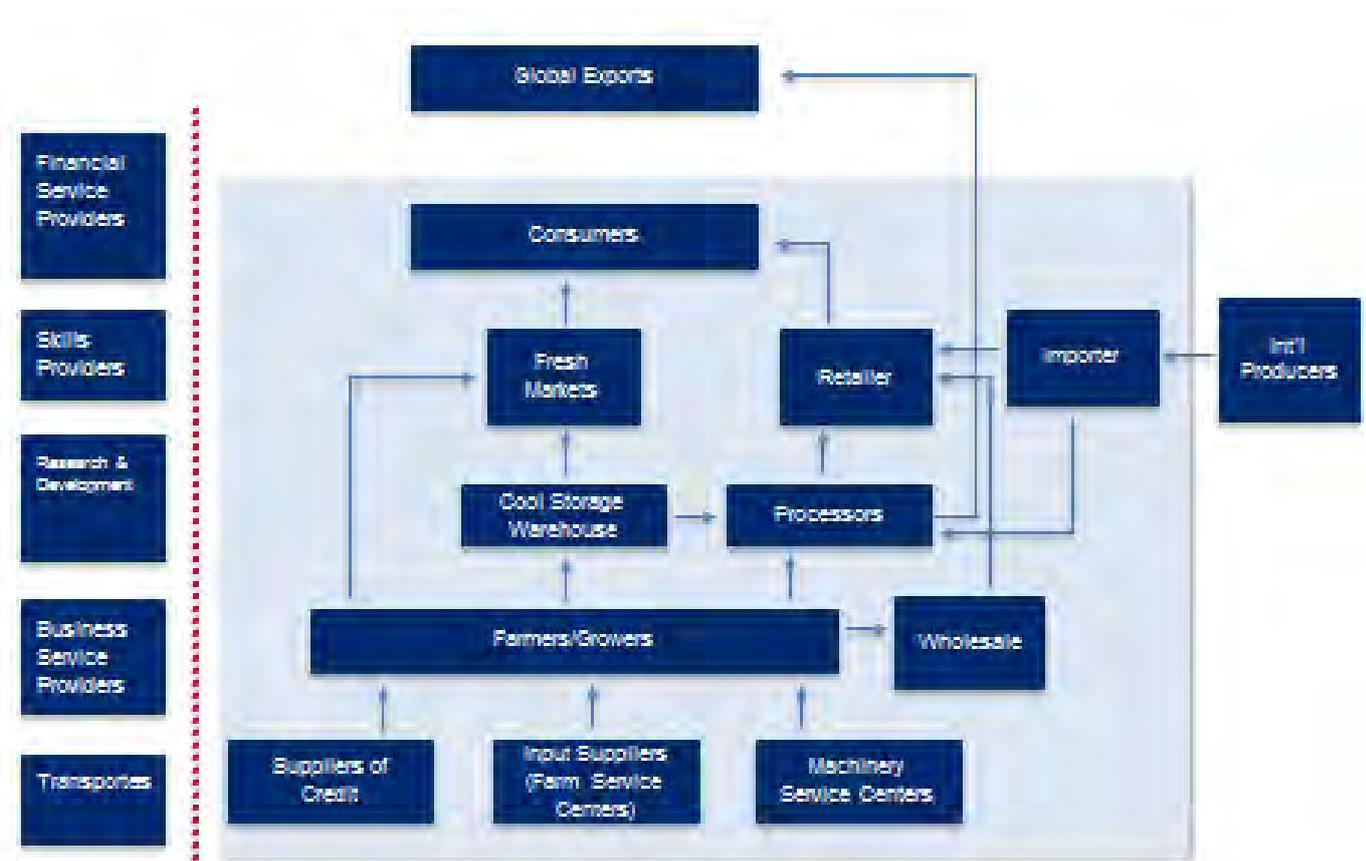
The authors reviewed multiple reports on the fresh vegetable sector (see reference section). Data was collected from FAOstat and GEOstat, and many value chain players were personally interviewed on their experience, thoughts, and perspectives (see interviews section at end of this document).

# OVERVIEW OF THE FRESH VEGETABLE VALUE CHAIN

## Summary

Main Products/Services	Fresh vegetables such as cucumbers, tomatoes, and peppers.
Key Markets Served	Regions where vegetable production is dominant are: Adjara, Racha-Lechkhumi, Kvemo Svaneti, and Kvemo Kartli regions. Other regions also produce vegetables, but these are in lesser quantities.
Production	According to World Bank estimates, vegetable production output satisfies only 75% of demand for fresh vegetables. In 2005, 438,000 tons of vegetable were produced, which amounts to 9.9 tons per hectare.
Consumption	According to data provided by the State Department of Statistics in Georgia, per capita consumption of vegetables amounted to 90 kg in 2005.
Exports	Very few fresh vegetables are exported. Some herbs are produced in the winter and exported to the Ukraine.
Imports	Imports not only take into consideration fresh vegetable produce, but also include seeds for non-traditional vegetables, such as broccoli and cabbage.
Revenues	Per hectare revenue ranges from GEL 9,600-35,000. Tomato – GEL 20,000; Cucumbers - GEL 21,000; Peppers – GEL 24,000.
Employment	Per hectare labor costs ranges are as follows: Tomato – GEL 3,170; Cucumbers – GEL 2,100; Peppers – GEL 3,400
Productivity	In nearly all cases, vegetable yields in Georgia are low because of factors such as poor quality seeds, low fertilizer usage, insufficient herbicide usage, and lack of irrigation equipment.
Positioning	Nearly all fresh vegetables are currently being sold through open air bazaars. There is very little advanced packaging, sorting or grading and there is virtually no cold storage.

## Fresh Vegetable Value Chain Map



### **Vertical Actors**

*Suppliers/farmers* are owners of their own land who grow vegetable crops and sometimes employ others to assist them with their harvests. Suppliers/farmers will have the opportunity to increase their link of the value chain, by producing greater quantities and improving the quality vegetables.

*Greenhouses or “glasshouses”* enable vegetables to be grown during the off-season. Ideally, they are heated, enclosed environments in which a variety of vegetables can be produced in bulk, using proper drip irrigation techniques and appropriate soil.

*Input suppliers include Farm Service Centers (FSCs)* that provide fertilizers and other inputs. During 2006-2010, 33 FSCs were established in Georgia with the assistance of Millennium Challenge Group (MCG)/Agribusiness Development Activity (ADA) project. The major suppliers of chemicals to these FSCs are well-known companies such as Bayer, BASF, DuPont, and Syngenta. FSCs that focus specifically on vegetable production are Ltd Kartlis Holding in Kvemo Kartli, Bolnisi District; Ltd Aiblot 20 vek in Kvemo Kartli, Marneuli District; I/E Mamuka Zikoridze in Imereti, Vani District; and I/E Zurab Kartvelishvili in Imereti, Vani District.

*Machinery Service Centers (MSCs)* rent equipment such as plows, harvesters, and additional equipment for farmers to use on their lands at a fixed price that includes fuel and

an operator. Several centers are being established in regions where vegetable production is prominent, such as Kvemo Kartli Region, Kakheti Region, Imereti Region, etc.

*Consolidation centers* are often associated with the processing companies themselves, as most of them are owned by processing companies; a few consolidation centers are not owned by processing companies. Farmers have the ability to take their produce to consolidation centers.

*Cold storage units* enable farmers to store their produce in cold storage units until they are able to obtain a higher, off-season price for their produce. Vegetables kept in cold storage also help to offset imports during the winter.

*Buyers/Distributors* are important vertical value chain actors. They are the actors who purchase quality products and sell these products of various quantities to supermarkets throughout the country. Usually they exist independently from processors. Occasionally, processors will have their own distribution systems.

Once buyers and distributors purchase fresh vegetables, they are sold to various *processors* for packaging and resale to larger markets including export markets.

### ***Other Actors***

*Transporters* move the supply from one spot to another within the value chain. They may be a separate company or an operation of a processing company.

*Hazelnut producers and their transportation systems* can support the vegetable value chain. As greenhouses need to be heated, they could potentially look to hazelnut shells and/or other agricultural waste products as sources of heat for greenhouses. Additional sources of heat would save greenhouses money and time.

*Greenhouse repair companies* specializing in heating, cooling, and mini-indoor-irrigation systems could be horizontal value chain actors. They could create ancillary businesses through the service of repairing and maintaining greenhouses.

*Greenhouse design and construction companies will play an important role in the value chain*

*Training facilities, universities, and laboratories* will be needed to develop skills. Training facilities as well as laboratories could be created within agricultural universities. Accreditation systems could also be used to ensure that Global GAP and Hazard Analysis and Critical Control Points (HACCP) systems are available for fresh vegetable producers. These international systems are needed to help the value chain access international markets.

*Banks and international finance* have a hard time financing new greenhouses with newer technology without additional income from other enterprises and/or large equity to collateralize the loan. Equipment suppliers, greenhouse growers, cold storage units and additional technologies are needed to improve production and post-harvest handling, but they can be difficult to finance. Loans to farmers by commercial banks are rare, although more innovative farmers are starting to realize that financing is necessary for growth. In this case, the best banks for agricultural financing are ProCredit Bank, Bank of Georgia, and Constanta Bank.

# COMPETITIVENESS POTENTIAL

**Table 1: Vegetable Production, 2006 – 2009**

<b>Supply (1,000 Tons)</b>				
	<b>2006</b>	<b>2007</b>	<b>2008</b>	<b>2009</b>
Opening Stocks	144	107	80	24
Domestic Production	180	190	165	170
Import	52	64	58	59
<b>Total Supply</b>	<b>376</b>	<b>361</b>	<b>303</b>	<b>253</b>

Source: GeoStat

It is apparent from this supply chart that vegetable production in 2006-2009 was insufficient to offset the need for imports. From the years 2006-2009, a range of 52,000 – 59,000 tons were imported, averaging 33 percent of total production. An objective for domestic vegetable production should be to increase supply, and off-set domestic imports. The per capita production volume of vegetables throughout the country comes to 102 kg per year, while 124 kg are necessary as standard consumption volume.

Total vegetable averages in the chart below show that tomatoes, cabbage and cucumbers were the crops with the highest average production during 2005-2009. Pepper crop averages are lower and more training and additional varieties will be needed to increase their production.

**Table 2: Vegetable Imports to Georgia, 2005 – 2009, MT/year.**

<b>Crop/Year</b>	<b>2005</b>	<b>2006</b>	<b>2007</b>	<b>2008</b>	<b>2009</b>	<b>Average, 2005-9</b>
<b>Total vegetables</b>	436.7	179.7	190.3	165	170.3	228.4
Tomatoes	132.3	69.9	80.2	62.6	51.4	79.3
Cabbage	88.3	35.5	34.3	41.9	39.6	47.9
Cucumbers	58.4	19.4	20.3	18.6	30.9	29.5
Onion	36.3	16	12.1	11.1	10.2	17.1
Eggplants	39.2	11.6	13	5.1	10.2	15.8
Beet	21.8	3.5	10.9	3.1	3.6	8.6
Others	12.9	7	1.9	3.7	6.4	6.4
Carrot	12.4	1.2	2.8	5.6	4.1	5.2
Lettuce	13.6	3.9	2.2	2.1	3.7	5.1
Pepper	7.4	4.6	4.3	5.8	3.2	5.1

Dill	4.8	2.3	3	1.9	3	3
Garlic	4.2	3	3.1	2.3	2.4	3
Parsley	5.1	1.8	2.2	1.2	1.6	2.4

Source: GeoStat

The rebuilding and re-creation of greenhouses is a necessary mechanism to offset domestic imports. By the 1990s, winter greenhouses were highly developed in these regions and the area available for greenhouses at that time exceeded 250 hectares. However, with the advent of an electric crisis, the functioning of greenhouses collapsed. The Khazbegi region in Georgia was saturated with greenhouses in the 1990s; each family in the region had a greenhouse on their farms functioning and fully operational throughout the year. However, in 2005, most greenhouses ceased to function because of the high price of fuel. In some areas of Georgia, greenhouses have been restored and some have re-established operations. Initial analysis by EPI indicates that cucumber and tomato production in greenhouses is highly profitable, even though total costs are high, largely because of the higher prices associated with winter vegetables.

The cost of running a greenhouse is largely that of heating costs. To mitigate this cost, one recommendation is to use renewable biomass fuels such as additional wood, waste, sawdust, rice hulls, olive pits, or even orchard pruning waste. Another recommendation is to include hazelnut shells, dry them, and sell them as biomass material. Agricultural waste such as hazelnut shells and grape residues could be used for fuel.

## IMPACT POTENTIAL

As the fresh vegetable value chain expands, it will directly and indirectly serve several other value chains – particularly, of course, the processed vegetables value chain.

As supply increases, Georgia also has the potential to target foreign (export) markets. HACCP accreditation and Global GAP standards and systems will be important to reach newer markets. Obtaining these accreditations could be facilitated through universities or other associations that receive the necessary certifications to issue accreditation.

Once laboratories are funded and set up, they will have the ability to ensure quality by quality-checking their pesticide residue and additional produce quality standards and issues. These laboratories could potentially be privately financed. And as the number of laboratories around the country increases, international awareness of Georgian vegetables could also increase.

Greenhouse operations, which will play a large role in this value chain, will offer significant job and business opportunities. They will also support professional personnel in fields such as agricultural economics and agronomy.

## **INDUSTRY LEADERSHIP**

It is not common for companies in this value chain to collaborate. However, there are leaders within the fresh vegetable value chain. They include firm owners Mirian Chkhitunidze and David Edanoidze, both operating tomato farms.

One greenhouse owner also owns a hazelnut factory and is able to use the hazelnut shells to fuel his greenhouse. Although the greenhouse exists three to four km away, he is able to transport his shells to his greenhouse using his own transportation.

A private Turkish firm, Icon Group, grows tomatoes, cucumbers, peppers, and eggplants on 50 hectares of land in Georgia. It began production a year ago. The group was founded in Batumi in 2008. With investments approximately equal to USD 3 million, the company grew and now employs 500 people with 3.5 hectares of greenhouse production. It has plans to increase this to 8.5 hectares by 2010.

Leaders exist in various capacities within this value chain, which is why it is not common for firms and companies producing vegetables to collaborate.

## **CROSS-CUTTING THEMES**

Multiple donor projects have assisted the vegetable growing sector in Georgia. One such donor project, implemented by CARE, laid out model farms in order to develop highly productive vegetable households. The project was centered around the idea that if women are able to tend household vegetable gardens, they would have the ability to support new technology for their gardens. The project supported the association, Tsnisi Vegetable Growing Women. CARE provided the association with hybrid varieties and pesticides, and even assisted the group with new vegetable production technology.

Donor projects also facilitated growing vegetables in greenhouses and the rebuilding of greenhouses. As a result of the AgVantage program, four modern glass beds were built in Zugdidi and Tskaltubo districts in 2006. Natural thermal water was designed to be used for heating constructions. It was shown that one ton of greens could be grown per season. By building on pre-existing greenhouses, it may be helpful for EPI to create model greenhouses.

It will be important to increase international market awareness of the quality products that are being grown in Georgia. As production increases and increasingly meets international standards, market interest and investment should be attracted to Georgia's potential.

## **STRATEGIC ENTRY POINTS AND RECOMMENDATIONS**

The main strategic entry points for EPI will be to encourage investment in greenhouse operations. The FSCs would be a good network of input suppliers to use to determine the feasibility of greenhouses enterprises. FSCs supply inputs to vegetables, fruit, and pulse crop producers, and might be interested in providing greenhouse space to vegetable

producers. During the Agroservice convention of all of the participating FSCs, a questionnaire was passed out to pose the idea and obtain feedback.

Trainings and access to available technical services for vegetable crop growers will be needed. Vegetable growers will require technical training in order for them to adopt hybrid seeds and incorporate new growing techniques. Training in marketing and promotion will also be important.

# CONTACT DETAILS FOR VALUE CHAIN ACTORS

Company / Organization	Name & Position	Address	Contact Telephone Number
—Kla” Company	Ivane Goglidze	Gori	877409409
Nuts export company	Begi Sioridze	Ozurgeti	899989000
LLC —Ba”	Gocha Otarashvili	Tbilisi	871712777
—Heria”	Zurab Janelidze	Tskaltubo	899516077
I.E. Gia Qaikhosroshvili	Gia Qaikhosroshvili	Marneuli	899568042
LLC —Sthburi albi”	Alesandre Zubiashvili	Kaspi	899439776
I.E.Nodar Tsamalaidze	Nodar Tsamalaidze	Mukhrani	895299225
I.E. Zakharia Khitarishvili	Zakharia Khitarishvili	Marneuli	851607010

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# ANNEX 6: PROCESSED VEGETABLES VALUE CHAIN ASSESSMENT

## ABSTRACT

The canning industry in Georgia, although historically seen favorably, and as a necessity, is not thriving today. It needs a steady supply of vegetables and/or fruit to revive. This report focuses on the canned vegetables value chain. Since the canning industry is a part of the cultural heritage of Georgia, and canning has been regarded as thrifty, there is much opportunity for the revival of the canning industry. With a new generation of adults in the country, busier than previous generations, commercialized canning will be useful to them as they lack time to can their own vegetables. The canning industry will not be a substitute for fresh goods, since many city dwellers in Georgia buy fresh vegetables, but it is an industry with the potential to expand during the off-season. By following the data, it is apparent that canning can become an industry with great opportunity, provided it is able to obtain a greater supply of vegetables.

## ABBREVIATIONS

ADA	Agribusiness Development Activity
CA	California (State)
EU	European Union
FDI	Foreign Direct Investment
FSC	Farm Service Center
HACCP	Hazard Analysis and Critical Control Points
MCG	Millennium Challenge Group
MSC	Machinery Service Center
NPK	Nitrogen/Phosphorous/Potassium
NY	New York (State)
SME	Small Medium Enterprise
UNDP	United Nations Development Programme
USAID	U.S. Agency for International Development

# EXECUTIVE SUMMARY

The recommended next steps for this value chain focusing on canning vegetables are as follows:

## *Increase equipment and technology necessary to process vegetables.*

Canning has become a process strongly linked to the vegetable sector. While canneries have been around for the last five to seven years, the canning industry has the ability to produce 1,000,000 tons, out of which almost half of the produce is from the vegetable sector. However, even with a past history and a tradition of preserving vegetables by making sauces and spices, new technology is necessary in order to ensure that the canning process can sustain competitiveness. Considering canneries are only working at a 15-20 percent capacity, new technology would kick start and mobilize canneries to meet their capacity needs and even expand their capacities.

Freezing and drying technology is necessary for this value chain to maintain competitiveness. There are a number of leading firms exporting frozen vegetables; they are in need of shock freezers and additional drying processors.

## *Increase availability of cold storage facilities.*

Considering canneries are necessary in order to preserve vegetables and repackage the produce throughout all seasons, cold storage facilities are necessary to preserve fresh produce that will be canned. Cold storage reduces the rate of biochemical changes in fresh foods (known as 'respiration' and 'senescence') and slows down the growth of contaminating micro-organisms. The reason for storing fruits and vegetables in a cold storage facility is to extend their life beyond the harvest season and substitute the off-season imports.

## *Train vegetable processors on international safety and quality designations such as HACCP and Global GAP.*

In order for this value chain to be competitive, it is necessary for canneries and suppliers to train their staff on Global GAP standards and Hazard Analysis and Critical Control Points (HACCP) management systems. Trainings that focus on meeting these standards and systems can help canneries meet international market requirements.

## *Connect processors to local vegetable producers to ensure domestic capacity for processing inputs.*

To increase the local supply, local vegetable producers who are early adopters of new technology should be connected to the processing plant through a forward contract mechanism, ensuring sales for the farmers and inputs for the processors. These forward contracts can be used as bank collateral, thus increasing the likelihood of obtaining financing for agricultural production.

## *Train farmers on the latest technology to increase yields and production of vegetables in Georgia.*

Yields in Georgia are lower than expected. Thus, early adopters should be identified so that new technology can be presented to them to maximize their yields, thus maximizing profits for farmers. This technology includes new seeds, better fertilizer placement, more appropriate herbicides, drip irrigation, and more modern post harvest techniques.

Competitiveness Potential	Impact Potential	Industry Leadership	Cross-Cutting Linkages	Overall Comments and recommendations
				<p>Average: 3.5. Recommended for inclusion.</p>

# INTRODUCTION

## Background

Considering that fresh consumption is not available in the off-season and that the vegetables can be canned, frozen or dried in order to counter off-season markets, it is clear that this value chain is necessary. Georgia has a strong tradition of preserving and processing vegetables. This value chain will formalize Georgian tradition and culture by adding value to the vegetable sector.

During the 1990s, 75 small and medium-scale canneries as well as 15 large-scale canneries were in functioning capacity. Canners maintain a production capacity of less than 25 percent, amounting to 1,000,000 tons in total.

Due to the fact that poor vegetable yields will lead to an increase in the cost of production to maintain the cannery and its sustainability, it will be necessary to increase vegetable yields to decrease production costs.

## Methodology

The Millennium Challenge Georgia Fund report was one of the major sources of information that was used for the vegetable sector and the cannery value chain.

The vegetable producers who were interviewed are all in Eastern Georgia:

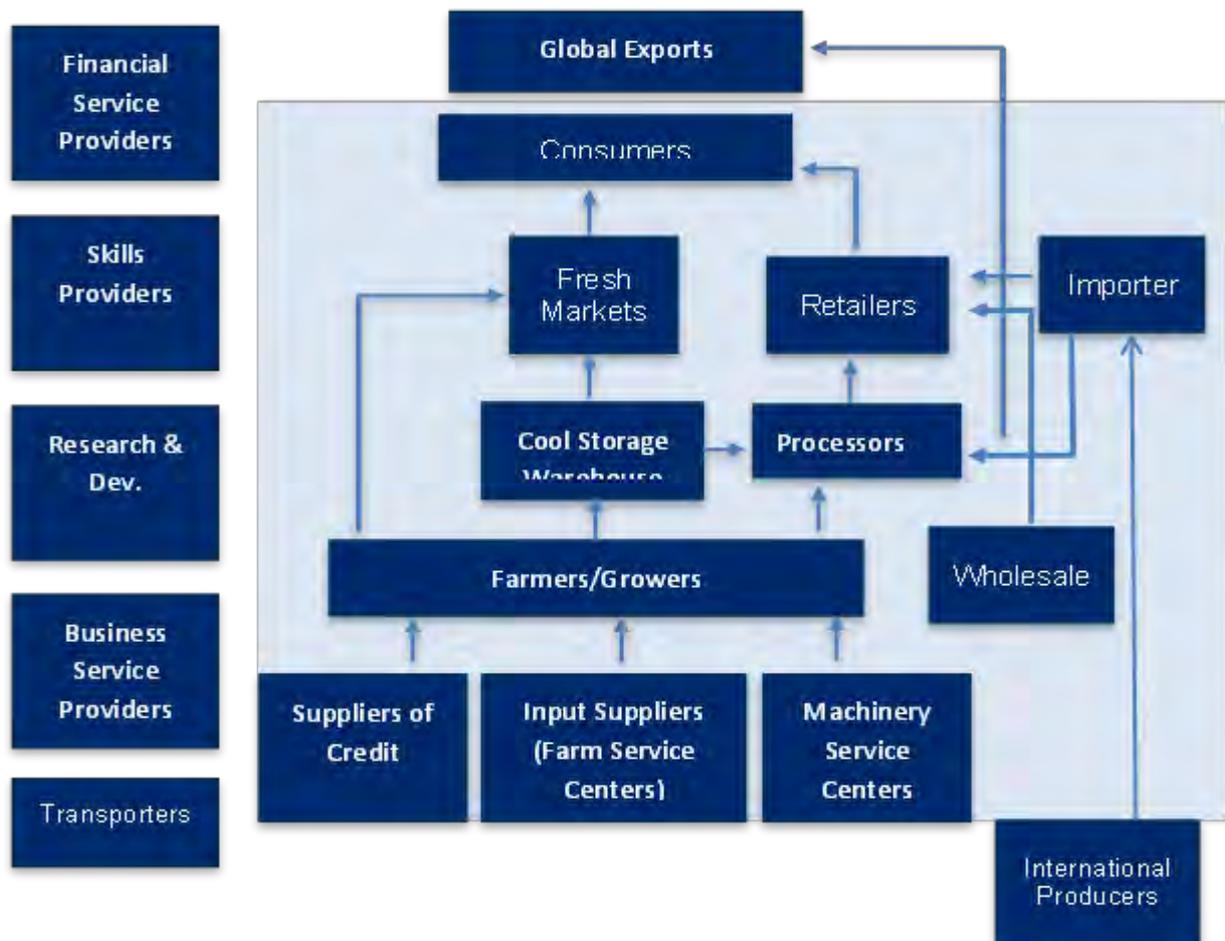
- I/E Mirian Chikhitunidze from Kvemo Kartli, owner of a fruit and vegetable farm.
- I/E Giorgi Endeladze from Kvemo Kartli, owner of a fruit and vegetable farm.
- LLC Kula from Shida Kartli, vegetable cannery in Gori.
- I/E Giorgi Mtchedlishvili from Shida Kartli, owner of a cold storage facility in Gori.
- I/E Endeladze from Shida Kartli, cold storage facility in Gori.
- Ltd Mzeta is a greenhouse in Kakheti, Lagodekhi area.
- Two cold storage facilities in Kakheti: I/E Zurab Medulashvili and I/E Ilia Giorgadze.
- LLC Goldenpils from Mtskheta-Mtianeti, fruits and vegetable company.
- LLC Nugbari from Kvemo Kartli, fruits and vegetable company.
- Herbia LLC is a greenhouse/cold storage company located in Tskaltubo.
- Geguti LLC is a greenhouse/cold storage company, also located in Tskaltubo.
- Ministry of Agriculture of Adjara, as well as the Chamber of Commerce in Adjara.
- Farmers House, located in Khelvachauri, and Aikon Group, located in Khelvachauri.

# OVERVIEW OF THE PROCESSED VEGETABLE VALUE CHAIN

## Summary

Main Products/Services	Processed vegetables: Canning technology, Drying technology and Freezing technology.
Key Markets Served	Besides the domestic Georgian market, there are also exports to Ukraine, Uzbekistan, and Kazakhstan.
Production	In accordance with the data provided by the National Statistics Service of Georgia, the hectares of vegetable gardens by regions (as of 2009) amounted to 24,000 hectares with the amount of total vegetable production equaling 170,000 tons. The main regions involved in vegetable growing are as follows: Shida Kartli (33.8%); Kvemo Kartli (33.7%); and Kakheti (13.6%).
Consumption	The average Georgian consumes 4.5-5 kg of canned vegetables per year, although this is probably a low estimate given the prevalence of home canning.
Exports	Exports from Georgia are gradually increasing per year, mainly during harvesting periods.  In 2010, processed vegetable exports amounted to 216,400 MT and USD 896,000.
Imports	In 2006, Georgia's canning industry was monopolized by imports, not only of canned goods, but fresh vegetable canning supply.
Revenues	This is difficult to quantify given the large variety of different products sold by all of the processing plants.
Employment	This is difficult to quantify given the large variability in employment in the various processing plants. There is a large seasonal demand for employees within the plants, plus the on-farm employment factor is huge given the amount of vegetables sold to processors.
Productivity	In accordance with Georgian soil and climate conditions, the following regions are considered to be the main producers of vegetables: Imereti, Kutaisi, Guria; in the Kvemo Kartli region: Gardabani, Marneuli, Bolnisi; in the Shida Kartli region: Gori, Kaspi, Kareli; in the Kakheti region: Signaghi, Gurjaani, Lagodekhi. It is natural that vegetable processing enterprises have traditionally been situated in these very regions.
Positioning	About 90% of the vegetables sold are processed (mixed canned), although the remainder is sold as vegetable juices and canned tomatoes.

## Processed Vegetable Value Chain Map



### ***Vertical Actors***

*The producers of the fresh, open-field vegetables* are key vertical value chain actors. Farmers will supply various processors of the canneries throughout the harvest period, although small amounts may be cooled for delivery soon after.

*Input suppliers* create the catalyst to enable producers to grow quality crops. Input suppliers in Georgia are called *Farm Service Centers (FSCs)*. Set up in Georgia through the Millennium Challenge Group (MCG)-funded, CNFA-implemented project called Agribusiness Development Activity (ADA), FSCs provide suppliers with necessary inputs: seeds, fertilizers, pesticides, insecticides, and other inputs such as hand tools or smaller equipment that farm owners may borrow or rent/lease. They also provide technical knowledge to the farmers on an as-needed basis.

Before harvesting their crops, suppliers may also want to utilize *Machinery Service Centers (MSCs)*. These centers, funded by USAID and implemented by CNFA, are centers that provide equipment (including fuel) and equipment services (including equipment operators) to producers.

*Greenhouse owners* can also be called producers, but because of high costs of production, their produce is more expensive and unlikely to find its way into a processing plant.

Greenhouse vegetable growers, however, can also supply farmers and open field producers with seedlings in the spring.

*Middle-men or buyers* from these suppliers are also actors along the value chain. They purchase goods from suppliers and either take their vegetables to a warehouse where they are paid for the quantity and quality of their vegetables, or perhaps have contracts in association with processors along the value chain.

*Cold storage facilities* are centers where middle-men or buyers can store their supply for a period of time to increase the price that they will obtain. They will be large actors within this value chain. Without cold storage units, middlemen and buyers will be able to dictate the prices of the vegetables during the off-season. Cold storage units would assist with establishing a steady supply of vegetables for canneries to use. These units would help canneries purchase their supply in bulk, obtain better prices for their supply, and utilize their supply throughout the year instead of purchasing their supply day by day.

*The processors* in this value chain are the canneries or other processing facilities themselves. They will take the supply that is provided to them either from the warehouse collection center or from the middle man/buyer himself. To play a bigger part of the vegetable sector, it is important for processors to have a larger say in what services they will be providing. As more of these processors obtain cold storage systems, they will be able to add more value and support the supply-based infrastructure.

### ***Other Actors***

*Ancillary businesses* have the potential to assist cold storage systems. Cold storage equipment producers, repair companies and/or companies that further cold storage equipment systems that canneries will need to use, will play a key role as a horizontal actor within this value chain. They will directly benefit the industry, since storing vegetables in cold storage units before they are ready to process them will ensure a steady supply of vegetables for the industry.

*Finance and investment services* are largely unavailable or scarce in the agricultural technology and equipment sectors. Input suppliers, equipment suppliers, cold transport, cold storage, and market information systems are in need of finance and investment. Banks, however, as horizontal value chain actors have the ability to work with canneries and producers to create a win-win situation. If producers provide enough supply to canneries throughout the year, canneries have the potential to provide enough collateral for the producers to obtain lower-interest rates on their loans.

*Water, soil and plant tissue testing laboratories* are the norm in the West in regards to testing for the appropriate amounts of elements (Nitrogen/Phosphorous/Potassium - NPK), but basic laboratories to test soils are sporadically placed throughout Georgia, and are a basic need in order for suppliers to become competitive and maintain production levels and quality levels.

# COMPETITIVENESS POTENTIAL

Table 1: Vegetable Balance Sheet, 2006 - 2009

<b>Balance Sheet for Vegetables</b>				
<b>A. Supply (ths. Tons)</b>				
	2006	2007	2008	2009
Opening Stocks	144	107	80	24
Domestic Production	180	190	165	170
Import	52	64	58	59
<b>Total Supply</b>	<b>376</b>	<b>361</b>	<b>303</b>	<b>253</b>
<b>B. Utilization</b>				
	2006	2007	2008	2009
Seed	2	2	2	1
Feed	8	10	5	1
Food	242	254	259	234
Waste	14	13	8	4
Export	3	2	5	5
Closing Stocks	107	80	24	8
<b>Total Utilization</b>	<b>376</b>	<b>361</b>	<b>303</b>	<b>253</b>
<b>C. Per capita intake</b>				
	2006	2007	2008	2009
Population/1000 people	4401	4382	4385	4436
Kg/Year	55	58	59	53
<b>Self-Sufficiency Ratio (%)</b>	<b>79</b>	<b>75</b>	<b>76</b>	<b>76</b>

Source: Geostat

The chart above depicts the balance sheet for vegetables between years 2006 – 2009. It shows the amounts of imports (in thousand tons), and the amount of consumption (in thousand tons) per year.

It should also be taken into consideration that prices on the various types of fresh vegetables have considerably increased in Y 2005 – 2006, and that prices on canned vegetables have risen accordingly. According to the data provided by the State Department of Statistics of Georgia, the prices of vegetables as of January 2006 have increased by 4.9 percent compared with the prices as of January 2005. This statistic indicates that consumption of

canned vegetables had decreased due to this price increase in 2006. This has been a recent trend in Georgia even today.

Modern technologies of packaging-storage have not been introduced in the country yet and vegetable processing canneries do not work at full capacity, which is why prices of canned products increase substantially. Great shares of locally produced vegetables are not properly stored and vegetables are imported from foreign markets to satisfy the local demand.

Supplying the processing industry with vegetables has been an unstable process during the year. Due to this instability, and a lack of domestic production within canneries, there is a large demand to import canned vegetable goods into Georgia. Through statistical data acquired from the Customs Department, canned imports in 2006 equaled 15,356,000 tons and amounted to USD 11,000,000. Canned exports from Georgia in 2006 equaled 70,000 tons and USD 81,000.

**Table 2: Vegetable consumption in Georgia**

	Total, Tons/per year			Kg/person/year		
	2003	2004	2005	2003	2004	2005
Foliage and fruit bearing vegetables, culinary plants (fresh or newly frozen)	33.5	32.8	30.8	7.3	8.5	8.0
Cabbage	43.9	43.0	38.1	12.8	11.2	9.9
Fruit bearing vegetables (fresh or newly frozen)	140.1	135.5	138.9	34.8	33.2	36.3
Root crops, bulbs without starch content and mushroom (fresh or newly frozen)	52.8	48.9	57.7	10.1	10.2	15.1
<b>Canned vegetables or vegetable marinade</b>	<b>15.7</b>	<b>20.1</b>	<b>17.1</b>	<b>4.1</b>	<b>5.2</b>	<b>4.5</b>
Pulse crops	20.8	23.0	22.8	5.4	6.0	6.0
Dried vegetables, seasonings	0.112	0.087	0.091	0.029	0.023	0.024
Others	34.4	40.8	39.9	9.5	10.7	10.4
<b>Total</b>	<b>341.174</b>	<b>344.313</b>	<b>345.401</b>	<b>83.993</b>	<b>84.937</b>	<b>90.234</b>

Source: Calculations based on State Department of Statistics data

In accordance with the data provided by the National Statistics Service of Georgia, the areas of vegetable gardens by regions (as of year 2009) amounted to 24 thousand hectares with

total vegetable production amounting to 170 thousand tons. The redistribution of land areas by regions involved in vegetable growing are considered to be as follows: Shida Kartli (33.8 percent); Kvemo Kartli (33.7 percent), and Kakheti (13.6 percent).

**Table 3: Production Capacity of Vegetables in Georgia (2005-2009) ths tons**

<b>Crop/Year</b>	<b>2005</b>	<b>2006</b>	<b>2007</b>	<b>2008</b>	<b>2009</b>	<b>Average, 2005-2009</b>
<b>Total vegetables</b>	436.7	179.7	190.3	165	170.3	228.4
Tomatoes	132.3	69.9	80.2	62.6	51.4	79.3
Cabbage	88.3	35.5	34.3	41.9	39.6	47.9
Cucumbers	58.4	19.4	20.3	18.6	30.9	29.5
Onion	36.3	16	12.1	11.1	10.2	17.1
Eggplants	39.2	11.6	13	5.1	10.2	15.8
Beet	21.8	3.5	10.9	3.1	3.6	8.6
Others	12.9	7	1.9	3.7	6.4	6.4
Carrot	12.4	1.2	2.8	5.6	4.1	5.2
Lettuce	13.6	3.9	2.2	2.1	3.7	5.1
Pepper	7.4	4.6	4.3	5.8	3.2	5.1
Dill	4.8	2.3	3	1.9	3	3
Garlic	4.2	3	3.1	2.3	2.4	3
Parsley	5.1	1.8	2.2	1.2	1.6	2.4

Source: Geostat

#### **Export of Georgian Canned Vegetables and Juices**

	<b>2007</b>		<b>2008</b>		<b>2009</b>		<b>2010</b>	
	<b>1000 USD</b>	<b>ths ton</b>	<b>1000 USD</b>	<b>ths ton</b>	<b>1000 USD</b>	<b>ths ton</b>	<b>1000 USD</b>	<b>ths ton</b>
<b>Total</b>	<b>15,681.3</b>	<b>10,090.9</b>	<b>11,156.1</b>	<b>7,358.7</b>	<b>3,844.9</b>	<b>3,831.8</b>	<b>7,286.2</b>	<b>7,073.5</b>
<b>Commodities</b>								
Canned tomato	24.0	19.0	4.1	2.8	5.1	2.7	9.3	6.8
Canned Vegetables	45.8	7.8	109.0	18.0	0.8	0.3	18.1	15.3
Processed vegetables & fruits	1,605.8	273.8	1,568.4	228.1	356.3	101.8	868.5	194.3
Fruit & vegetable juices	13,562.1	9,352.0	8,402.3	6,391.5	2,883.0	3,302.0	6,047.1	6,610.7

Others	443.6	437.4	1072.3	718.3	599.7	425	343.3	246.4
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Source: Geostat

The chart above is of Georgian exports of canned vegetables and juices from 2007-2010. Exports of canned vegetables in 2010 were 15,000 tons out of the total amount of Georgian canned vegetable and fruit products, which was 7,073,000 tons. Georgian canned vegetables and juices generated a profit of USD 18,000. These figures of canned Georgian fruit and vegetable exports exclude canned tomatoes.

It is important to note that 18.4 tons of frozen vegetables were produced by processors for a total of USD 12,300.

A large part of this value chain will be identification of the cannery vegetable market to substitute imports with greater domestic production. This can only be done when cold chain technology is involved. When cold chain technology is included, supply will remain steady and bulk prices for supply will not fluctuate.

The trainings and work force development skills that will be needed for this value chain to expand and grow will be HACCP and Global GAP international food safety and quality. Once the producers obtain these designations, it will significantly increase their international competitiveness, and their ability to interact with the international market.

There are multiple SMEs that will have a support system in place to create links with the canning industry. Bazi Cannery is one cannery that has the potential to provide forward-contracts to farmers. These farmers will supply their produce to Bazi cannery and will focus on assisting the cannery's suppliers with funding linkages. With funding links, it is clear that these suppliers will have the potential to fund additional inputs or changes to their growing equipment to obtain higher yields. Through this system, EPI is also proposing that these farmers who are supplying these products are able to provide a certain amount of hectares to be used as demonstration and training plots for the farmers.

Georgia certainly has the ability to expand its processing capacity of vegetables, but it needs infrastructure to do so, including inputs to expand supply quantities; cold storage facilities; technologies; and equipment for processes such as shock freezing.

## IMPACT POTENTIAL

Bazi Cannery is one cannery that has a tremendous amount of potential to generate credit access to small producers. By obtaining steady quantities of vegetable supply from small scale producers, the cannery will in return provide the producers with access to bank credit. This forward contract system instituted by the cannery would be used as a tool for the small-scale producer to obtain a loan. The producer would be linked to the cannery and this system would benefit both the cannery as well as the multiple producers.

In order for the canning industry to increase, it needs innovation and technology, including processors, sorting machines for the various vegetables, cold storage units, machine lines, etc. These are just a few of the technologies the canning industry will need.

There is the potential for labeling companies or branding companies to assist the vegetable processing value chain. Once a cannery or vegetable processing facility is open and has a

product to brand, the marketing company could potentially create marketing brochures and a domestic line of products for clients who will purchase the commodities in bulk. Each processor will have their own advertisements and marketing consulting companies that they work with, which could potentially increase the revenue in that industry as well.

These marketing processes are positive for the firm, especially in terms of attracting additional Foreign Direct Investment (FDI) and/or access to domestic credit. Accessing lowered interest rates and generating investor interest is beneficial to each processor's growth and for expanding their production and operations through purchasing additional equipment or additional supply from producers.

As processors increase, additional employment possibilities could be created, largely within the processing factories, suppliers/producers, and cold storage systems. Employment opportunities will expand as the number of suppliers/producers increase.

## **INDUSTRY LEADERSHIP**

There are a few lead firms who, although would not be willing to invest money into facilitating a link or growing other SMEs, would be interested in investing time and resources into their own company, thereby increasing industry growth. This value chain will be one that is extremely competitive because of the amount of technology the company will need. Nevertheless, there are a few lead firms in Georgia that are necessary to mention.

Golden Fleece, LLC was a cannery that was assisted by MCG/CNFA-ADA financial grant mechanisms. By 2009, due to the ADA grant that was provided to Golden Fleece, 285,000 jars were sold. Their gross profit was GEL 146,750 in 2009. The company was well known for producing various types of high-quality, naturally-produced sauces, marinated vegetables, packaged salads, and jams. Each of these products were packaged and sold to the domestic as well as international markets. Through the grant, Golden Fleece acquired a machine, a boiler-vacuum machine, a bottle and jar-sealing machine, a polygraphic label-sticker machine, and a mini-lab.

However, with the financial crisis in the US and the fact that the cannery was linked to markets abroad, the cannery was sold to a few investors, and is no longer functioning. With EPI's assistance, the company may be able to recreate their initial plan of selling quality-canned sauces. Even though they are no longer functioning, their company was the first of their kind – to produce quality, all-natural sauces, and begin exports to distinct markets in the US where Soviet immigrants live (mostly New York and California).

The Association of Canning Industry Professionals is a group that is run by Tamaz Kachieshvili, who is the president of the group. They are located in Tbilisi, and will likely play a larger role in the canning value chain once investments are made and once canning does become a larger industry-player in the economy of Georgia. This association may also have the ability to link firms together to purchase from a varied group of suppliers/producers of vegetables in order to assist firm-differentiation while still ensuring that revenues are maintained.

Activity in the canning industry is regulated by the Law of Georgia on Fruit Production. The Ministry of Agriculture and Food was working on harmonization of legislation with European standards and on a legislative basis.

## **CROSS-CUTTING THEMES**

Canning is a traditional technique that Georgians use to preserve their foods during the winter season. Traditionally, Georgian families canned their foods and produced sauces to save money that would otherwise go towards buying vegetables and then having them perish before they were used. As the country grows, and as the youth flourish, canned vegetables will again become an important commodity to Georgian society. Georgians will have the ability to purchase vegetables on the go if they are working and/or too busy with their families to cook.

During the 1990s and the early 21<sup>st</sup> century, it was apparent that outbreaks of the botulism disease were caused by the non-hygienic, bacteria-ridden state of some of the preserved foods. During that time, the canning industry was significant, and took a heavy hit. Any canneries that were to enter the market after these outbreaks were shed in a negative light and thus had a harder time breaking into the industry. After these outbreaks of botulism, Georgian families who had been canning on their own, ceased to do so, and did not consume commercial canned goods, which drove the canned good prices down, creating a dip in the industry's revenue.

However, now that multiple canneries obtained grants and funding, canning is now looked upon favorably by the public's new adult population. The new adult generation takes on responsibilities that their parents and their grandparents do not need to think about. As they have busy schedules, they see the canning industry favorably.

In addition to popular support, the political support for the canning industry and for other vegetable processing industries can be seen through the Georgian 2011 food safety bill. This law will mandate all Georgian producers and processors to continuously maintain their quality standards and ensure that their products are all able to meet the standards of the bill.

In 2006, during the AgVantage program, two modern centers, fully equipped with cold-storage units, were built in order to qualify, package, and preserve vegetables. These centers obtained a steady supply of 1.8 thousand tons of greens/veggies per year and utilized their cold storage units in order to preserve produce. Fifty percent of those 1.8 thousand tons of green vegetables were exported to Ukraine.

That was not the only program where the vegetable processing value chain was directly impacted through an international program or project. The MCG/CNFA-ADA project facilitated grants for multiple canneries. Some are still functioning and some have ceased. Moreover, the multitudes of agricultural projects that have taken place in Georgia indirectly affect the processing industry by assisting vegetable growers to increase their yields by providing them with appropriate inputs and cultivars.

## **STRATEGIC ENTRY POINTS AND RECOMMENDATIONS**

While the canning industry has the potential to be strong, it will need assistance from EPI. There are a few strategy entry points for EPI to assist the canning industry. The first is to introduce and assist the financing of cold storage units. Through the Agroservice

convention, FSCs were asked through a survey if they would want/need/have room for a cold storage unit. Although this convention was run through Agroservice, EPI helped Agroservice with the logistics and planning to ensure that all FSCs and MSCs were involved in the convention. This convention will be a starting point for networking between FSCs and MSCs.

EPI will create forward contracts for smaller suppliers by partnering with larger canneries. Larger canneries will then have a guaranteed supply and smaller suppliers will have a guaranteed market. These contracts can then serve as bank collateral.

Trainings will also be necessary for farmers, FSCs, and MSCs to help them understand the value and proper usage for cold storage units as well as Global GAP and HACCP management systems. These trainings could be held by EPI-led farmer meetings, and/or it could be led by EPI-led FSC/MSC-led trainings. This could even be a point where Agroservice plays a larger role.

# CONTACT DETAILS FOR VALUE CHAIN ACTORS

Company / Organization	Name & Position	Address	Contact Telephone Number
—Kla” Company	Ivane Goglidze	Gori	877409409
Nuts export company	Begi Sioridze	Ozurgeti	899989000
LLC —Ba”	Gocha Otashvili	Tbilisi	871712777
—Heria”	Zurab Janelidze	Tskaltubo	899516077
I.E. Gia Qaikhosroshvili	Gia Qaikhosroshvili	Marneuli	899568042
LLC —Sthburi albi”	Alesandre Zubiashvili	Kaspi	899439776
I.E.Nodar Tsamalaidze	Nodar Tsamalaidze	Mukhrani	895299225
I.E. Zakharia Khitarishvili	Zakharia Khitarishvili	Marneuli	851607010

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# ANNEX 7: ROOT VEGETABLES VALUE CHAIN ASSESSMENT

## ABBREVIATIONS

EPI	Economic Prosperity Initiative
FDI	Foreign Direct Investment
FSC	Farm Service Center
GIZ	Gesellschaft für Internationale Zusammenarbeit
IFAD	International Fund for Agricultural Development
MSC	Machinery Service Center
USAID	U.S. Agency for International Development

# EXECUTIVE SUMMARY

Root vegetables are some of the most commonly grown and consumed vegetables in Georgia, making up over 50 percent of consumed vegetables. While not currently exported in large quantities, there is great potential to do so since they can be stored for up to six months, thus enabling a reduction of imports during the off-season. If yields are increased, then excess can be exported as well.

Some of the key issues and recommended solutions for this particular value chain include:

## *Constraint: Potato crop yields are low*

Potatoes are one of the major crops in Georgia, grown in the following regions: Khulo, Adigeni, Akhaltsikhe, Akhalqalaqi, Ninotsmind, and also Dmanisi, Tianeti, Svaneti, and upper Racha. However, potato yields are low, not exceeding 12 tons per hectare. This is largely due to poor quality seed potatoes, and low/incorrect usage of fertilizer and pesticides. Not many farmers deep till to loosen the soil, nor do they “hill” the crop to allow ample room for the potatoes to grow. There is also very little irrigation used for potato production.

## *Recommendation: Increase potato crop yields*

Experts at the World Bank estimate that the average productivity of the late potato could reach 20 tons or more per hectare. To achieve this, potato farmers will need to use a variety of “elite” seeds, which are still genetically pure, allowing for proper variety selection to match the needs of the farmer and the final consumer. There should be training on the latest technology and inputs available for potato producers to increase their yield. The appropriate fertilizer should be applied at the correct time. Herbicides should be used to reduce weeds, and thus competition for water and nutrients. Fungicides may need to be used to prevent phytophthora and root rot and insecticides may be necessary to reduce the population of the Colorado leaf beetle. Specific production practices such as deep tillage and “hilling” also makes it easier for potatoes to grow and should be used. Irrigation may be needed in some years to maximize yields.

## *Constraint: Lack of cool storage warehouses for potatoes*

Potatoes are an annual crop planted in the spring and typically harvested in the fall. Thus, they need to be stored properly so that their condition is maintained to prevent quality deterioration as they are consumed throughout the year. This requires large, insulated cool storage facilities that regulate temperature and humidity to keep potatoes for up to six months. There is currently a massive shortage of these warehouses.

## *Recommendation: Increase investments in root crop (potato) cool storage facilities*

By increasing investments and funding of cold storage systems, the root crop supply will be maintained all year. This will create a steady supply of locally grown potatoes available nearly all year round, consumed over longer periods of time and negating the need for off-season imports. This import-substitution would benefit the Georgian economy in two ways. First, it would encourage the consumption of locally grown produce that is good for the country. Second, as prices rise after the harvest glut, farmers with ample storage could sell their crops at a higher price later in the year. Additionally, a potato processing facility may ultimately be established for the production of either potato chips or french fries, thus furthering the demand for high quality potatoes. As yields increase, there will be an even

greater need for long-term storage. Another way of increasing the availability of potatoes in the off-season is to focus on growing early or late varieties of potatoes, reducing the need for long-term storage.

*Constraint: Lack of Global GAP certification*

To be exported to Western Europe, fresh vegetables need to be Global GAP certified. There are currently no potato growers in the country that are Global GAP certified. Although non-Global GAP certified potatoes can currently be exported to neighboring countries, as time goes on, those markets will also require Global GAP certification.

*Recommendation: Assist potato producers to become Global GAP certified*

Interest in Global GAP certification by growers will increase as they work with existing trainers and certifiers, who remind them of the advantages of certification. EPI may also work with them and cover a portion of the certification costs to encourage the process.

Competitiveness Potential	Impact Potential	Industry Leadership	Cross-Cutting Linkages	Overall Comments and recommendations
				Average:3.0. Recommended for Inclusion

# INTRODUCTION

## Background

The vegetable root crop value chain was selected from the vegetable sector assessment due to the fact that it has great potential to flourish, based on the needs, constraints, capacities, and potential of Georgian agriculture.

Potatoes, one of the root vegetables, were historically a large commodity driven by numerous regions in the country. Many households in the earlier parts of the 21<sup>st</sup> century grew potatoes for their own consumption or for smaller-market consumption. The potato is sometimes considered and called the “second bread” by Georgians. In 1995, 62 potato varieties were verified as being grown in the districts of Samtskhe-Javakheti, Tsalka, Dusheti, Tianeti, and in the alpine villages of Adjara and Racha-Svaneti.

Upon the collapse of the Soviet farms and collectives in the 1990s, vegetable gardens in Georgia were transferred into private properties/family-owned property. In 2005, 99.6 percent of vegetables were produced and grown by individual households. Only the remaining .4 percent of vegetables was produced by agricultural enterprises. Having the majority of vegetables grown at a household level meant that commercial production was not taking place. As larger scale commercial production increases and products are stored throughout the year, imports of potatoes and other root crops will decrease.

Vegetables have a large domestic market, and potatoes and other root crops such as beets, onions, and carrots have a larger percentage of consumption than any other sets of vegetables grown domestically.

Since domestic consumption of these crops is high, it would be beneficial for Georgian agriculture, and the economy of Georgia as a whole, if these crops obtain a higher yield. This would decrease imports of these root vegetables. Cold storage units will play a large role in ensuring that root crop vegetable farmers are able to maintain steady supply throughout the year.

Once commercial production increases, and yields increase, root crop imports will decrease, thereby allowing more canneries and processors to take advantage of the vegetable crops’ supply. This value chain has the potential to greatly benefit not only domestic consumers, but also suppliers and processors as well. Suppliers will have a steady market for their harvested crops and processors will have a steady supply, to which they may even input their own value additions if necessary.

## Methodology

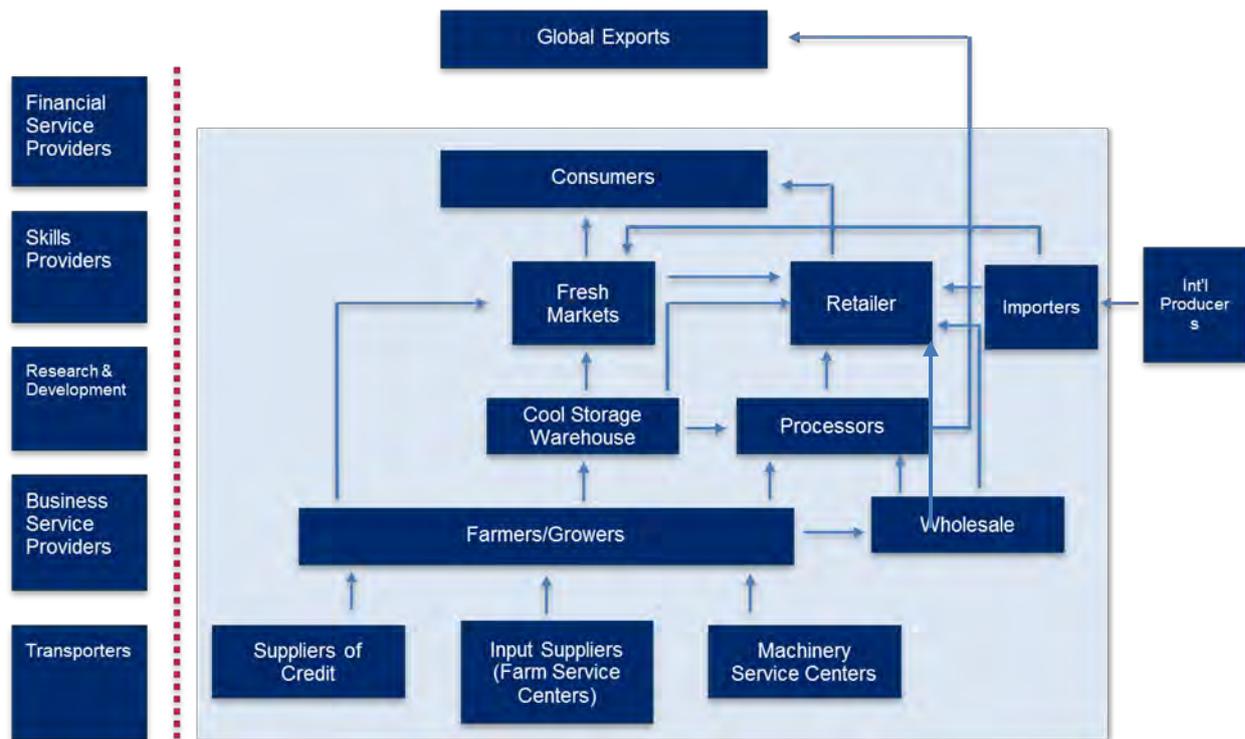
EPI staff met with a variety of the value chain players and asked them questions about the value chain, its shortcomings and gaps, the players and what they do, etc. They also gathered statistical data for analysis purposes. Using this information and their own experiences, the value chain was identified and described with its gaps, as well as recommended actions to improve the value chain.

# OVERVIEW OF THE ROOT VEGETABLES VALUE CHAIN

## Summary

Main Products/Services	The main commodities are root crops such as potatoes, onions, beets, leeks, and carrots.
Key Markets Served	<p>With import-substitution, there will be a greater supply of root crops over a longer period of time. Regional markets that will grow these root crops will be the ones that already grow them. Supply will increase due to better yields and longer storage times.</p> <p>Samtskhe-Javakheti, Tsalka, Dusheti, Tianeti, Adjara, Racha-Lechkhumi, and Svaneti.</p>
Production	<p>In 2009, 217,000 tons of potatoes were grown in Georgia.</p> <p>At present, potatoes are grown in the following regions: Khulo, Adigeni, Akhaltsikhe, Akhalkalaki, Ninotsminda and also in Dmanisi, Bolnisi, Tianeti, Svaneti, and Upper Racha.</p>
Consumption	<p>Recently, the consumption value of potatoes in Georgia was estimated at 227,000 tons, with a self-sufficiency ratio of 95%. Potato consumption has been increasing to about 56 kg/person/year currently. Potatoes are currently about GEL 1/kg.</p>
Exports	<p>Early potato production was exported to the Russian market until the embargo with Russia was introduced. The total revenue from exports in 2010 for potatoes was USD 7.5 million for 1,238 tons</p>
Imports	<p>The import of potatoes into Georgia in 2010 was 713 MT for USD 2.045 million.</p>
Revenues	<p>At 12 MT/HA and GEL 800/MT, average per hectare total revenue is about GEL 9,600/HA, or about USD 5,500/HA.</p>
Employment	<p>Vegetable growing involved 6 main regions of Georgia with approximately 345,000 farmers (peasants) and their family members. Nearly every small farmer grows potatoes to some degree, although those with sandier soils grow more.</p>
Productivity	<p>Potato cultivation has the potential to reach 20 tons or more per hectare.</p>

## Root Vegetables Value Chain Map



### Vertical Actors

*Farm Service Centers (FSCs)* are the primary input suppliers. They provide chemical fertilizers as well as pesticides and insecticides necessary for suppliers/producers of the crops. They also are able to provide higher-grade seeds and other systems such as drip irrigation and/or plastic covering for the winter. FSCs, as input suppliers, may also provide technical knowledge to suppliers, assisting them with any questions or concerns that they may have regarding production.

*Suppliers are individual farmers/growers* who have not collaborated in regards to production, and do not have ample technology available to increase their yields. They grow potatoes, carrots, beets, and onions, and early spring production has the ability to offset imports during the early summer.

Before harvesting, farmers may need equipment and machinery. Machinery and equipment may be provided by *Machinery Service Centers (MSCs)*. Located throughout Georgia, these MSCs rent equipment for harvesting and tillage. Included in the price of the equipment is an operator as well as fuel for the equipment.

*Cold storage units* could be considered vertical actors in this value chain. Cold storage units have the ability to ensure that supply is available throughout the year. These units will affect farmers' price during off season and offset post-harvest imports. They can be operated in one of three different ways: 1) Owned or co-owned by the farmers for their own crop, 2) Rented by farmers for their own crop or 3) Are the actual buyers that purchase during harvest and hold supplies over time to profit from the price increases.

Cold storage providers could create ancillary businesses within the value chain. Cold storage providers would also support value chain actors by assisting with the maintenance and repairs of cold storage units when necessary.

Although *processors* are not currently major actors in the value chain, it is important to note that they will have the ability to purchase required potatoes throughout the year from cold storage providers and continuously process root vegetables (soup, packaged goods, chips, juices, etc.) throughout the year.

Processors of root crops are not numerous in Georgia. However, they need a steady supply for profitable processing operations. Once they obtain supply, they could process root vegetables into various products such as french fries, potato chips, and various other snacks including juices and soups. They also have the ability to re-package potatoes and other products if they obtain the right amount of crops and if the crops are of consistent quality.

*Transportation providers* are also vertical actors in the value chain, as they are the face of the product once they deliver it to the buyer. They will have the responsibility of delivering quality products (not-bruised, shapely, and ripe, but not overripe) to the buyers, who will then sell to the processors.

### ***Horizontal Actors***

A network of farmers called the *Georgian Farmers' Union*, established in 1992, may be leveraged to spread awareness of new cultivars and techniques.

Through the support from the Project AgVantage, the Georgian Farmers' Union is currently implementing an Early Potatoes Production Project covering two hectares in the Bolnisi district and a three hectare area in the Dedoplistkaro district. This project aims to capture higher prices for the potato crops and to compare the Georgian prices with Azerbaijan prices, considering both are grown in the same period, early May.

*Associations* that provide technology and new inputs such as seeds, fertilizers, or pesticides to farmers will be able to lead firms and upgrade them. By providing access to information, technology, and thereby indirectly providing new production processes, input suppliers become integral to sustained competitiveness.

# COMPETITIVENESS POTENTIAL

**Table 1: Potato Area Under Production, 2006 - 2009**

Region	Sown area of potato (1,000 HA)				Harvested area of potato (1,000 HA)			
	2006	2007	2008	2009	2006	2007	2008	2009
Adjara	1.7	2	1.8	1.4	1.7	2	1.8	1.4
Kvemo Kartli	9.4	6.1	6.3	4.5	9.2	6.1	6.3	4.5
Samtskhe-Javakheti	8.4	8.3	10.1	7.7	8.1	8.3	10.1	7.7
Remaining Regions	4	5.1	5.8	4.4	3.8	4.8	5.7	4.4
<b>Totals</b>	<b>23.5</b>	<b>21.5</b>	<b>24</b>	<b>18</b>	<b>22.8</b>	<b>21.2</b>	<b>23.9</b>	<b>18</b>

Source:GeoStat

**Table 2: Potato Production, 2006 - 2009**

Region	Production of potato (1,000 MT)				Average yield of potato (t/ha)			
	2006	2007	2008	2009	2006	2007	2008	2009
Adjara	25.5	32	31.6	16.7	15	16	17	11.8
Kvemo Kartli	69.8	59.9	24.9	35.3	7.6	9.8	4	7.8
Samtskhe-Javakheti	54.3	109.3	108.1	144.1	6.7	13.2	10.6	17.7
Remaining Regions	19.1	28	28.8	20.7	5	5.8	5	4.3
<b>Totals</b>	<b>168.7</b>	<b>229.2</b>	<b>193.4</b>	<b>216.8</b>	<b>7.4</b>	<b>10.8</b>	<b>8</b>	<b>11.5</b>

Source:GeoStat

Based on the two tables listed above, there was 216,800 tons of potato produced in 2009, grown on a total of 18,000 hectares of land. The average potato yield in 2009 was 11.5 tons per hectare of land.

Excluding potatoes, the total amount of vegetables that were produced in Georgia in 2009 was 170,000 tons. Out of this total production in 2009, root crop vegetables including red beets, onions, and carrots (potatoes are excluded from this amount), were 18,000 tons of produce (root crops in yellow in table below).

The total yield for vegetables in 2009 was 386,000 tons of production. If the total amount of root crop vegetables and potatoes available after harvest in 2009 are combined, it amounts to 234,000 tons of production. This is more than 50 percent of total tons of vegetables produced.

**Table 3: Georgian Vegetable Production, 2006-2009**

Production, 1000 MT	2006	2007	2008	2009	4 yr avg
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Potatoes	168.7	229.2	193.4	216.8	202.0
Tomatoes	69.9	80.2	62.6	51.4	66.0
Cabbages	35.5	34.3	41.9	39.6	37.8
Cucumbers	19.4	20.3	18.6	30.9	22.3
Onions	16.0	12.1	11.1	10.2	12.4
Eggplant	11.6	13.0	5.1	10.2	10.0
Greens (including green onion)	8.0	7.4	5.2	8.3	7.2
Red Beets	3.5	10.9	3.1	3.6	5.3
Other vegetables	7.0	1.9	3.7	6.4	4.8
Peppers	4.6	4.3	5.8	3.2	4.5
Carrots	1.2	2.8	5.6	4.1	3.4
Garlic	3.0	3.1	2.3	2.4	2.7

Source: GeoStat

The chart above shows that the production of potatoes in 2009 is more than nine times the production amounts of beets, onions, and carrots. The total four year production averages for potatoes are 202,000 MT. The total four year averages of onions, beets, and carrots amounts to 21,100 MT. There is a larger, wider scope for potato production to replace imports, but onions, beets, and carrots also have a scope to increase as well.

To offset imports, cold storage units will need to be used. As commercial production increases, yields will increase. Cold storage units will be used in order to store supply for domestic consumption throughout the year.

Initially this value chain will focus on obtaining import-substitution as its goal, by increasing its production. Later on during the project, exports and diversification can become objectives when the processing industries obtain a steady supply of root vegetables. The root crop value chain can assist farmers to increase the prices they receive during off-season months by offsetting post-harvest imports. Also, by harvesting crops in the early spring (early season potatoes), Georgian root crop producers also have the ability to offset imports and achieve higher prices.

Value added processing can take place (e.g. potato chips) when production is sufficient and when quantities are stable, assuring the purchaser for the processor that the product they are buying is exactly what their customer enjoyed last experience around!

Georgian vegetable root crops have the ability to yield much more if appropriate inputs are provided and if the vegetable root crops are grown with proper technical assistance. Potato yields can increase to 20 tons or more per hectare in Georgia and/or can double in the potato growing zones if the right seeds are used. The introduction of new varieties and cultivars require trainings and the improvement of the scientific-technical process involved in growing all of the root vegetable crops associated with this value chain.

# IMPACT POTENTIAL

This value chain has the ability to directly improve and significantly expand the incomes of various actors within the root crop value chain. From FSC to single producer to transportation, each actor has the ability to increase. As seen in charts in the competitiveness potential section of this report, the potato root crop has the ability to increase yields per hectare by using new cultivars. The impact of this and increasing the yields of the other root crops, beets, onions and carrots, would be to have domestic production substitute for imports. An extra step with this value chain would also be also to increase exports.

There is a direct link within this value chain to increase the number of warehouses and storage facilities to benefit farmers. By increasing investments and eventual availability of cold storage facilities, the root crop supply can be maintained throughout the entire year. This will allow for root crop producers, even on the smaller levels, to obtain higher prices during the annual post-harvest season. Another way to increase the availability of potatoes in the off-season is to focus on growing a different set of potatoes that grow early and/or late in the season. A coupling of both increasing availability of cold storage facilities as well as new cultivars would positively impact the value chain by increasing the amount of potatoes available throughout the year.

Due to the fact that better-suited cultivars would assist the production and increase of yields, the seed industry has the ability to expand in Georgia, and potentially set up research and development centers within the country as well. This could also give rise to laboratories that have the capacity to test for pesticide residues on root crops and it may be a possibility for laboratories to create public education linkages with universities to obtain space and resources.

The root crop producers will also have the ability to add value to their products. Once root crops increase their yields, this can greatly expand the vegetable processing industry. The processing industry, in turn, has the ability to label their products as being produced by a specific processor to create brand recognition. There is the potential for labeling, branding and/or marketing companies to expand through this initiative.

Within this value chain, there is a potential for farms to market their own unprocessed root crops. Larger farms, with greater revenues, could potentially have the ability to then attract additional Foreign Direct Investment (FDI) and/or access to domestic credit. Accessing lowered interest rates and accessing investor interest will be beneficial for the sustainability of production and operations.

This value chain in particular has the ability to increase employment possibilities within each link or each actor of the value chain. Employment opportunities will expand as supply/producers increase. This creates sustainability within the value chain.

# INDUSTRY LEADERSHIP

Two cold storage units are currently available for potato and onion crops: one in Akhalkalaki and one in Bolnisi.

In Akhalkalaki, the cold storage unit is I/E Valodia Shindariani. It has the ability to maintain a minimum temperature of 0 C, and a maximum temperature of 20 C.

The cold storage unit in Bolnisi has the capacity to store up to 1,800 MT of produce. It has the ability to maintain a minimum temperature of °3 C, and a maximum temperature of 25° C. This cold storage firm is called LTD Agrou.

## **CROSS-CUTTING THEMES**

Potatoes are looked upon by the Georgian public as equal to bread. Potatoes were historically grown by households as a means of subsistence agriculture, but at present, there are multiple programs that are helping farmers improve their seed varieties and assisting them to reach the marketplace with a diverse set of potatoes.

Within the donor sector, other international projects have focused on potato projects. Several international organizations such as CARE, Gesellschaft für Internationale Zusammenarbeit (GIZ), ACDI/VOCA, International Fund for Agricultural Development (IFAD) and others began to work on projects to develop the potato-growing sector in the mid 1990s. They tested out various seeds and recognized that the potato seeds that were necessary were Western European seeds, since Ukrainian and Russian seeds also brought with them viruses and diseases. These seeds from Germany and elsewhere are now being utilized to train farmers on production techniques and to produce potato seeds.

CARE has also established a network of seed growing farmers in South Georgian districts to assist them in maintaining seeds, as well as to import their seeds from Europe.

In 2006, AgVantage tested a new, early potato, Israel-cultivar, to grow on six hectares of land in the Marneuli district. After picking the early potato in July, the average crop yield totaled 50 tons/hectare, instead of the normal 15-20 tons. Out of this total yield, 20 tons were exported to Russia. This project showed that there are multiple cultivars whose potentials have not been tapped yet.

## **STRATEGIC ENTRY POINTS AND RECOMMENDATIONS**

One key factor that needs more research support within this value chain would be cultivar growth and expansion. Understanding additional cultivars through demo-plots might be a cross-cutting issue as well as strategic entry point for EPI, if the Ministry of Agriculture is able to partner with EPI on this key point of implementation. These potential demo-plots could even assist in obtaining funding for additional research and development of the root crop value chain such as the implications of cold storage facilities on specific cultivars of root crops.

There is a need for cold storage facilities to increase throughout the country, which is an entry point for EPI. These facilities will assist the root crop vegetable value chain by ensuring that farmers maintain their supply during the off-season in order to attract higher prices and offset imports. By surveying various Farm Service Centers, EPI is taking the first step in encouraging FSCs to be leaders in establishing cold storage units for the farmers that

they serve. Once FSCs are aware of the benefits of cold storage units for farmers, they will be able to market cold storage units to them. FSCs will then increase their own revenues by establishing a new product/space.

# CONTACT DETAILS FOR VALUE CHAIN ACTORS

Company / Organization	Name & Position	Address	Contact Telephone Number
—Kla” Company	Ivane Goglidze	Gori	877409409
Nuts export company	Begi Sioridze	Ozurgeti	899989000
LLC —Ba”	Gocha Otarashvili	Tbilisi	871712777
—Heria”	Zurab Janelidze	Tskaltubo	899516077
I.E. Gia Qaikhosroshvili	Gia Qaikhosroshvili	Marneuli	899568042
LLC —Sthburi albi”	Alesandre Zubiashvili	Kaspi	899439776
I.E.Nodar Tsamalaidze	Nodar Tsamalaidze	Mukhrani	895299225
I.E. Zakharia Khitarishvili	Zakharia Khitarishvili	Marneuli	851607010
I.E.Suliko Kotorashvili	Suliko Kotorashvili	Digomi	893174307
I.E. Badri Kiladze	Badri Kiladze	Geguti	855 37 85 45
Gocha Kublashvili	Gocha Kublashvili	Ternali	895 77 98 24
LLC —Sthburialbi”	Alexander Zubiashvili		899439776
LLC —Ile’	Tengiz Palavandishvili	Gori	877525101
I.E. ES	Edisher Sanikidze	Senaki	897132929
I.E. Badri Kiladze	Badri Kiladze	Geguti	897004708
I.E. Zurab Qartvelashvili	Zurab Qartvelashvili	Vani	893958467
I.E. Maia Sharvashidze	Maia Sharvashidze	Opshkviti	899432572
I.E. Valodia Ugreladze	Valodia Ugreladze	Rokhi	899511536
I.E. Temur Namchavidze	Temur Namchavidze	Patrigeti	899118154
I.E. Gultamze Tutberidze	Gultamze Tutberidze	Geguti	899942885
I.E. Guliko Machaladze	Guliko Machaladze	Patrigeti	899166473

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# ANNEX 8: WINE VALUE CHAIN ASSESSMENT

## ABSTRACT

Georgian wine production is a part of the country's great cultural heritage and dates back to 7000 BC. Georgia is known in the wine-world as being the historical cradle of wine-making.

This wine value chain assessment document will focus on the fact that Georgian wine is an extremely marketable product and can flourish as a highly successful Georgian export by reaching additional Western markets.

At present, Georgian wine exports make up 25 percent of the value of agricultural exports. Exported to Ukraine, Kazakhstan and more than 30 other countries located in the former Soviet Union and elsewhere, Georgian wine has the potential to reach Western markets by increasing its international competitiveness in terms of elements such as food safety, quality, consistency, and image. A strong publicity and marketing campaign will be helpful for the value chain.

## ABBREVIATIONS

ADA	Agriculture Development Activity
EU	European Union
FSC	Farm Service Center
GAU	Georgian Agrarian University
GIZ	Gesellschaft für Internationale Zusammenarbeit
GWA	Georgian Wine Association
GoG	Government of Georgia
ISO	International Organization for Standardization
IVOH	Institute of Viticulture, Oenology and Horticulture
MSC	Machinery Service Center
SME	Small and Medium Enterprise
USAID	U.S. Agency for International Development

# EXECUTIVE SUMMARY

Georgia is said to be the birthplace of winemaking and wine production in the region, dating back to 7000 BC. Recently, Georgian wine has received international recognition and awareness due to a multitude of international events and awards, putting the spotlight on Georgia and its wine. The rift between Russia and Georgia has driven the Georgian wine industry to a higher level of international competitiveness. In 2004, 80 percent of Georgian wine exports were to Russia. In 2006, Russia imposed an import ban on Georgian wine, citing quality reasons. Now, Georgian wine is exported to more than 30 different countries. Nonetheless, most Georgian wine exports are to Ukraine and Kazakhstan.

Although Georgia hosted the Annual OIV conference in 2010 and also won the 2010 Masi International Wine Prize for the Archbishop of Kakheti Region's work in the wine value chain, Georgia still faces challenges with wine.

The quality and taste of Georgian wines are not consistent due to a lack of modern-day viticulture science behind the cultivation of grapes. Georgia remains mired in its old wine-making science and technology. Many winemakers learned their trade from watching previous generations; the country lacks wine makers trained in modern-day techniques with newer commercial wine making equipment. In addition, the Georgian wine industry lacks an overall wine marketing strategy.

To combat the challenges that the wine-making industry faces, this value chain assessment recommends the following:

*Challenge: Insufficient raw material base affecting grape quality.*

*Recommendation: Support Georgian grape growing techniques to ensure quality varieties are available within the viticulture industry.*

Grape growing trainings for the many viticulture farmers that exist within the Kakheti region of the country would strengthen Georgian wine quality by helping farmers understand which grapes to cultivate, ensuring consistent grape quality. These grape growing trainings would help farmers identify two to three varieties of consistently high quality for promotion in the international markets, especially in the West. The trainings for these farmers would be in collaboration with the Institute of Viticulture, Oenology and Horticulture, the leading scientific wine body in the country, and would provide modern educational techniques in winemaking. Included in the trainings would be the provision of study tours for young wine technologists and future experts.

*Challenge: Low expertise in modern winemaking practices.*

*Recommendation: Provide consulting services on modern winemaking techniques.*

EPI can significantly contribute to eliminating an existing vacuum of knowledge base in managerial and other technical subjects pertaining to the wine industry. Technical assistance and trainings can be key to the spread of production practices that result in high quality wine.

*Challenge: Low recognition of Georgian wines on international markets; lack of coherent marketing strategy.*

*Recommendation 1: Create an internationally-marketable product that ensures consistent quality.*

It is important for Georgian wines to obtain International Organization for Standardization (ISO) accreditation. Achieving the accreditation would require the Georgian wine industry to develop quality control mechanisms and would signal the international market that the wine is up to international quality standards. The Georgian wine industry recently received notice from the European Union (EU) that 18 of the locations in Georgia that cultivate wine will be permitted to label their wine as originating from those specific regions. Additional locations will be certified pending approval from the EU. A clear link to the wine tourism value chain, strengthening the wine sector might also promote the development of tourism and contribute to the development of rural areas that have been producing traditional wine for centuries.

*Recommendation 2: Support GWA and Government of Georgia (GoG) in developing and implementing a long term wine marketing strategy.*

The wine industry suffers from the low recognition of Georgian wines in international markets, due largely to Georgia’s isolation from the western world during the Soviet era and the dependence on Russian markets after the collapse of the Soviet regime, before the Russian embargo. Currently, all major industry players acknowledge the importance of orienting Georgian wines towards western markets. Having a coherent market development strategy for Georgian wines is becoming a top priority for the country. EPI’s role in collaborating with the Georgian Wine Association (GWA) and GoG in setting up a comprehensive marketing strategy can be considered critical to the overall development of the sector. Both GWA and GoG are critical to developing and implementing the marketing strategy, since each holds a stake in the Georgian wine industry.

*Recommendation 3: Assist GWA and GoG in setting up trade missions in the US.*

Trade missions will research the most promising North American and other markets, and identify entry points for access to the market channels. These trade missions will assist in ensuring that specific, quality wines being produced in Georgia are seen, heard of, and tasted by Western publicists. It will be imperative to ensure that wines in Georgia are obtaining the publicity and the advertisement they deserve in Western publications, and that Georgian wine is sold at restaurants. By supporting the key trends of wine writers, chefs, and sommeliers, Georgian wine could increase sales in the West.

Competitiveness Potential	Impact Potential	Industry Leadership	Cross-Cutting Linkages	Overall Comments and recommendations
				Average: 3.0. Recommended for inclusion.

# INTRODUCTION

## Background

Wine is Georgia's largest exported agricultural product. Georgian wine is exported to many Soviet Union countries and to countries outside the region, but mostly to Ukraine and Kazakhstan. It is apparent that the Georgian wine industry can grow through product diversification and reach additional markets. Georgia exports to approximately 37 different countries. An increase of sales to higher value markets of Western Europe and North America is the next step for Georgian wine.

In 2006, after Russia closed its doors to the Georgian wine industry through an embargo, Georgia decided to adopt an appellation of origin labeling system, similar to the ones that EU countries use to protect their marketing interests and intellectual property rights. To date, the EU has recognized 18 local areas and regions from which Georgian wine can publicly claim to originate. Additional locations and regions in Georgia are under EU consideration. Georgia is a pioneer in this endeavor, as it is the first "EU Neighborhood Country" to use this appellation mechanism. Geographical indications will act as a certification that the wine possesses a certain reputation, level of quality, or other characteristic. This is just the first of many marketing and market development strategies the Georgian wine industry can employ.

More than 500 native grape varieties are grown in Georgia. Only 40 of them are currently used for commercial wine-making. Of these 40 varieties, only a few have been cultivated enough to secure a share of the Western market. The Institute for Viticulture, Oenology and Horticulture is leading work to scientifically study indigenous Georgian grape varieties and test them for commercial production adaptability.

## Methodology

The information presented in this value chain assessment was obtained through in-person interviews at the Institute of Viticulture, Oenology and Horticulture (IVOH) and additional wine laboratories. Wine producers and owners of wineries were also interviewed. In addition, data was obtained from FAOstat and other websites. The team also toured a number of wine facilities, to meet the company leaders and understand the operations that take place.

# OVERVIEW OF VALUE CHAIN

## Summary

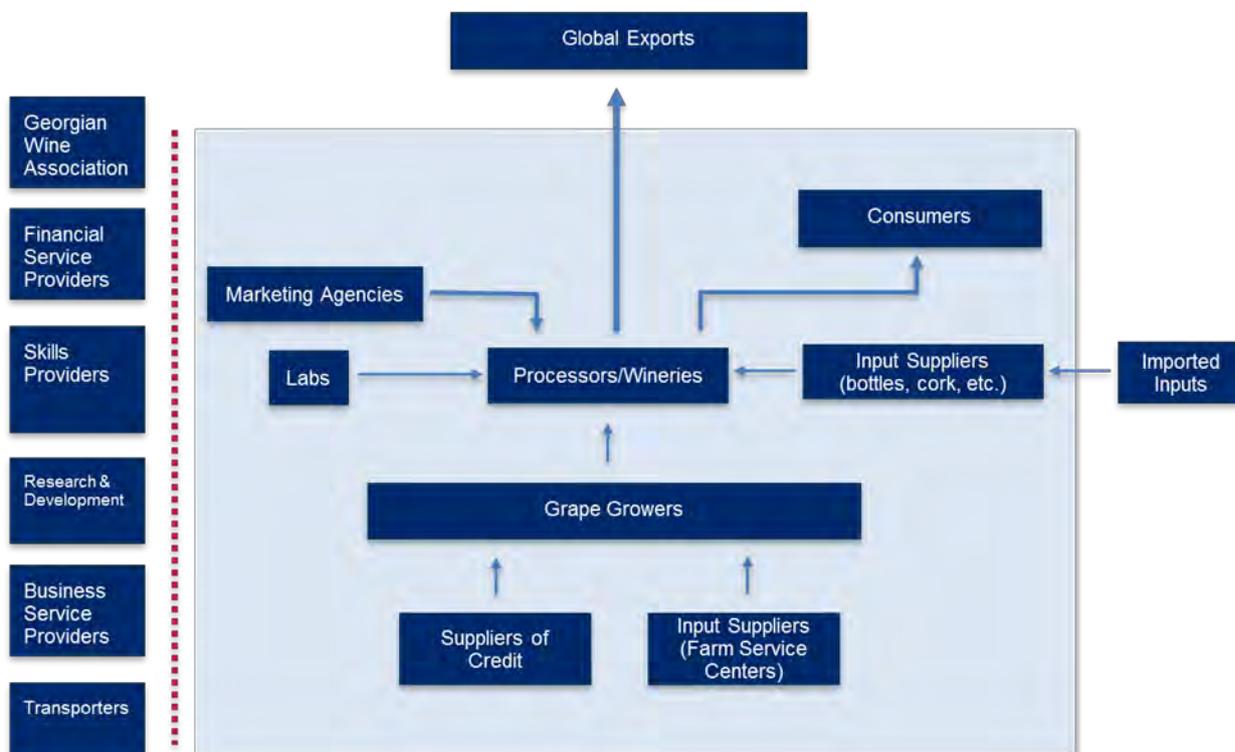
Main Products/Services	Marketing of wine products and the wine industry.
Key Markets Served	International regional markets are: Ukraine, Kazakhstan, and 28 other countries. The international markets that Georgian wines have the greatest potential to increase their exports to are: USA, Canada, and countries in Western Europe. These are the markets with the greatest demands for wine.
Production	Georgian wine production grew by 16% from 2004 to 2008 from 950,000 to 1,100,000 hectoliters.
Consumption	<p>Consumption between 2004 and 2008 increased dramatically, not only in Georgia but in other parts of the world as well. World-wide consumption increased by 3.5% from 2004-2008, mainly due to an increase in consumption among Asian nations, especially China.</p> <p>Georgian domestic wine consumption has more than doubled since 2004.</p>
Exports	<p>Georgian wine exports represent 25% of the value of total agricultural exports, the largest single category.</p> <p>Exports to the Soviet Union and later to Russia accounted for nearly 90% of Georgian wine export sales, so the embargo against Georgian products greatly impacted the wine sector. However, there has been a great focus on marketing to other countries and wine exports are resuming, with 75% of Georgian wine being exported. At present, Georgia exports to 30 different countries including the bulk of the wine exported to Ukraine and Kazakhstan.</p> <p>In the first half of 2010, Georgia exported 8,178 tons of wine worth USD 17.6 million to 37 countries. The primary buyers were as follows:</p> <ol style="list-style-type: none"> <li>1) Ukraine USD 7,638,000 (4,254 tons)</li> <li>2) Kazakhstan USD 2,668,000 (1,217 tons)</li> <li>3) Belarus USD 1,871,000 (813 tons)</li> <li>4) Moldova USD 731,000 (197 tons)</li> <li>5) Latvia USD 679,000 (347 tons)</li> <li>6) Lithuania USD 513,000 (262 tons)</li> <li>7) Azerbaijan USD 493,000 (189 tons)</li> <li>8) USA USD 361,000 (143 tons)</li> </ol>

	<p>9) Germany USD 309,000 (139 tons)</p> <p>10) Armenia USD141,000 (46 tons)</p>
Imports	Georgia does not import large quantities of wine. Wine is imported when a variety at restaurants is needed: Italian wine, other EU countries, etc.
Revenues	Domestic sales of alcoholic drinks in 2009 declined in both current value and volume terms. Spirits suffered most of all, as these products are the most expensive, and consumers were trying to spend as little as possible. However, over a five year period, domestic consumption was up by 106%.
Employment	A USAID Alcoholic Beverage Sector study in 2007 estimated that the alcohol sector employed approximately 5,000 people in Georgia.
Productivity	There are around 63,600 hectares of vineyards in Georgia (2008 est.), grown primarily in three regions and consisting of (primarily) ten different varieties of grapes. There was 10.4% growth in vineyard area from 2004 to 2008. It should be noted that during Soviet times approximately three times more hectares of vineyards were grown. This difference in production area points to the production growth potential in case the demand for Georgian wines starts to increase.
Positioning	Differentiation comes from wine being an indigenously cultivated industry in this country, and from recognized geographic appellations. The wine industry was not focused on quality until 2006, when the Russians closed their doors to Georgian wine imports. Georgian wine makers were then required to provide quality wines to attract various markets.

## Key Processes

Over 75% of wines produced in Georgia are exported, not only to Europe by truck, but by other countries in sea containers. Bottling technology, although it varies from winery to winery, is relatively modern and good.

## Wine Value Chain Map



### Vertical Actors

**Grape farmers.** Grape growers are largely located in Kakheti region and benefit from a large set of Machinery Service Centers (MSCs) as well as Farm Service Centers (FSCs).

FSCs were created and established by the CNFA Agriculture Development Activity (ADA) project to provide input services such as technical advice, fertilizers, seeds, planting materials, and additional hand-held tools for farmers.

MSCs were established to expand the FSC network to include machinery such as plows and harvesters. Currently, six MSCs have been approved to serve small farmers in the Kakheti Region, one of which has already opened. MSCs rent equipment to farmers, and also provide an operator and fuel as part of the price of the equipment.

**Wineries and grape processing** units are the main downstream, vertical value chain actors. Each processor works with a bottling agency or bottles their own wine, depending on the size of their operation. International sales are usually made by wineries themselves as they have their own distribution channels and direct connections to foreign importers. In the case of U.S. sales, winemakers are working with US distributors who manage the process of distribution to the local sale points.

If a winery uses a bottling agency, the agency bottles, corks, and labels wine bottles according to the winery's preferences.

*Buyers* look for quality and consistency of quality with each bottle. Higher-level buyers often look for higher quality and consistency. From the buyer, the wine goes straight through to marketers who either sell the wines onwards to retailers through various other agencies such as wine marketing magazines or warehouse brochures.

### ***Horizontal Actors***

*The Georgian Wine Association (GWA)* is a newly established association which unites more than 20 key private sector actors, from small to large scale wineries. It is run by association members and its main objective is to promote and lobby members' interests on local or international levels. The association is interested in working with foreign buyers and distributors to increase the recognition and presence of Georgian wines in new markets.

### ***Other Actors***

Many additional actors play important roles in the wine value chain. As many large wine companies have substantial sales and well-established businesses, *financial institutions* are more likely to cooperate with them.

Currently, three top *insurance companies* (Aldagi BCI, Imedi L, GPI Holding) are working on crop insurance, including vineyard and viticulture directions. Crop and sapling insurance services are the main focus in viticulture for a leading agriculture insurance company, Imedi L, which has an insurance premium of five to seven percent calculated from the average price of former year's crop. The company's agricultural insurance package covers pure risks such as fire, hail, redundant sediment, flooding, frost, plant pests, and crop diseases.

The value chain also includes *four wine quality testing labs* (Multitest, Wine laboratory, Laboratory of IVOH, and Norma), which provide testing services to the wineries. These labs are equipped with state of the art equipment, though all of them are in need of international accreditation such as ISO 17025. This could be a target of support from the donor community.

The Russian embargo significantly affected the Georgian wine laboratories, as they received more orders for wine quality testing. Many other value chain actors, however, suffered greatly from loss of sales, forcing them to address huge challenges, many of which remain unresolved.

*Marketing agencies* are key elements of the wine value chain. They provide advertising and other marketing services. In Georgia, they are mainly Georgian companies who employ young and talented marketing professionals.

The *national regulative body "Samtresti"* is mandated to oversee the wine industry and is responsible for its policy and legislative aspects. The juridical face of public law, Samtresti is structurally subordinated to the Ministry of Agriculture of Georgia and is currently actively involved in the improvement of existing legislative base and institutional optimization process.

The *Institute of Viticulture, Oenology and Horticulture (IVOH)* is a governmental body conducting scientific research and development in wine and horticulture sectors. Currently, the institute consists of nine divisions, each with a different scope of work and objectives. It also runs a well-equipped laboratory which was established by financial support from the World Bank. Despite significant reforms made, the institute is in need of assistance in a number of priority areas. The National Center for Grapevine and Fruit Tree Planting Propagation is a non-governmental organization which was established to conduct scientific

research on collecting local grapevine germplasm. It also maintains a collection of local grape varieties, conducts plant diagnostics, and propagates grapevines and fruit trees.

A large component of future cooperation between the *Georgian Agrarian University* and the Georgian wine sector will be to provide modern educational techniques in winemaking. The *Georgian Agrarian University* would consider the provision of study tours for young wine technologists and future experts. The Telavi State University is another educational institution that provides specific courses for future winemakers, though it mostly utilizes outdated methodologies and practices.

## COMPETITIVENESS POTENTIAL

Table 1: Export/Import Data in 2008-2009

Commodity	2008				2009			
	Export		Import		Export		Import	
	1000 Lt	\$1,000						
Wine of fresh grapes	10636	36863	126	394	9552	31997	57	256
Vermouth and other wine of fresh grapes	664	3376	58	257	460	2144	29	129

Table 1 above, describes the amounts of Georgia's wine imports and exports during 2008 and 2009. In both 2008 and 2009 Georgia exported more wine and Vermouth than it imported.

Table 2 (below) shows wine production by country. It is evident that Georgian wine production dramatically increased between 2004 and 2008. There was a 16 percent increase in Georgian wine production during that period.

Table 2: Wine Production by Country, 2004-2008 and % Change (Hectoliter's, 000)

	2004	2005	2006	2007	2008	% Change 2004-2008
World Total	291987	301363	285035	284700	283898	-2.8%
Italy	44086	53135	50566	49631	51500	+16.8%
France	57386	52105	53400	52127	45692	-20.4%
Spain	41843	43168	36158	38290	36781	-12.1%
USA	24110	27859	24298	25125	24274	+0.7%
Argentina	15464	15222	15396	15046	15013	-2.9%

Australia	15048	14669	14628	9620	14750	-2.0%
China	11700	12000	13000	14000	14500	+23.9%
Germany	10107	9150	9256	9000	10363	+2.5%
South Africa	9279	9052	10130	10200	10300	+11.0%
Chile	6550	8046	8450	8280	8690	+32.7%
Portugal	7340	7481	7267	7542	6049	-17.6%
Romania	5555	6166	2602	5015	5288	-4.8%
Russia	5120	5035	5000	5000	5000	-2.3%
Moldova	3488	3509	3597	3600	3650	+4.6%
Greece	3815	4295	3997	3874	3337	-12.5%
Hungary	3880	5271	3103	3144	3222	-17.0%
Brazil	3925	3199	2372	3000	3000	-23.6%
Ukraine	2400	2400	2460	2400	2400	0%
Austria	2735	2264	2256	2300	2300	-15.9%
Bulgaria	2327	1961	1708	1757	1800	-22.6%
Croatia	1800	1571	1592	1600	1600	-11.1%
New Zealand	1192	1020	1195	1250	1300	+9.1%
Georgia	950	950	1100	1100	1100	+15.8%
Switzerland	1159	1001	1108	1100	1100	-5.1%
Mexico	1100	1028	1028	1050	1060	-3.6%

Source: Trade Data and Analysis (TDA)

As can be seen from Table 3, world wine consumption increased dramatically between 2004 and 2008, including in Georgia. Most countries included in this chart have increased consumption. In total, world-wide consumption has increased by 3.5 percent.

**Table 3: World Wine Consumption 2004-2008 and % Change (Hectoliters, 000)**

	2004	2005	2006	2007	2008	% Change 2004-2008
World Total	236812	237606	240915	244294	245012	+3.5%
France	33218	33530	32600	32400	32200	-3.1%
Italy	28300	27016	27000	27900	29100	+2.8%
USA	25227	26308	27204	28574	28880	+14.5%
Germany	19845	19849	19940	19900	19900	+0.3%

China	13286	13500	13700	13900	14200	+6.9%
Spain	13898	13686	13510	13450	13300	-4.3%
UK	10729	12000	11700	11650	11600	+8.1%
Argentina	11113	10972	11104	10900	10700	-3.7%
Russia	10159	10500	10550	10600	10650	+4.8%
Romania	5800	2379	5556	5600	5600	-3.4%
Portugal	4913	4820	4793	4750	4700	-4.3%
Australia	4361	4523	4567	4590	4600	+5.5%
Canada	3607	3793	3987	4000	4050	+12.3%
Netherlands	3340	3474	3511	3550	3575	+7.0%
South Africa	3509	3450	3452	3465	3510	-
Greece	3300	3586	3500	3500	3500	+6.1%
Hungary	3080	3500	3500	3500	3500	+13.6%
Brazil	3177	3719	3466	3400	3400	+7.0%
Switzerland	2933	2849	2771	2750	2725	-7.1%
Belgium	2478	2537	2587	2625	2625	+5.9%
Chile	2547	2644	2600	2600	2600	+2.1%
Austria	2400	2400	2400	2425	2460	+2.5%
Japan	2523	2561	2383	2350	2375	-5.9%
Croatia	1856	1856	1850	1850	1850	-0.3%
Ukraine	1800	1753	1708	1700	1700	-5.6%
Denmark	1612	1560	1530	1500	1500	-6.9%
Sweden	1324	1535	1462	1424	1400	+5.7%
Bulgaria	1350	1350	1350	1350	1350	-
New Zealand	770	817	870	880	890	+15.6%
Slovenia	600	880	880	880	880	+46.7%
Uruguay	848	869	865	860	855	+0.8%
Czech Republic	820	820	820	820	820	-
Ireland	562	682	708	700	700	+24.6%
Norway	578	610	620	625	630	+9.0%
Poland	611	600	600	600	600	-1.8%
Slovakia	600	600	600	600	600	-

Angola	579	580	585	571	566	-2.4%
Belarus	492	543	550	550	550	+11.8%
Peru	507	500	500	500	500	-1.4%
Uzbekistan	446	446	446	446	446	-
Finland	473	494	445	445	445	-5.9%
Nigeria	33	42	70	314	435	+1236%
Morocco	326	300	300	300	300	-8.0%
Paraguay	253	293	290	290	290	+14.6%
South Korea	172	205	243	347	287	+66.4%
Kazakhstan	280	280	280	280	280	-
Georgia	131	251	260	265	270	+106.1%

Source: Trade Data and Analysis (TDA)

Based on information in the world consumption charts above, it is clear that world-wide production will need to meet increasing demand. Georgia accounts for only a small percentage of global wine production. With a small market share and growing global demand, there should be many new market opportunities for Georgian wines.

IVOH is interested in getting involved in developing the wine industry, mainly in terms of scientific research and development in viticulture and oenology. However, it lacks financial resources. The GWA is interested in working with foreign buyers and distributors to increase the recognition and presence of Georgian wines in foreign markets.

Georgian wine makers need to strengthen many skills to effectively export to international wine markets. The first set of skills is modern wine making skills, which include planting and cultivating quality varietals and higher-value grapes. Wine quality laboratory capabilities and skills are important – they will need ISO accreditation. The laboratories will check the sugar content of each harvest to ensure its ripeness and readiness for harvest. A third set of skills include post-production capabilities, including market knowledge, market development, marketing, and general managerial practices.

There are presently only four major wine quality testing laboratories (two private, one state-owned, and one jointly controlled by GoG and wineries that helped fund the lab). These laboratories work effectively within the industry, but need ISO accreditation, training, and additional equipment. Improved laboratory capabilities will be key to enabling the Georgian wine industry to more effectively manage quality control to meet the requirements of major international wine buyers. The wine quality laboratory, formerly run by the Gesellschaft für Internationale Zusammenarbeit (GIZ) wine project, is functioning and captures the largest share of wine testing orders from wineries that test their produce for export purpose. There are currently three other wine quality laboratories (Multitest, Laboratory of IVOH, and Norma) that do the testing and other research work, but these labs focus on agricultural products other than wine. They have state of the art equipment, though all of them are in need of international accreditation such as ISO 17025.

Before the EU law differentiating regional Georgian wines came into effect, there was little competition among Georgia's various wine-producing regions. The law will encourage healthy competition among regions. Georgian wine has a unique history, and local varieties and wine flavors add to the culture of Georgian wine.

There are five main regions of viticulture - the principal region is Kakheti, which produces seventy percent of Georgia's grapes. Traditionally, Georgian wines carry the name of the source region, district, or village, much like French regional wines such as Bordeaux or Burgundy. As with these French wines, Georgian wines are usually a blend of two or more grapes. For instance, one of the best-known white wines, Tsinandali, is a blend of Rkatsiteli and Mtsvane grapes from the micro regions of Telavi and Kvareli in the Kakheti region. The main viniculture regions are

- Kakheti, containing the micro-regions Telavi and Kvareli
- Kartli
- Imereti
- Racha-Lechkhumi and Kvemo Svaneti
- Adjara

The specific types of grapes and their information are listed below.

- Rkatsiteli – is the most productive white-wine grape in Georgia and takes 150 days to mature; yield is 1,000 – 1,500 lbs/ha.
- Mtsvane – is also a productive white-wine grape in Georgia and takes 160 days to mature; yield is 1,100-1,500 lbs/ha.
- Saperavi – is the most productive red-wine grape in Georgia and takes 150 days to mature; yield is 800-1,200 lbs/ha.
- Aleksandrouli – this grape is harvested when sugar content of the grapes amount to 25-26 percent; it usually takes approximately 168 days to mature; yield of the grapes are 600-700 lbs/ha.
- Khikhvi – this grape is a lesser known grape, but it is still considered one of the top varieties. It takes 150 days to mature and needs a sugar content of at least 25 percent in order to be harvested; yield of the grape is 600-800 lbs/ha.
- Kisi – this grape is weak against fungal diseases and it takes 140 days to mature. Its yield is low, approximately 550-800 lbs/ha.
- Dzvelshavi – these are berries, and they are medium, black and deep red in color; they take 170 days to mature; the yield is 800-1400 lbs/ha.
- Chkhaveri – the grapes are harvested in November and normally take 218 days to mature; the sugar content needs to be approximately 22 percent in order for the grape to be harvested. It is sensitive to fungus diseases.
- Chinuri – these grapes are resistant to fungus. They take approximately 166 days to mature, and there needs to be approximately 21-22 percent sugar content in each grape for harvest. The yield of the grape is 600-700 lbs/ha.

**Table 4: Area of Vineyards by Varieties, 2004 and 2008**

<b>Area of Vineyards by Varieties (1,000 HA)</b>				
<b>Name</b>	<b>2004</b>	<b>2008</b>	<b>Growth 2004-2008 %</b>	<b>% of total</b>
Rqatsiteli	19.5	23.1	3.6	48.0%
Saperavi	3.7	9.9	6.2	20.6%
Tsolikauri	6.2	6.2	0	12.9%
Other	4.4	4.4	0	9.1%
Tsitska	2.8	2.8	0	5.8%

Mtshvane	0.5	1	0.5	2.1%
Alexandrouli	0.2	0.2	0	0.4%
Tetra	0.1	0.2	0.1	0.4%
Cabernet	0.2	0.2	0	0.4%
Mujuretuli	0.06	0.1	0.04	0.2%
<b>Total</b>	<b>37.66</b>	<b>48.1</b>	<b>10.4</b>	<b>100.0%</b>

Source: GWA

After the break-up of the Soviet Union, several foreign investors entered the Georgian wine sector – including French, German, Italian and Russian. The companies with foreign investment include: GWS, Schuchman, Badagoni, Kindzmaraulis, and Marani. This trend likely would have continued - however the Russian embargo on Georgian wines cut Georgian wine sales almost completely. Currently, the industry is actively seeking ways to penetrate western markets. There are several reasons to invest in the Georgian wine industry:

- Low production costs (inexpensive, self-initiated, intensive labor force)
- Relatively inexpensive raw materials
- Strong potential for increased production (during Soviet era, three times more land was cultivated for grape production)
- Relatively convenient tax system and investment support policy from GoG
- Rapid adoption of European and other international standards

Compared to leading grape growing countries, Georgian production is relatively inexpensive at an average of USD 423.8/ton (2008 prices). That same year, the U.S. produced wine grapes at an average of USD 506/ton, France USD 1,923.3/ton, Italy USD 603.8/ton, Australia USD 742.7/ton, and Spain USD 783.4/ton. Only Chile had less expensive grapes than Georgia, at an average of USD 360.1/ton.

## IMPACT POTENTIAL

Georgian wine will develop new markets by growing demand for their existing commodities and strengthening their product's quality consistency. New products will assist the existing wine market to expand in reach and scope. The potential markets are in the Western hemisphere. During the past 20 years, large amounts of foreign direct investment from France, Germany, Italy, and Russia were infused into the Georgian wine market. As a result, a number of modern, fully-equipped wine making companies have been established, which introduced wine making best practices from the west, to be combined with unique local wine making traditions. Investments were interrupted by a Russian embargo that posed new challenges to the industry, as its largest export country was Russia.

Raw materials should be paid special attention to as the quality of wine is directly linked to the quality the grapes used in production. Special selection and propagation mechanisms should be introduced and encouraged by the relevant government and private entities to address the shortages of high quality raw material. In addition, proper scientific research should be conducted to protect the unique indigenous grape varieties, on which all commercial wine production depends.

EPI hopes to brand a regional and national image for Georgian wine to promote the growth of the industry. Fortunately, the Georgian wine value chain is already partially positioned to flourish. Georgia already exports 75 percent of the wine it makes. To enter the larger, more expensive wine markets abroad (mostly in North America), marketing efforts must be undertaken. Trade tours, wine expert exchanges, training seminars on product branding and marketing, as well as continued efforts around quality consistency will all be needed as the Georgian wine industry creates its new image.

The majority of wineries are owned by Georgians, and there are some joint-venture companies with investments from France, Germany, Italy, and Russia. The leading wineries are equipped with state-of-the-art processing equipment and excellent facilities. Many are trying to renovate and upgrade old wine factories constructed during the Soviet era which they privatized. This value chain, once expanded, can directly affect the fruit fruits/table grapes value chain by increasing the productivity of grape production enough for residual quantities of grapes to be available for other grape-related sectors.

## INDUSTRY LEADERSHIP

The following list is a list of all major wineries. Each region is unique, and has its own distinct ability to produce grapes and process wine.

**Table 5: Major Wineries by District**

#	Name	Address	Contact person	Phone
<b>Kakheti Region - Gurdjaani District</b>				
1	LLC "Gurdjaani Wine Cellar"	Gurdjaani, st.Saradjishvili 55	Zaza Shatirishvili	899 141881
2	LLC "Khareba Winery"	Gurdjaani (vill Vachnadziani) & Terdjola	Sasha Kharebava	899 565702
3	LLC "Sakartvelo"	Vill Velistsikhe and vill Akura	Boris Gogichaishvili	899 231515
4	LLC "Georgian Wine House"	Gurdjaani, vill Vachnadziani	Zaza Kikabidze	899 153077
5	LLC "Aliansi"	Gurdjaani, vill Vachnadziani	Zaza Kikabidze	899 153077
6	JSC "Vachnadziani" ("Khareba")	Gurdjaani, vill Vachnadziani	Emzar Nozadze	899 365702
7	LLC "Shato"	Gurdjaani, vill Zegaani	Bitar Bitskinashvili	899 104749
8	LLC "Rtveli 2008"	Gurdjaani	Merabi	899 180003
9	LLC "Askaneli Brothers"	Gurdjaani, st.Koroglishvili 38 (kotekhi)	Irakli Bekauri	899 946404

**Kakheti Region - Telavi District**

10	JSC "Shumi"	Telavi, vill Tsinandali, st. Leonidze 33	Gjumber Batiashvili	899 585433
11	LLC "Tiki"	Telavi	Davit Dolmazashvili	899 567278
12	LLC "Winemen"	Telavi, st. Gelovani 2 ("Tsinandlis marani)	Konstantin Gagua	899 254959
13	JSC "Georgian Wine Corporation"	Telavi, vill Tsinandali	Misha Khundadze	899 580007
14	JSC "Okami"	Telavi (vill Saniore")	Lado Shatirishvili	877 100200
15	JSC "Telavi Wine Cellar"	Telavi, vill Kurdgelauri	Zurab Ramazashvili	877 410020
16	LLC "Tsinandli Wine Cellar"	Telavi, vill Tsinandali	Simon Chichiashvili	899 549393
17	LLC "Vazi +"	Telavi, vill Artana	Bachana Khalvashi	899 519656
18	LLC GWS	Telavi, vill Achinebuli	Gogita Bregvadze	877 221000
19	JSC "Teliani Valley"	Telavi	Misha Tskhvediani	877 982020

**Kakheti Region - Kvareli District**

20	LLC "Kindzmarauli - XXI"	Kvareli, vill Shilda	Paata Archvadze	899 505482
21	LLC "Guguli"	Kvareli, vill Akhalsofeli	Bidzina Djavelidze	899 502403
22	LLC "Georgian Wines"	Kvareli	Mamuka Gvalia	899 910864
23	JSC "Tbilgvino"	Kvareli, vill Shilda	Zurab Margvelashvili	899 565929
24	JSC "Kindzmarauli" Corporation	Kvareli, st. Chavchavadze 55	Kakhaber Konchoshvili	877 551054
25	JSC "Sarajishvili"	Kvareli, vill Eniseli	Dato Abzianidze	899 202029

**Kakheti Region - Lagodekhi District**

26	LLC "Baisubani's Wine Factory"	Lagodekhi, vill Baisubani	Ziuli Robitashvili	899 505139
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**Kakheti Region - Akhmeta District**

27	LLC "Palavani"	Akhmeta	Anzor Kibrocashvili	899 506363
28	LLC "Badagoni"	Akhmeta, vill Zemo Khodasheni	Paata Darcmelia	877 997997

**Kakheti Region - Sagaredjo District**

29	JSC "Manavi"	Sagaredjo, vill Manavi	Guram Bibiluri	899 506516
30	LLC "Napareuli - XXI"	Telavi, vill Napareuli, Badiauri (Sagaredjo)	Sasha Iakubov	877 410226
31	LLC "Dugladze's Wine Company"	Telavi an Sagaredjo, vill Khashmi	Zaza Dugladze	899 982222

**Kakheti Region - Signagi District**

32	LLC "Traditional Kakhetian Winemaking"	Kvareli, st. Konstitucis 18	Zurab Chkhaidze	899 515533
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**Tbilisi**

33	LLC "Tifliski Winni Pogreb"	Tsageri, vill Tvishi (Tbilisi, Lilo, st. Iumashev 27)	Zurab Zarnadze	899 530380
34	LLC "Tbilisi Wine Cellar"	Tbilisi, Lilo, st. Iumashev 27	Davit Akhvlediani	899 569238

**Racha - Lechkhumi Region**

35	LLC "Racha Wine"	Ambrolauri, vill Chrebalo	Omar Chelidze	899 552233
36	LLC "Khvanchkara"	Ambrolauri, vill Bugeuli	Ramaz Bluashvili	899 506014

Source: GWA and Ministry of Agriculture

## CROSS-CUTTING THEMES

While there may be few constraints to attracting investment, setting up the initial investments may be constrained by the lack of technology available to the wine industry. Technology is needed to improve wine processing to improve the quality and quality consistency of wine, and also to test grape quality even before harvest. The goal is to attract investment and target the cross-cutting link between investment promotion and the wine industry.

It is also likely that this value chain will have a direct, positive impact on the wine tourism value chain. By increasing and expanding the wine quality and consistency, crucial to the wine sector, wine can become the main drink sought by tourists in Georgia.

Agriculture is among the top priorities for the GoG, and the wine industry accounted for 70 percent of all agricultural commodity exports prior to the Russian embargo. In addition, tourism is becoming one of Georgia's key economic drivers and priorities. Wine tourism is an increasingly popular segment of the tourism sector, and will be strongly encouraged and supported. There are numerous positive linkages between wine production and wine tourism.

It is to be noted that the wine value chain can hold many opportunities for youth, as the industry is experiencing a shortage of personnel with modern educational backgrounds in winemaking. The value chain also has the ability to attract a broader workforce, and presents major job opportunities for women.

GIZ implemented multi-year programs assisting the industry by establishing one of the first modern quality tasting laboratories. This was followed by several technical assistance initiatives. The World Bank assisted IVOH by fully upgrading their laboratory with all necessary high-tech equipment.

## **STRATEGIC ENTRY POINTS AND RECOMMENDATIONS**

Georgia has a wealth of natural resources ideal for wine grape growing, and a millennia-old winemaking tradition. Its winemaking sector has substantial opportunity for sustained growth. The unique indigenous grape varieties are ideal for making both white and red wines. The fact that Rkatsiteli is a leading cultivated grape variety globally adds to the claim that Georgia has all relevant natural resources for wine production. The cheap, self-initiated, intensive labor force is another favorable factor for development of the industry.

The current managerial shortcomings of the companies and the need for new expertise in wine making and marketing are acknowledged by all wine stakeholders. These shortfalls must be improved through gradual acquisition of modern wine making practices and sufficient expertise of western wine taste, the key to understanding the demand structure of the targeted western markets.

Incomes will increase substantially when Georgian wines get more recognition in western markets. To achieve sufficient quality improvements, the industry should acknowledge the need to focus more on western taste priorities and quality requirements. As claimed by western experts, the semi-sweet, clay pot fermented, long macerated, tannic (white and red), and often oxidative styles that appealed to the Russian markets simply do not work for western palates. On the other hand, Georgian companies should work hard to make western consumers discover and get used to specific Georgian wine taste, helping Georgian wine to retain some identity and character that makes it Georgian and stand out from wines from the rest of the world. For instance, the unique winemaking method called Kvevri wines has great opportunity to be further promoted as a new wine experience to the western consumer eager to discover new wine palates. This could become a key marketing tool for raising global recognition of Georgian wines.

There are multiple ways in which EPI can assist the wine value chain in Georgia. EPI could assist with the marketing of Georgian wine to various markets in many ways, such as working with key foreign wine buyers/distributors to increase recognition and presence of Georgian wines at their markets. This could be jointly initiated and coordinated by EPI and the GWA. EPI could also hire an international marketing agency to promote Georgian wine in foreign markets or could bring on an expert to do so. Marketing could also be done by

providing partial or full financial assistance to the participation of a Georgian delegation at international wine fairs and/or conferences.

EPI can also help Small and Medium Enterprises (SMEs) and other firms to build capacity in winery management. Strengthening their management styles and their organizations is necessary. Capacity building and management trainings might be mechanisms through which to target this gap within the wine value chain. EPI could assist with these trainings. Training wine operators to host tourists, a potential a point of collaboration with the wine tourism value chain, would be beneficial for the wine value chain itself.

# CONTACT DETAILS FOR VALUE CHAIN ACTORS

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Mariam Khositashvili	Head of IVOH Oenology and Biochemistry Division	523011 893 982357	<a href="mailto:office@ihvo.org.ge">office@ihvo.org.ge</a>
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# NON-AGRICULTURAL VALUE CHAIN ASSESSMENTS

ANNEX 9	APPAREL VALUE CHAIN ASSESSMENT
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# ANNEX 9: APPAREL VALUE CHAIN ASSESSMENT

## ABSTRACT

Georgia has a rich history in the apparel and textile sectors – dating back to Soviet times – but with the collapse of the Soviet Union, Georgia’s apparel sector also collapsed. Recently, Georgian firms have been re-entering the apparel sector, some by upgrading out-dated machinery and others by importing modern machines/new technologies for the purposes of supplying the local market (mainly tenders in the government and private sectors) and export markets. Mostly, these investments and subsequent outputs have been small. However, coupled with Turkish investments, and an apparent skills base (albeit aging) to draw from, Georgia has a unique opportunity to increase overall investment in the sector, upgrade skills, increase production, expand end-market linkages, and over time, substitute imported inputs from Turkey.

This report assesses the apparel value chain in Georgia and discusses its viability as an industry that, with proper support and coordination, can grow and create new investments, new businesses, employment, and substitute for import.

## ABBREVIATIONS

CCZ	Customs Clearance Zone
CMT	Cut, Make, Trim
EPI	Economic Prosperity Initiative
GoG	Government of Georgia
ITC	International Trade Center
MOU	Memorandum of Understanding
UNCTAD	United Nations Conference on Trade and Development
USAID	U.S. Agency for International Development
WB	World Bank
WTO	World Trade Organization

# EXECUTIVE SUMMARY

Georgia has a rich history in apparel production dating back to Soviet times. Lacking market-based principles and no longer able to produce for the Soviet bloc countries, the Georgian apparel and textile markets collapsed, along with the break-up of the Soviet Union. Factories closed, the buildings were privatized, and workers were laid off. The equipment necessary for industrial production is no longer available, as some was sold and other machinery damaged. Although the passion and skill for hand-made garment production remains in pockets of the country, hand-made garment production has not been produced on an industrial scale in over 20 years.

Over time, entrepreneurs wishing to revitalize the sector purchased old machines and physical plants and restarted Cut, Make, Trim (CMT) production of apparel for domestic markets. Concurrently, Turkish investors interested in cheaper labor and energy costs and looking to outsource production, turned to the Adjara region of Georgia and began setting up plants there.

To date, Georgia has more than 200 apparel manufacturing companies, about 95 percent of which are micro-enterprises. Approximately 15 of them employ more than 40 people; four of which are Turkish investments based in Adjara and one is a significant Georgian investment in Kutaisi. Combined, these firms employ approximately 5,000 workers; 85 percent of whom are women.

However, Georgia is a net importer of apparel goods. In 2010, Georgia imported USD 120,476,00 compared to exported values estimated at USD 27,952,000.

Georgia's apparel value chain is geographically concentrated in three regions of the country:

- Georgian-owned/-operated apparel manufacturers based in or near Tbilisi. These mostly serve the domestic government and private sector custom order market;
- One Georgian-owned/-operated manufacturer in Kutaisi
- Four larger, Turkish owned apparel manufacturers found in the Adjara region of Georgia. These firms are considered vertically integrated producers for their Turkish parent companies and export 100 percent of their production to Turkey.

Inputs are almost entirely imported from outside of Georgia, primarily from Turkey. However, packaging materials may be sourced from within Georgia.

According to apparel manufacturers in Tbilisi, Georgia's production has trended upward since 2006. However, to ascertain the potential of the market and to identify key opportunities and constraints, EPI carried out a value chain assessment. Table 1 highlights EPI's (subjective) assessment of the potential competitiveness of the Georgian apparel value chain. Ranking from a scale of 1 (low) to 4 (high), this table is an assessment based on available data, interviews, expressed stakeholder interest, and the experience of the assessment team.

Competitiveness Potential	Impact Potential	Industry Leadership	Cross-Cutting Linkages	Overall Comments and recommendations
				Average 3.0. Recommended for inclusion

### *Possible Activities*

Based on these findings, EPI sees an excellent opportunity to support the development of Georgian-produced apparel, and eventually, other Georgian-produced products. Production of textiles differs from the apparel business, as it requires investment and specific know-how that apparel does not. To support the development of the Georgian apparel value chain, the following activities are recommended for further exploration:

- Improving workforce skills
- Developing an action plan for growth of the value chain
- Promoting investment in Adjara and Guria Regions
- Improving the local business environment to support substantial new investment
- Improving horizontal linkages for improved productivity, economies of scale, and cost sharing
- Improving market linkages by encouraging information-sharing

### *Recommended Next Steps*

EPI should proceed with the action plan development process - expanding its dialogue with value chain actors to develop and implement an apparel sector development action plan. With proper support, EPI believes that the apparel value chain can draw new investments, spur new business creation, and generate employment opportunities, exports, and opportunities for import substitution.

# INTRODUCTION

## Background

Georgia has a rich history in the apparel and textile sectors, dating back to Soviet times. During those times, textile and apparel manufacturing was relatively developed compared to other Soviet Republics. According to interviews with existing manufactures in Tbilisi, about a third of Georgia's state budget was generated from textile and apparel manufacturing. Georgia provided up to 60 percent of USSR's apparel. After the collapse of the Soviet Union, Georgia's textile and apparel sectors fell on difficult economic times - almost all manufacturers in these sub-sectors stopped operating.

After Georgian independence, Georgian entrepreneurs, wishing to return to a sector they were skilled in, began refurbishing old factories, purchasing state-owned inventory, and engaging in cut, make, trim (CMT) activities for the local market. Around the same time, Turkish investors, interested in the cheaper labor, low energy costs, attractive business environment (including GSP+ with EU, tax and customs regimes) found in Georgia, and the proximity to Turkish borders, began investing in CMT apparel manufacturing in the Adjara region of Georgia. Presently there are four Turkish-owned/-operated plants in the region, with others planned to open.

Although the sector was developed in the country and people were skilled in cutting, sewing, and knitting, there still remains a need for skills development in the workforce. This is partially because new technologies have been introduced, there are new trends in the apparel sector, and mass production requires different knowledge than just cutting and sewing.

Georgian investments and subsequent output have been small. However, coupled with Turkish investments, and an apparent skills base (albeit aging) to draw from, Georgia has a unique opportunity to increase overall investment in the sector, upgrade skills, increase production, expand end-market linkages and over time, substitute imported inputs from Turkey.

## Methodology

To assess the viability and competitiveness of the Georgian apparel CMT sector, the EPI team conducted a value chain assessment. The assessment process commenced with a desk review. Documents were gathered from government statistics on imports, exports, production, and economic contribution; the United Nations Conference on Trade and Development (UNCTAD)/World Trade Organization (WTO) sponsored International Trade Center's (ITC) TradeMap and COMTRADE web portals; and other available industry reports. After initial field visits and a document review, the EPI team developed a value chain map to describe and assist in identifying actors along the chain. A Georgian and an international expert then conducted interviews with apparel and textile value chain actors to understand their business models, production volumes, markets, costs and prices, anticipated investments, and opportunities and constraints when operating in the Georgian apparel value chain.

These acquired data points were then synthesized and analyzed to make judgments on the competitiveness potential, impact potential, industry leadership, cross-cutting linkages, and overall impressions on the viability of the apparel sector as a possible value chain in which to focus technical support within the EPI project.

Interviews were conducted in Tbilisi, Kutaisi, and throughout the Adjara region, with the goal of meeting as many actors along the value chain as possible. Value chain actors surveyed included two apparel producers (both of which also produce textiles), the input supply market in Lilo, and an investment association in Batumi.

Within these firms, company executives were targeted when interviewed. A contact list of those interviewed is included at the end of this report.

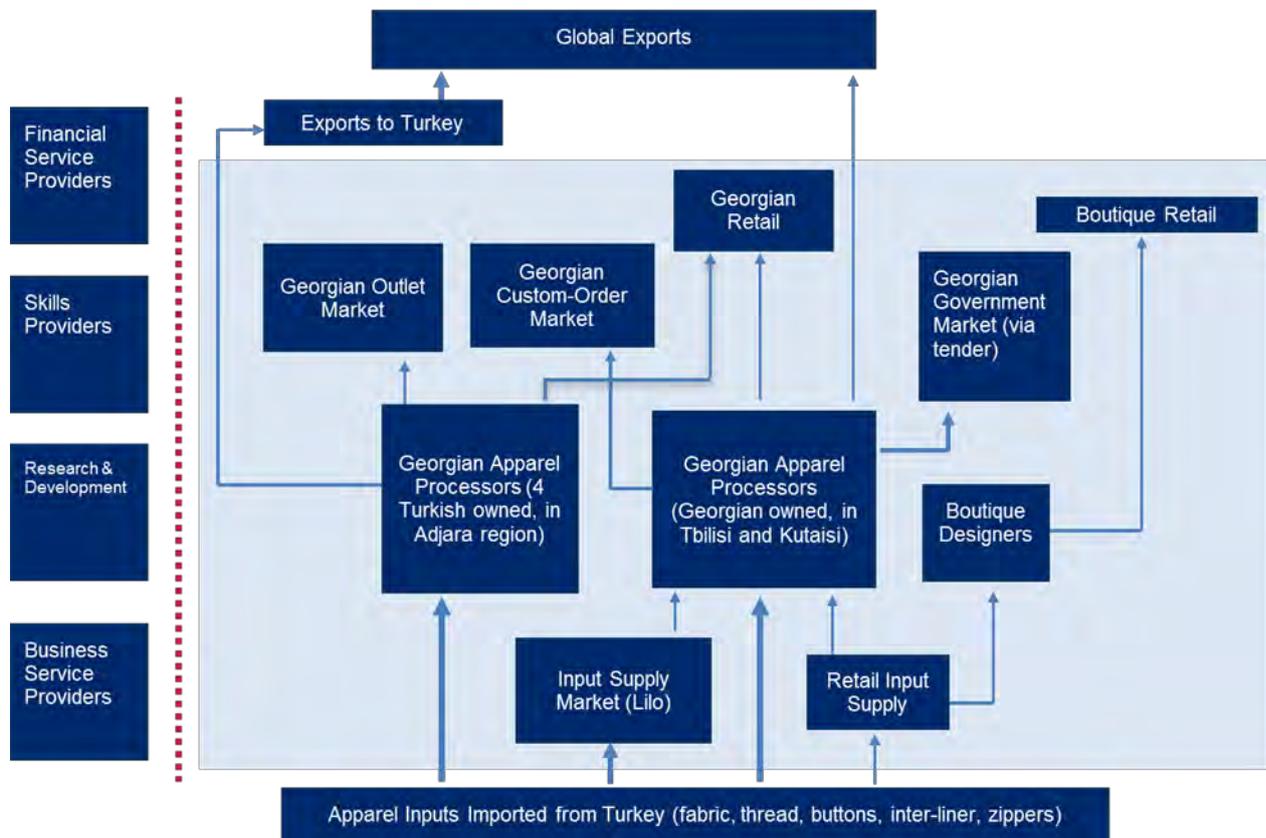
# OVERVIEW OF THE APPAREL VALUE CHAIN

## Summary

Main Products/Services	T-shirts, shirts, jackets, trousers, coats, sweaters, sport clothes, socks, textiles (very little quantity)
Key Markets Served	Turkey, UK, Germany, Ukraine, and the local Georgian market
Local Production	Unknown at present
Consumption	Unknown at present
Exports	2010: USD 27,952,000 Million
Imports	All the inputs including machinery, textile, zippers, boxes, hangers, buttons mainly from Turkey.
Revenues	Unable to determine at this time.
Employment	In Adjara (4 companies): approximately 3,000 employees In Kutaisi (1 company): 450 employees In Tbilisi (9 companies with at least 40 employees/company): approximately 1,500 employees Total: approximately 5,000 employees
Positioning	Local Apparel Companies: <ul style="list-style-type: none"> <li>a. Exporters (in Adjara, Kutaisi, and Tbilisi) – quality for international brands like Puma, Lotto, Marks &amp; Spencer, Lebeck, etc.</li> <li>b. Tender sales (Tbilisi) – local apparel companies supply in the government and private sectors</li> <li>c. Georgian designers' boutique shops (Tbilisi) – high quality and price cloths for individuals</li> </ul>
Key Processes	Cut, Make, Trim (CMT), made to order, boutique high-end fashion

## Apparel Value Chain map

EPI developed the following value chain map to depict the vertical and horizontal actors in the chain, along with representative supporting services. Those functions found within the light blue box are the core value chain functions found within Georgia, all other functions reside outside of Georgia. The functions on the left are supporting functions for the value chain, both inside and outside of Georgia. Following the map are descriptions of each function within the value chain.



### Apparel Value Chain Actors

#### Input Supply

According to GEOSTAT, there are more than 20 textile manufacturers in the country. However, upon further investigation, most of these firms produce textiles that are not used in apparel manufacturing. These firms produce drapes, upholstery, tablecloths, and other textiles. EPI was able to identify two textile producers who make knit fabrics from wool and wool blends, but these textiles are generally not used for production by most firms. Instead, they are used by those firms for source material in their own production (sweaters, uniforms, and ladies garments), are of lower quality, and sold on the local market. With no other locally produced inputs for the apparel sector (textiles and accessories) almost all are imported from Turkey, with a smaller percentage of textiles sourced from China.

These inputs enter Georgia via two main routes, directly to the apparel producers in Batumi, Kutaisi, and Tbilisi, and via road to the Lilo Market (a bazaar).

The Lilo open market is the largest place for traders and retailers of cloth and textile products in Georgia. The traders mostly import the products from Turkey and China. Many individuals go to this place to shop for everyday cloth, textiles, and for example curtains for their home. Some apparel companies buy inputs (zippers, buttons, different textile materials, etc.) in Lilo when they need to get inputs in a very short time of period rather ordering from Turkey. In Lilo, there are a small percentage of clothes made in Georgia (jackets, blouses, coats, shirts).

In addition to Lilo, there are small retail seamstress and tailor supply shops that provide small amounts of inputs to smaller producers and designers in Tbilisi. However, Lilo is still the main input materials market in the country because of the large choice of inputs and low prices compared to those small retailers in Tbilisi.

Outside of these two markets, firms in Adjara import their inputs directly from Turkish suppliers, as stipulated by their Turkish parent companies.

Textiles and accessories are not the only inputs imported from Turkey. Most firms also import hangers, boxes, labels, and all other packaging material from outside of Georgia. The EPI team surveyed apparel companies to determine if there was a willingness and interest to source packaging material locally, and for the most part, there was an overwhelming desire to do so (to drive down operational costs). In a few instances, some firms would still be required to import hangers and labels from Turkish distributors because of end-market buyer requirements and standards.

### *Apparel Producers*

Today, about 200 firms operate in the apparel sector, from which only two are involved in textile manufacturing with very low volumes. These firms are mainly located in Tbilisi (and its surroundings), Batumi, and Kutaisi cities.

The majority of these firms are located in the capital city. The local demand for employees' uniforms from the government and private sectors has increased demand in the market. In January 2011, EPI met eight firms in Tbilisi. These firms were selected based on number of employees (minimum 40 and maximum 380 employees). These firms in total employ about 1,200 people in Tbilisi. Their main products are uniforms: military clothes, police clothes, state security clothes, trousers, jackets, shirts, and sweaters. The products are price-competitive enough to meet the government standards in tenders' requirements, which emphasize low cost. Most of them have modern sewing and cutting machines imported from Turkey, Germany, Japan, and China. They import inputs (textile, zippers, buttons, etc.) mainly from Turkey and China.

In addition to the manufacturers selling their products through the government tenders, there is a newly opened apparel company –“Laura Gachava” in the Lilo district, which has invested a substantial sum, which has a different strategy from the above companies. The company does not participate in Government tenders, as its vision is different from other apparel companies in Tbilisi. The company is planning to create its own brand, –“Laura Gachava,” and work in local and international markets. Laura Gachava plans to focus on exporting its products to Ukraine, France, and EU markets.

The four large manufacturers in Adjara region are Turkish investments. Turkish firms, in this context, view Georgia not only as a low-cost producer, but also as an export base that can provide access to consumer markets such as Russia, the US, and the EU. About 95 percent of their production is exported to their parent companies in Turkey, and then from Turkey to the EU markets. The end buyers include Marks & Spencer, Puma, Zara, Lotto, and others. The production consists of t-shirts, sportswear, shirts, blouses, etc. In total, these companies employ about 4,200 people (90 percent women). Cheap labor (which at GEL 250/month is about half the cost of Turkey's, at about GEL 530/month), inexpensive land, the country's geographic location, no tariff on imports and exports with Turkey, cheaper electricity (which at GEL .117 per Kw/H in Georgia is about half that of Turkey's at GEL .221) and Georgia's favorable business environment are the main drivers for Turkish investors starting business operations in Adjara. All the input materials come from Turkey, including boxes and hangers. With the exception of these Turkish investors, all the apparel industry investments are private Georgian investments.

In Kutaisi, one firm, a Georgian investment that employs 450 workers, manufactures and exports the product to its partner, "Lebeck", in Germany. Their main products are women's coats, dresses, trousers, and shirts. All their inputs come from Lebeck. The company also sells its product in the local market in Kutaisi and Tbilisi clothes shops.

#### *Textile Producers*

Two textile producers, located in Tbilisi, produce a small volume of textiles using old machinery with some modern (Italian and German) elements. They use their textile production as inputs for mainly uniform (sweaters) tenders announced by the government and the private sector. According to the owners, there is a huge demand for other types of textile products in the market. They also believe that if they had upgraded machinery, they could produce these textiles at costs lower than Turkish competitors, not only giving them a competitive advantage to sell locally, but also to export to Azerbaijan (which also sources similar textiles from Turkey). However, to produce these high thread count textiles, the companies would need to add new coloring, washing, and weaving machines. The firms estimate these machines to cost an additional USD 300,000 to start each new line. Both firms see a market opportunity to supply locally produced knit textiles and have a desire to do so, but with limited collateral and expensive debt financing, they have been unable to raise the requisite capital to make these investments.

#### *Boutique Designers/Producers*

There is a growing fashion market in Georgia consisting mostly local designers who have their own boutique shops. Their target customers are people with high incomes. They design and make their own products in Georgia. Laura Gachava manufactured a variety of clothes (dresses, trousers, shirts) for Georgian designers for Georgian Fashion Week, held in December 2010. Some of these designers have plans to work on mass production as well, and to export their products. According to the Georgian designers, the main barrier to starting mass production of their fashion apparel is a lack of people with professional skills in the field. Mass production of everyday apparel requires competency in visual merchandise, quality control management, production process management, and marketing. According to Tamuna Ingorokva and Avtandil Tskvitinidze, Georgian fashion designers, although there are 10 to 15 state-owned professional colleges in the country that offer courses that prepare students for a job in apparel manufacturing companies or to open their own firm, there is no

learning center in the country where people can gain the specific and contemporary knowledge that Georgian fashion designers need to manufacture their designed clothes in large quantities.

*Georgian Wholesale and Retail Market* - Garments sold in the local wholesale and retail market are mostly imported products. The local markets are retail shops and shopping centers in Tbilisi, open markets in Vagzali area, and Lilo. The products are imported primarily from Turkey, as well as from India, China, EU, and Asian countries. However, a very small percentage of locally made products made by very few apparel manufacturers are sold in Lilo and retail shops in Tbilisi. In Adjara, at least one firm, Batumi Textile (the Turkish investment) has its own retail shop with a variety of clothes for women and men. The prices are competitive compared to other retail shops in the country. At the beginning of this year, they began selling clothes in Goodwill Hypermarket in Digomi, Tbilisi.

*Georgian Government Market* - The Georgian police, Ministry of Defense, Ministry of Finance, Ministry of Environment, and many other government organizations purchase uniforms via tender for their employees each year. Local apparel manufacturers produce primarily in response to these tenders, producing and supplying the uniforms. This growing market has been the largest sales opportunity for local producers for the last five to seven years.

*Georgian Custom Order Market* - In addition to the Government tenders, Georgian apparel companies supply uniforms to the private sector via custom orders. The main buyers are hotels, restaurants, banks, fuel stations, and other companies. Today, this market is smaller compared to the Government tenders as the Government has been the largest buyer for uniforms in the country. However, according to the local apparel producers in Tbilisi, this custom order market seems to be growing.

### *Support Services*

*Financial Institutions* - According to the interviews with apparel companies, financial services for the apparel sector are the same as for companies in other sectors. Business loans are available at private banks for companies. However, most of the apparel companies invest their own money in their business because of the high interest rates and bank collateral requirements.

*Skills Development* - There is a state owned professional teaching center in Adjara that provides training on cutting and sewing, called "Batumi Professional Training (teaching) Centre". It offers professional training courses of three, six, and nine months, with two separate tracks. The first track trains individuals in line manufacturing, and the second trains them as tailors.

*Research and Development* - There are no research and development organizations in the apparel sector.

*Business Development Services* - There are no business development services directly supporting the apparel sector in Georgia, however, export-oriented companies typically bring international consultants in for production process and quality control.

*Supporting Associations* - There are no supporting associations in the sector, however, there is an International Investors Association in Batumi that unites about 25 Turkish companies

that established investments in Adjara. The association represents the interests of investors and works closely with the Georgian government to further improve the investment environment.

*Government Institutions* - The same taxes apply to the apparel sector as those that apply in other business sectors; in other words, there are no special incentives or subsidies for apparel companies. A Gold List has been developed by the GoG for companies that import goods valued at more than GEL 5 million and have a history of paying their taxes on time. The advantages of being on this list include:

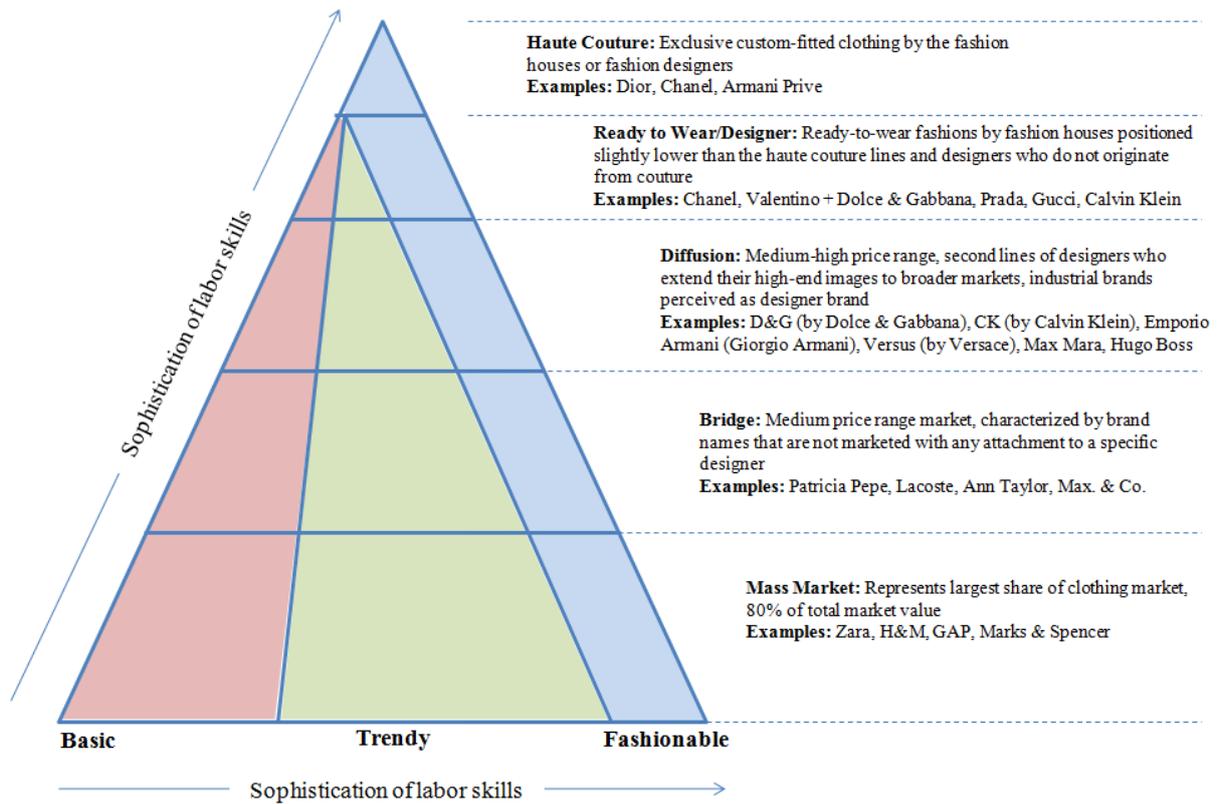
- E-Filing: Traders can submit customs declarations and documents through the internet
- Customs Clearance at the Premises of the Traders: Traders do not need to take the goods from the border to the customs warehouse or to the CCZ
- Low Percentage of Physical Inspections: Only one to two percent of cargo is physically inspected, as compared with six to seven percent of non-Gold List cargo.

## COMPETITIVENESS POTENTIAL

Figure 2 shows the country's production trend from 1999 to 2010. It is important to note that this figure does not reflect an accurate picture of the sector, as it includes produced textiles which are not used for clothing. Georgia's largest international end markets are Turkey, followed by Germany and the United Kingdom (as reflected in Figure 3). The Adjara-based companies produce clothes for international brands such as Puma, Lotto, Marks & Spencer, and Lebeck.

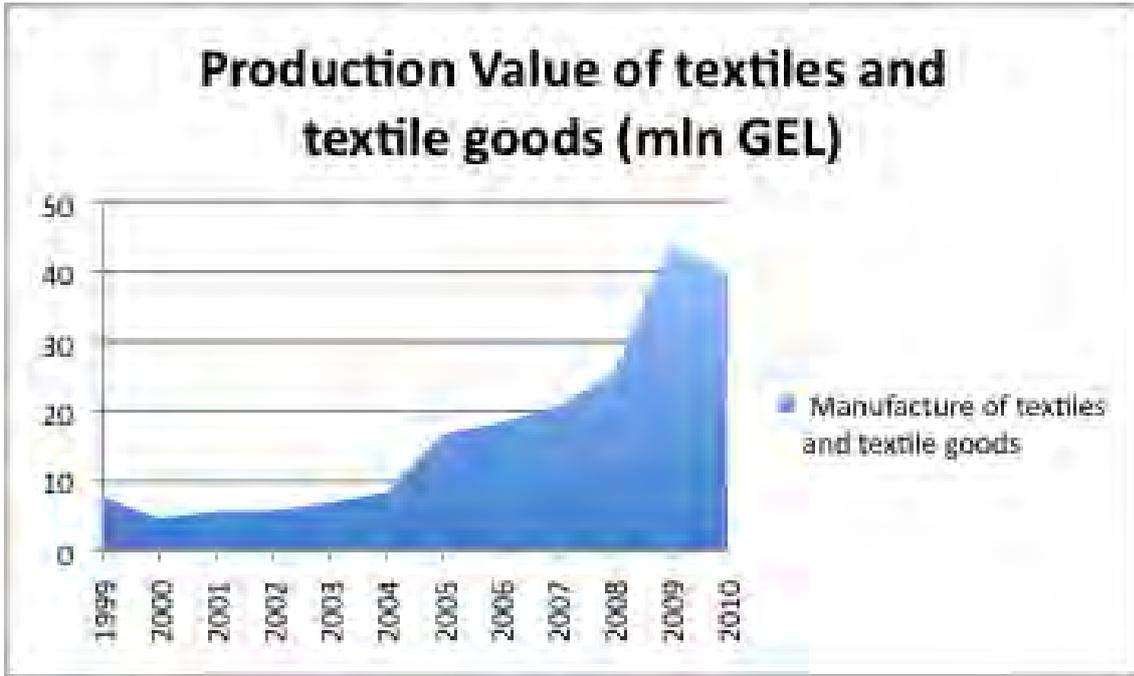
Figure 1 below depicts the segmentation of the apparel market globally.

**Figure 1: Global Apparel Market Segmentation**



Barriers to entry for Georgia are high at the top of the pyramid. Although outsourcing in this market space has increased in basic products in order to achieve lower cost, quality still matters in the “Haute Couture” brands; and these firms also have concerns about know-how leakage, limiting outsourcing of trendy and fashionable products to lower-cost countries. Georgia’s opportunity lies primarily in the mass-market brands; and in fact the Adjara-based companies produce clothes for international brands in this market space - such as Puma, Lotto, Marks & Spencer, and Lebeck.

**Figure 2: Georgian Production Value (million GEL) for textiles and textile goods (including apparel) 1999-2010**



Source: ITC, TradeMap

**Figure 3: Map of Georgia's Global Apparel Exports in 2010**

List of importing markets for a product exported by Georgia in 2010

Product : 61 Articles of apparel, accessories, knit or crochet



Despite the trend of increased annual production, exports have been driven by companies working in Adjara and Kutaisi, as well as Tbilisi. Adjara's exports in 2010 were concentrated in four firms: BTM Textile (about 31 percent), Batumi Tex (28 percent), Adjara Textile (21

percent), and Georgiana Textile (19 percent). Georgia is a net importer of apparel<sup>12</sup> (Table 1). In 2010, Georgian production declined slightly.

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<sup>12</sup> Ibid

**Table 1: Georgian Apparel Trade Statistics for 2009 (TradeMap)**

Industry	Exports in value in thousands	Exports as a share of total exports (%)	Exports as a share of world exports (%)	Growth of exports in value (%) p.a.)	Growth of exports in volume (%) p.a.)	Growth of share in world exports (%) p.a.)	Number of exported products	Share of top 3 exported products (%)	Share of top 3 export markets (%)	Net trade
<b>Product Category 61 Articles of apparel, accessories, knit or crochet</b>										
6109 T-shirts, singlets and other vests, knitted or crocheted	3,777	0.3	0.01	147		145	2	100	96.6	970
6104 Women's suits,dresses,skirt etc&short, knit/croch	1,616	0.13	0.01	52		33	8	86.8	96.1	526
6106 Women's blouses & shirts, knitted or crocheted	673	0.05	0.01	147		149	2	100	98.1	332
6110 Jerseys, pullovers, cardigans, etc, knitted or crocheted	664	0.05	0	143		139	4	99.7	97.6	-1,550
6103 Men's suits jackets,trousers etc&shorts, knit/croch	471	0.04	0.01				3	100	100	-226
6112 Track suits, ski suits and swimwear, knitted or crocheted	343	0.03	0.01				2	100	100	199
6115 Panty hose, tights, stockings & other hosiery, knitted or crocheted	216	0.02	0	283		275	2	100	100	-4,500
6108 Women's slips,panties,pyjamas, bathrobes etc, knitted/crocheted	93	0.01	0	-23		-25	1	100	100	-180
6105 Men's shirts, knitted or crocheted	15	0	0	39		32	1	100	100	-271
6117 Clothing accessories, knitted/croch	9	0	0	-12		-8	1	100	100	-545
6114 Garments, knitted or crocheted, nes	3	0	0				1	100	100	-1,002
6111 Babies' garments, knitted or crocheted	1	0	0	-55		-59	0	100	100	-503
6107 Men's underpants,pyjamas,bathrobes etc,knit/croch	1	0	0				0	100	100	-181
6101 Men's overcoats,capes,etc, knitted/crocheted,o/t of hd 61.03	1	0	0				0	100	100	-86
6116 Gloves, mittens and mitts, knitted or crocheted	0	0	0				0	0	0	-763
6102 Women's overcoat,cape, etc,knitted/crocheted,o/t of hd 61.04	0	0	0				0	0	0	-145
6113 Garment,made up of knitted/crocheted fabric of hd no 59.03,06,07	0	0	0				0	0	0	-10
<b>6100 All industries in sector 61</b>	<b>7,883</b>	<b>0.62</b>	<b>0.01</b>	<b>80</b>		<b>75</b>	<b>27</b>			<b>-7,935</b>
<b>Product Category 62 Articles of apparel, accessories, not knit or crochet</b>										
6204 Women's suits, jackets,dresses skirts etc&shorts	12,574	0.99	0.03	28		29	21	34.5	88.9	8,215
6206 Women's blouses & shirts	5,037	0.39	0.05	77		73	3	100	93.4	3,872
6203 Men's suits, jackets, trousers etc & shorts	1,175	0.09	0	39		39	6	98.4	97.7	-1,607
6202 Women's overcoats,capes,wind-jackets etc o/t those of hd 62.04	941	0.07	0.01	16	5	8	3	100	95.4	6
6205 Men's shirts	425	0.03	0	149		149	2	100	99.8	-901
6208 Women's singlets, slips, briefs, pyjamas, bathrobes etc	42	0	0				1	100	100	-224
6212 Brassieres,girdles,corsets,braces,suspenders etc&parts	34	0	0	48		46	2	100	100	-237
6201 Men's overcoats, capes, windjackets etc o/t those of hd 62.03	31	0	0				1	100	100	-910
6211 Track suits, ski suits and swimwear; other garments	22	0	0				1	100	100	-1,111
6214 Shawls, scarves, mufflers, mantillas, etc	21	0	0	43		32	1	100	100	-280
6217 Clothing accessories nes; o/t of hd 62.12	8	0	0				1	100	100	-574
6207 Men's singlets, briefs, pyjamas, bathrobes etc	8	0	0	68		77	1	100	100	-142
6210 Garment made up of fabric of heading no 56.02,56.03,59.03,59.06/59.07	1	0	0				0	100	100	-968
6209 Babies' garments and clothing accessories	1	0	0				0	100	100	-359
6216 Gloves, mittens and mitts	0	0	0				0	0	0	-221
6213 Handkerchiefs	0	0	0				0	0	0	-56
6215 Ties, bow ties and cravats	0	0	0				0	0	0	-29
<b>6200 All industries in sector 62</b>	<b>20,320</b>	<b>1.59</b>	<b>0.01</b>	<b>35</b>		<b>34</b>	<b>43</b>			<b>4,474</b>
<b>Total Apparel Exports Prod Category 61 &amp; 61</b>	<b>28,203</b>	<b>2</b>	<b>0</b>	<b>115</b>		<b>109</b>	<b>70</b>		<b>0</b>	<b>-3461</b>

Source: International Trade Center: www.trademap.com 2009

The picture of Georgia’s enabling environment for the apparel industry is a mixed one which includes lower comparative operating costs, a favorable investment climate and tax regime, and open cross-border trade. On the other hand, Georgia also has lower productivity per employee (compared to Turkey and several other apparel producing countries), outdated technology in Georgian-run apparel companies, negligible locally sourced inputs, poor market intelligence, and is threatened by the risk that GSP+ will not be renewed in 2012. These characteristics will be discussed in this section.

### *Lower Comparative Unit Operating Costs*

According to interviews with Turkish investors and Turkish-run apparel companies in the Adjara region, Georgia has two distinct cost advantages over similarly outfitted factories in Turkey: lower labor costs and lower energy costs. As discussed earlier, both are, on average, about half of the cost in Georgia than in Turkey.

### *Favorable Investment Climate and Tax Regime for Foreign Investors*

Georgia is widely recognized as an easy place to start a business. In the 2011 Doing Business Report, Georgia’s World Bank Doing Business ranking for Starting a Business was eight and its ranking for Protecting Investors was 20. Similarly, Georgia improved its ranking in Getting Credit and Protecting Investors.

Turkish investors have benefited greatly from these reforms and continue to show interest in new investments in Georgia. The Turkish firms that exist in the country now, all believe that the favorable investment climate, tax regimes, and improvements at the border make it easy for them to operate in the country. All these companies are growing and have plans for expansion. Several also mentioned that other Turkish investors seek their advice regarding future prospects in Georgia, and as a result they expect new investments in FY 2011 from new entrants.

As part of this study, the EPI team conducted an analysis of Turkey vs. Georgia as an apparel production base. The findings are summarized in the table below.

**Table 3: Turkey vs. Georgia as an Apparel Production Base**

	<b>Turkey</b>	<b>Georgia</b>
<b>Costs</b>		
<i>Labor</i>	<ul style="list-style-type: none"> <li>Gross minimum wage: 605 USD/month<sup>13</sup> (including all taxes) + cost of meals, transportation, etc.</li> </ul>	<ul style="list-style-type: none"> <li>Gross wages (including benefits such as meal, transportation, health insurance as well as taxes):               <ul style="list-style-type: none"> <li>Minimum: 150 USD/month.</li> <li>Average is 250 USD/month</li> <li>Maximum wage 400 USD/month</li> </ul> </li> </ul>

<sup>13</sup> Based on USD 1: TL 1.6

<i>Electricity</i>	• 0.146 – 0.154 USD/kwh <sup>14</sup> (incl. all taxes)	• 0.065 USD/kwh <sup>15</sup> (incl. taxes)
<i>Natural Gas</i>	• 0,36 – 0,46 USD /m <sup>3</sup> (incl. VAT) <sup>16</sup>	• 0.43 USD /m <sup>3</sup> (inc. taxes)

### Taxes<sup>17</sup>

	<ul style="list-style-type: none"> <li>• Corporate Tax: 20%</li> <li>• Advance Corporate Taxes: 20% (paid quarterly and can be deducted from corporate taxes)</li> <li>• Personal Income Taxes: 15-35%</li> <li>• Withholding Tax: Dividends distributed to resident individuals, non-resident individuals and non-resident legal entities by a Turkish resident company is subject to 15% (the WHT on dividend can be reduced to 5 or 10% pursuant to applicable double tax treaties)</li> <li>• Stamp Duty: Wages (0,66%), Contracts (0,825%) and Lease Contracts (0,165%)</li> <li>• Social Security Employer Premium: %21,5</li> <li>• VAT: 18% (VAT is 8% on apparel products. However, if a company buys inputs for apparel production and pay 18% VAT on these inputs, as the finished goods are sold with 8% VAT, the difference paid can be offset against tax and social security liabilities)</li> </ul>	<ul style="list-style-type: none"> <li>• Corporate Income Tax: 15%</li> <li>• Personal Income: 20% (decreasing to 15% by 2014), Micro Businesses are exempt, Small Businesses (%3-5)</li> <li>• Withholding Tax: Dividends distributed to individuals and non-residents are subject to 5% (decreasing to 0% by 2014)</li> <li>• VAT: 18%</li> <li>• Property Tax: Corporate and individuals (up to 1%), Land (varies)</li> <li>• Import Tax: 0-5-12%</li> </ul>
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### Tax Exemptions and Benefits for Investors

	<ul style="list-style-type: none"> <li>• No VAT in free trade zones</li> <li>• No corporate tax paid on gains from sales of products manufactured in free trade zones (until Turkey is fully admitted in the EU and if not imported into Turkey from the FTZ)</li> <li>• No VAT on inputs imported to be used in manufacturing of export goods</li> <li>• Special regions (Central, Eastern, South Eastern Anatolia, Middle and Eastern Black sea regions) in Turkey provides certain advantages for apparel manufacturers: <ul style="list-style-type: none"> <li>○ Corporate tax reductions (60-80%) depending on the investment size</li> <li>○ Exemption from social security employer premium, support for credit, granting of land, VAT and customs duty exemptions</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>• Companies which manufacturers in Free Trade Zones are exempt from customs duty as well as all other taxes (exempt if they do not import into Georgia)</li> <li>• If the business operates for export purposes (in any region) there is customs duty and VAT exemption on imported/exported goods</li> </ul>
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### Free Trade Agreements

<sup>14</sup> EPDK, TEDAS, Based on USD 1: TL 1.6

<sup>15</sup> Based on GEL 1: USD 0.578

<sup>16</sup> Maximum and minimum prices based on natural gas provider/distributor company websites

<sup>17</sup> Georgia Pocket Tax Book

	<ul style="list-style-type: none"> <li>• Turkey has FTAs with 16 countries (Albania, Bosnia and Herzegovina, Chile*, Croatia, EFTA member countries- Iceland, Norway, Switzerland and Lichtenstein, Egypt, Georgia, Israel, Jordan*, Macedonia, Montenegro, Morocco, Palestine, Serbia*, Syria, Tunisia</li> <li>• Customs Union Agreement between Turkey and the European Union (*) in the process of ratification</li> </ul>	<ul style="list-style-type: none"> <li>• Free Trade agreement with Turkey</li> <li>• Free Trade agreement with CIS countries (including Russia)</li> <li>• No customs duty on goods exported to EU as a result of GSP+</li> <li>• Reduced customs duty on goods exported to US, Canada, Switzerland and Japan as a result of Generalized System of Preferences (GSP)</li> </ul>
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### *Lower Productivity per Employee*

Despite advantages discussed above, three of the four Adjara-based firms lament that the productivity per employee in their factories is lower than that of their Turkish parent companies. They attribute this to the lack of coordination between skills provision and their needs, and the prevalence of low-skilled labor in the region. Firms surrounding Tbilisi, and the firm in Kutaisi (historically known for apparel production during Soviet times) also have lower productivity, but for different reasons. In these areas, the average age of the workers in their factories is almost 18 years older than workers in Adjara. They believe the older workers, while more skilled, are simply not as fast as younger workers. Also, they believe their lower productivity is attributed to older, less technologically advanced equipment. Neither group (Turkish firms with modern equipped factories and a younger labor force, nor Georgian firms, equipped with older technology and older, but slower skilled labor) are able to quantify in real terms how much lower their productivity is when compared to Turkey, but both agree that when upgraded skills development facilities are coupled with newer technologies, Georgian productivity can increase.

### *Heavy Dependence on Imported Inputs*

Georgia does not produce apparel inputs that are adequate to meet the demands of the sector. As such, most inputs are imported. These inputs include fabric, thread, buttons, zippers, and inter-liner. However, despite the fact that Georgia produces varying packing materials (boxes, labels, hangers, etc.) these items are also imported. There appears to be an immediate opportunity for import substitution by organizing the value chain to allow actors to source locally produced packaging materials. To be able to source apparel related inputs, Georgian investment is required to begin producing high quality textiles and other accessories, which requires investment and additional know-how. Procurement of raw materials from Turkey is estimated to cost about USD 3,000-3,500 (including taxes) for one 40-foot container of goods. Transportation back to Istanbul costs about half that amount; but could be more expensive should there be a need for a rush delivery.

### *Poor Market Information*

Without foreign investment or sponsorship (which exists in Kutaisi and Adjara), firms have little to no market information aiding them in understanding the international apparel market. Firms rely heavily on local government or private sector procurement because they do not know how to access international buyers, nor do they know how to even begin to find them. This heavy reliance on Turkey for market linkages limits Georgian apparel firms from reaching higher levels of global competitiveness.

### *Little Evidence of Horizontal Collaboration*

Despite a growing interest in apparel manufacturing (as evidenced by increased investment and production) there is little evidence of horizontal collaboration among producers in the country. Firms know of each other's existence, but they do not attempt to organize themselves into an association, or even loosely affiliated group, to advocate for more liberal lending policies, better tax incentives, or improved skills development. EPI sees this as a lost opportunity.

## **IMPACT POTENTIAL**

The EPI team was unable to determine the level of profitability among the firms interviewed. However, based on what has been learned thus far, the EPI team anticipates the following opportunities and impacts if this value chain is selected for project support.

- Increased investment, business and job creation
- Improved horizontal collaboration
- Improved market linkages
- Import substitution

Georgia's apparel sector can continue to grow by leveraging growing Turkish investment and through targeted investment promotion in Adjara and potentially in the Guria Region. Guria is adjacent to Adjara and may provide a new opportunity for potential investors coming to Georgia for opening apparel businesses due to high unemployment levels that have depressed the cost of labor there. To assure that Georgia is an attractive location for such investment, it needs to improve skills development and skills upgrading. The firms in Adjara also anticipate expansion (with an additional 150 jobs added among them in 2010) but much depends on their ability to source qualified labor. Individual apparel companies interviewed in Turkey indicated they would consider production investments that would provide jobs for up to 2,000-3,000 individuals.

Firms outside Adjara can benefit greatly from improved horizontal collaboration, to realize economies of scale when purchasing inputs, building links with Georgian non-apparel related inputs, and sharing best practices in newer production techniques. As their production capacity and productivity increases, there is also an opportunity for the Tbilisi-based firms to diversify their markets. Relying on local markets for production has sustained them thus far, but there is evidence that some firms (with proper technical assistance and support to upgrade machinery) could a) outsource production from Turkey as has been the case in Adjara, or could b) adopt a similar business model as Imeri in Kutaisi, producing directly for European firms.

Finally, with increased investment, technological upgrading, improved market linkages, and increased production, the Georgian apparel market could entice textile producers to begin producing the requisite inputs within the country to replace Turkish inputs.

## **INDUSTRY LEADERSHIP**

In the absence of any coalescing body to organize the sector, firms are currently left to their own coping strategies. However, there is anecdotal evidence that suggests that there is widespread willingness for actors in the sector to associate. All four Turkish run firms in

Adjara, Imeri in Kutaisi, and a few larger firms in Tbilisi exhibit the leadership qualities necessary to assist in developing a national apparel association, although they have no history of associating in the past. Together these six or seven companies provide the requisite foundation to collaborate with EPI in strategy formulation and program implementation.

## CROSS-CUTTING THEMES

### *Political Support and Gender Equity*

There are several aspects of the apparel sector that should be congruent with government priorities. The sector is a large employer, with an estimated 90 percent of labor being women. The sector has growing export potential and potential for import substitution.

### *Environmental Impact*

The CMT business model of production is not one that has overwhelming environmental impacts; however, some firms do generate waste. To date, there is no recycling program shared among the sector. One firm in Adjara voluntarily collects scrap cloth, plastic, and paper but has no outlet for these items and thus donates their recycling to whoever is willing to cart it away.

EPI is not aware of other donor funded activities that support the sector.

## STRATEGIC ENTRY POINTS AND RECOMMENDATIONS

Based on the apparent market trends, continued investment interest and other competitive factors, the EPI team sees the following activities as possible next steps and entry points for consideration in the Georgian apparel value chain.

- Develop a value chain action plan, coupled with hosting a first of its kind industry workshop, bringing together all the actors in the apparel value chain to share findings and explore possibilities for future collaboration.
- Develop and implement initiatives to improve labor availability and skills.
- Support the sector to organize itself into an apparel manufacturing association. This association would provide a vehicle for collaborative action, such as increasing skills and labor availability.
- Support investment development strategies and forward linkages for additional Turkish investors. After which, build replicable business models to entice Georgian entrepreneurs to invest in the sector.
- Assist local authorities to understand and respond effectively to the needs of apparel investors.
- Improve horizontal linkages by hosting sector-wide trade fairs and business linkage conferences to match buyers with suppliers (apparel manufacturers with input suppliers).

- Improve market linkages and provide technical assistance to Tbilisi based firms interested in and with the capacity to export by supporting export development programs and trade shows and training in other regions adjacent to Adjara.
- Support public/private dialogue and build the capacity of the apparel association to prioritize a sector-wide agenda to present to government for policy support.

# CONTACT DETAILS FOR VALUE CHAIN ACTORS

Company / Organization	Name & Position	Address	Contact Telephone Number	Email Address
Eselema Ltd.	Elguja Mamasakhlisi General Director	Kostava st. 40, 0179, Tbilisi	899 981221	<a href="mailto:elselema@yahoo.com">elselema@yahoo.com</a>
Laura Gachava Ltd.	Laura Gachava Owner	Chirnakhuli st. 7, Lilo, Tbilisi	877 270105	<a href="mailto:laura@skygate.ge">laura@skygate.ge</a>
Miller & Company	Miller Gvenetadze Director	Mevele st. 7a, Tbilisi	899 578659	<a href="mailto:Millercompany1@yahoo.com">Millercompany1@yahoo.com</a>
Materia Ltd.	Giorgi Koiava Director	Leselidze st. 22, Tbilisi	899 138787	<a href="mailto:Bkoiava@gmail.com">Bkoiava@gmail.com</a>
Maudi	Temur Director			
Lazeti	Zurab Kukuladze	Cholokashvili st. 3, 2 <sup>nd</sup> floor, Tbilisi	877 466477	
Unistyle				
Imeri JSC	Zaza Gventadze Deputy Director	Asatiani st. 119, Kutaisi	899 561590	<a href="mailto:Zaza_imeri@mail.ru">Zaza_imeri@mail.ru</a>
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Ajara Textile	Lasha Khalvashi HR Manager	Bobokvati st. 14, Bobokvati Village, Kobuleti	891 914404	<a href="mailto:lasha@ajaratextile.com">lasha@ajaratextile.com</a>
Batumitex Limited	David Jincharadze General Director	Chavchavadze st. 131, Batumi	877 494030	<a href="mailto:dj@gol.ge">dj@gol.ge</a>
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Tamuna Ingorokva Design	Tamuna Ingorokva	Tamarashvili st. 13, 01 77 Tbilisi	032 912872	<a href="mailto:tamuna@tamunaingorokva.com.ge">tamuna@tamunaingorokva.com.ge</a>

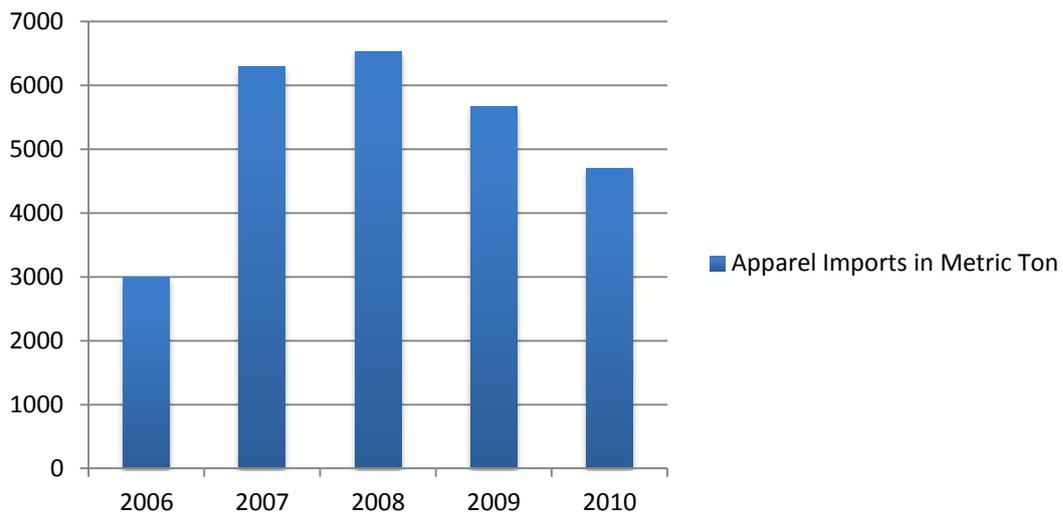
Boutique Firm	Owner			
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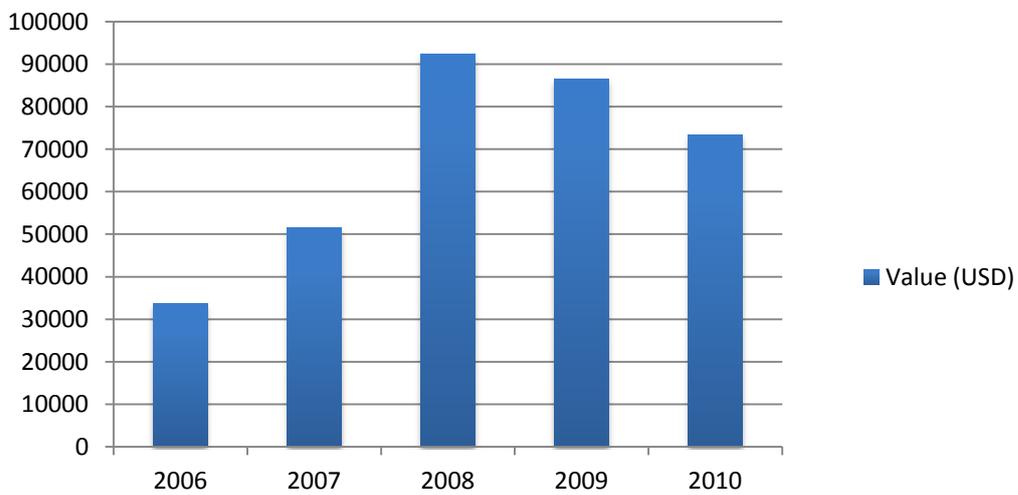
- COMTRADE web portals
- Geostat
- Interviews in apparel sector in Tbilisi, Kutaisi and Batumi
- UNCTAD
- WTO sponsored International Trade Center's (ITC) TradeMap

## Trade Data

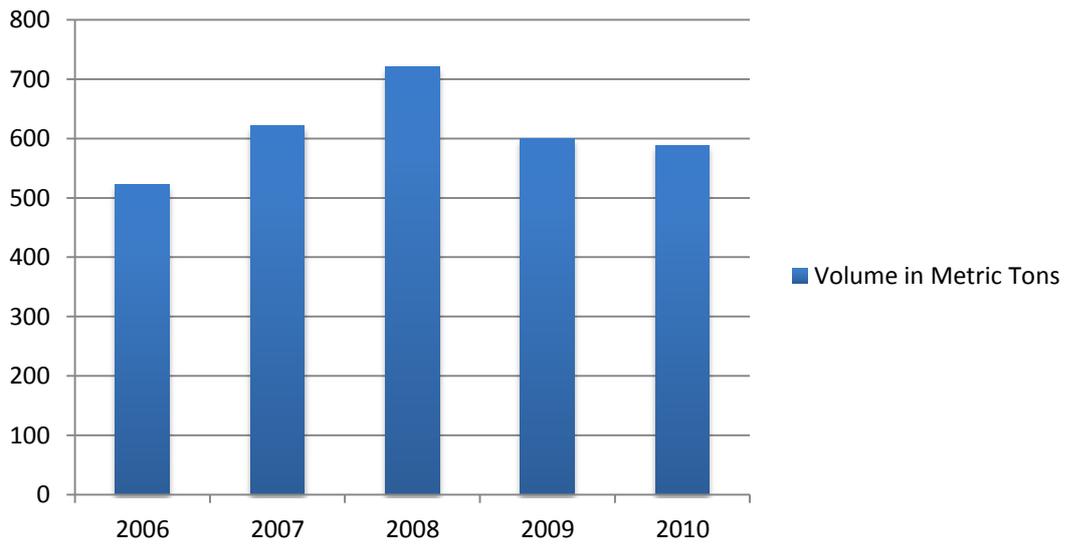
### 2006-2010 Volume of Apparel Imports



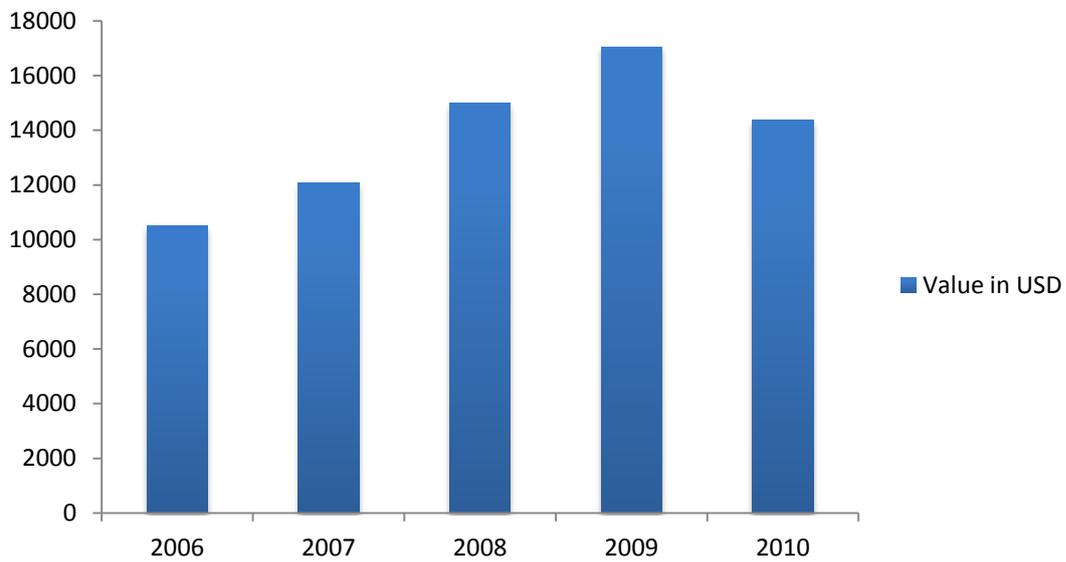
### 2006-2010 Value (USD) of Apparel Imports to Georgia



**2006 to 2010 Volume of Georgian Apparel Exports**



**2006-2010 Value of Apparel Exports from Georgia**



# ANNEX 10: BASALT VALUE CHAIN ASSESSMENT

## ABSTRACT

Georgia is rich in basalt deposits and mined rock is widely used throughout Georgia as a building material for facing stone on exterior walls and cobble stones for walkways, drives, and paths. Basalt however, can also be processed to produce basalt fiber, from which basalt wool and mat can be produced. Basalt mat and wool are excellent thermal and sound insulators. They are superior in quality and more cost efficient than glass fiber; however Georgians have not widely adopted its application in building construction (it has been used in countries such as Germany, Ukraine, and Turkey).

This report serves as an assessment of the basalt value chain and illustrates its viability as an industry that with proper support and coordination can grow, creating new investment, new businesses, employment, and exports.

## ABBREVIATIONS

EPI	Economic Prosperity Initiative
GoG	Government of Georgia
ICC	International Code Council
ITC	International Trade Center
UNCTAD	United Nations Conference on Trade and Development
USAID	U.S. Agency for International Development
WHO	World Health Organization
WTO	World Trade Organization

# EXECUTIVE SUMMARY

## *Background on Basalt and Basalt Products*

Basalt is a common volcanic rock, usually grey to black in color and fine-grained due to rapid cooling of lava at the Earth's surface. The largest quantities of basalt are found on the ocean floor, which is almost completely made up of the substance. Above sea level, basalt is common in hotspot islands and around volcanic arcs. Georgia is rich in basalt; mainly found in Marneuli, Chiatura, and Akhaltsikhe.

There are 60 companies in Georgia with licenses to mine basalt. Combined, they can annually quarry 650,000 m<sup>3</sup>. These quarries employ approximately 1,220 people. The basalt stone is sold on the local market, largely as a construction material for facing stone on exterior walls and as cobblestone for streets and pathways.

In addition to stone, processed by-products of basalt mining include: basalt fiber, basalt wool, and basalt mat. There are two companies in Georgia that process basalt rock into basalt fiber, mat, and wool. These firms employ 20 people and purchase basalt rock for melting at an average price of GEL 0.02 – 0.05/kg.

Wholesale prices for cut basalt fiber average around GEL 8/kg, and the average wholesale price for basalt mat (depending on thickness and existence of foil) ranges from GEL 4.5 to 7.5/m<sup>2</sup>. Cut basalt fiber sells on the retail market for an average of GEL 8.5/kg, and GEL 5-8/m<sup>2</sup> for basalt mat.

These two companies produce 96,000m<sup>2</sup> of mat/wool and 150 tons of fiber, with a total value of GEL 1.7 million.

Basalt fiber, wool, and mat can be used in many construction material applications such as, floor and ceiling reinforcement, roof insulation, thermal insulation, and acoustic insulation. However, to date, basalt has not been used in Georgia for most of these purposes; instead, alternative materials, like fiberglass, are imported from other countries (primarily Turkey and Germany).

Georgia's two basalt fiber producers sell domestically, as well as export regionally to Azerbaijan, Turkey, Croatia, and Germany. EPI has not been able to determine if others are planning to enter the market. However, when presented with the possible business opportunity, some basalt quarries have expressed interest in pursuing the business if a ready Georgian market could be identified. EPI has identified other vertical players along the value chain who need to be contacted and surveyed in order to validate current findings. Early indications suggest that construction companies, along with targeted policy development, will play a major role in helping to develop the basalt fiber, wool, and mat markets in the country. Up-front investment can be significant; equipment worth USD 1.4 million is required to reach an annual production capacity of 2,300 tons.

## *Competitiveness Potential*

As an importer of insulation materials, Georgia has potential for import substitution and market development to support a possible growing sector. Yet today, construction companies are not aware of the potential of basalt fiber in providing energy efficiency and cost effectiveness. Customers are also not aware of the benefits of basalt over fiberglass, nor, is there an incentive for them to replace fiberglass with basalt as there are no

construction standards or regulations which influence them to build in a more energy efficient manner. In Georgia, generally only attics are insulated. If only the currently imported fiberglass was replaced with basalt fiber, it would equate to an approximate value of GEL 2.5 million<sup>18</sup> annually. Within Tbilisi alone, new permits to build on a 1.2 million m<sup>2</sup> footprint equates to an additional:

- 760,000 m<sup>2</sup> exterior walls;
- 950,000 m<sup>2</sup> floor/ceiling assemblies;
- 25,000 m<sup>2</sup> attic roofing;
- 500,000 m<sup>2</sup> partitions.

This amounts to 2,460,000 m<sup>2</sup> in possible insulated applications at a minimum value of GEL 12.3 million<sup>19</sup>. EPI estimates that this figure will double to over GEL 24 million when taking into account renovations, and planned construction anticipated throughout the rest of the country. EPI believes the market potential to be enough of an opportunity to entice investment into expanded basalt fiber production.

The potential market for rock wool insulation materials is not limited to Georgia. Despite its bulkiness and the high costs associated with transporting it, trade deficits for rock wool and glass fiber/wool insulation materials in Ukraine, Armenia, Azerbaijan and Turkey mean unmet market demand in these markets is estimated at about USD 33.5 million and USD 74.6 million for rock wool and glass fiber/wool insulation materials, respectively. The major countries that satisfy the insulation materials demand in this region are China, Germany, Turkey and some Eastern European countries.

However, some barriers are likely to impede Georgia’s growth in the basalt-based insulation market. The global insulation market is continuing to consolidate with some major international players acquiring local companies, such as Rockwool, Knuaf and Uralita. They may be able to take advantage of the current deficit in rock wool in countries like Ukraine and Turkey if Georgia is unable to invest quickly enough. Some local firms are beginning to compete in these markets as well.

### *Cost Economics*

Initial analysis demonstrates that not only is basalt more energy efficient in end use, but also less costly. Table 1 shows that including installation, construction companies can build with basalt mat (to replace fiberglass wool) at a savings of GEL 3.3 per m<sup>2</sup>. Note that according to Georgian basalt fiber producers, there is no installation cost for basalt mat due to the fact that glass wool installation requires additional materials and effort.

**Table 1: Cost Comparisons (including installation) for basalt versus glass insulation<sup>20</sup>.**

	Price	Quantity	Additional material per m <sup>2</sup>	Installation	Total
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<sup>18</sup> ITC data

<sup>19</sup> Based on total possible insulated applications times retail price of 5GEL

<sup>20</sup> Materials are compared with similar thermal conductivity in a normal operational temperature

	GEL/m <sup>2</sup>	per m <sup>2</sup>	(GEL)	cost per m <sup>2</sup>	(GEL)
<b>Basalt Mat</b> (8mm)	6.5	1	-	-	6.5
<b>Glass wool</b> (6cm)	2	2	0.8	5	9.8

Competitiveness Potential	Impact Potential	Industry Leadership	Cross-Cutting Linkages	Overall Comments and recommendations
				Average: 2.5. Recommended for inclusion.

### *Possible Activities*

EPI sees an opportunity to support the development of Georgian-produced basalt fiber and basalt fiber-based products. To do so, the following activities are suggested for further exploration:

- Support businesses, associations, and Government of Georgia (GoG) in elaboration of building codes and standards, based on ICC codes and their referenced standards;
- Build awareness of interested parties (e.g. design and construction companies, quarries, consumers) of the benefits of basalt products as an insulation alternative;
- Identify and share information regarding new applications, technologies, and equipment with existing and potential investor companies. Investigate regional and international market trends, organize exhibitions, etc.;
- Assess opportunities and requirements for attracting foreign direct investment to enable transfer of know-how in insulation materials;
- Assist industry organizations (e.g. Constructors Association) to bring together all actors along the basalt value chain to develop a sector-wide action plan, to facilitate widespread adoption of that action plan, and to increase requisite investment and business creation;
- Develop an export strategy to take advantage of demand in nearby countries.
- Develop necessary infrastructure for product testing and certification to enable exporting of finished goods to developed markets in the longer term.

### *Investment Possibilities*

If successful in market development, new basalt processing facilities will be needed for Georgia to meet the local demand for insulation materials. Based on interviews with existing

processors and industry equipment manufacturers, the following example would be a typical investment.

From a technological point of view, the process of production of basalt fiber is very simple. One investment project for basalt wool production, with an annual production capacity of 2,300 tons of basalt wool (according to an industry equipment manufacturer from Ukraine this production capacity proves to be economically justified with a high level of profitability, promising a return on investment in a relatively short time) requires USD 1.414 million for equipment and installation. Two others, in Turkey, required investment ranging from USD 700,000 - 800,000 to USD 5-6 million. The former was a relatively low-technology facility that uses diesel fuel; the latter a higher-technology facility that uses coking coal and a cupola furnace and that has a production capacity of 20,000-30,000 tons/year of stone wool. Investment in continuous basalt fiber and mat manufacturing still needs to be determined. There is a prospect that companies that are engaged in basalt extraction would be interested in basalt fiber manufacturing. While the local market today represents about 335 tons, it boasts a roughly calculated potential of 7,690 tons.

#### *Recommended Next Steps*

EPI should endeavor to expand its dialogue with value chain actors, including the GoG to prepare an action plan to develop basalt fiber production in Georgia. With proper support, EPI believes that the basalt value chain can draw new investments, business creation, employment opportunities, and import substitution.

# INTRODUCTION

## Background

Basalt is a common volcanic rock. It is usually grey to black and fine-grained due to the rapid cooling of lava at the surface of the earth. Basalt rock is one of the most common rock types in the world with its largest concentrations found on the ocean floor. Above sea level, basalt is commonly found on hotspot (actively volcanic) islands and around volcanic arcs. Though no longer considered a volcanic hotspot, Georgia is rich in basalt, with deposits estimated at 312 million cubic meters<sup>21</sup>. These deposits are located mainly in Marneuli, Chiatura, and Akhaltsikhe.

Basalt rock has several uses in the construction sector. In addition to being used as a facing stone for exterior walls and as a cobblestone for streets, walkways and pavements, when heated between 1350° C and 1400° C, basalt rock can be transformed into basalt fibers. These fibers can also be further processed to produce basalt fiber needle mat, stone wool and fiber concrete, all of which are excellent thermal insulators.

In Georgia, fiberglass is widely used for thermal and soundproof purposes; and carbon fiber is used all over the world for particularly sensitive and expensive applications. However, these materials do not completely meet the requirements for best-practice construction. Fiberglass also has certain constraints: durability, application temperatures, and chemical stability, especially in alkaline environments.

Additionally, fiberglass production requires scarce components, particularly boron oxide (B<sub>2</sub>O<sub>3</sub>). Conversely, while carbon fiber is considered to be a stronger material, it is most commonly used in high technology surfacing applications. Carbon fiber production costs are so great that it limits prospects for mass production.

Basalt fibers and materials have the most preferable ratio of quality and price in comparison with other types of fibers. When industrially produced, basalt fibers cost equal to or less than the cost of fiberglass<sup>22</sup>. As a result, worldwide interest in products consisting of basalt fiber is increasing rapidly in the last several years with an average of 8-10 percent<sup>23</sup>.

The first attempts to produce basalt fiber were made in the United States in 1923. Techniques were further developed after World War II by researchers in the USA, Europe, and the Soviet Union, especially for military and aerospace applications. Since 1995, basalt fibers have been used in a wider range of civilian applications. Knauf Group, a German family-owned multi-national manufacturer of building materials and construction systems established in 1932, owns 150 factories in more than 40 countries. “Knauf Insulation”, with 30 years of experience in the insulation industry (strong and steady financial performance

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<sup>21</sup> Ministry of Economy and Sustainable Development data.

<sup>22</sup> Source: The article “Basalt Continuous Fiber - Information and Characteristics” of research and production company - BASALT FIBER & COMPOSITE MATERIALS TECHNOLOGY DEVELOPMENT.

<sup>23</sup> ITC data.

with turnover of over EUR 1.2 billion in 2008) is using basalt insulation materials in order to meet fire performance characteristics, as well as excellent thermal and acoustic properties<sup>24</sup>.

Basalt fibers are cost-effective in comparison with the commonly used glass, and carbon fibers. The main technical advantages are:

- High chemical resistance, (especially to concentrated acid-based materials).
- High thermal resistance (thermo stability) and low flammability.
- Low strength degradation at temperatures as low as minus 200-250° C and as high as +700-900° C and at high levels of humidity.
- High thermal and acoustic insulation properties.
- Excellent adhesion to polymer resins and rubbers.
- Relatively high mechanical strength, abrasion resistance, and elasticity.
- High dielectric properties (low conductivity).
- Low water absorption.
- Ecologically clean and non-toxic.

These technical features (described in more detail in Additional Data - below) and the cost-effectiveness (described in Cost Economics section) in application make basalt fiber a suitable material to fill the gap between fiberglass and more resistant but much more expensive carbon fibers. Basalt is the best way to close the gap in cases where high chemical resistance or thermal conductivity is required, since carbon fibers lack prospects for mass application due to their high cost.

As a thermal insulator, basalt-based products are more heat resistant than the commonly used fiberglass insulation. Because Georgia is currently a net importer of fiberglass, there is a unique opportunity to explore local production of basalt fiber, fiber needle mat, and wool as a construction material for insulation in commercial and residential construction.

## Methodology

EPI carried out this value chain assessment to assess the viability and utility of basalt fiber as a locally produced and used construction material. The team gathered documents from government statistics on imports, exports, production and economic contribution; the UNCTAD/WTO sponsored International Trade Center's (ITC) TradeMap and COMTRADE web portals; and other available industry reports. After the document review, the EPI team developed a value chain map to assist in identifying actors along the chain. With the value chain map in hand, Georgian and international experts conducted semi-structured interviews with basalt value chain actors to understand their business models, production volumes, markets, costs and prices, anticipated investments, and opportunities and constraints when operating in the Georgian basalt value chain.

These acquired data points were then synthesized and analyzed to make judgments on the competitiveness potential, impact potential, industry leadership, cross-cutting linkages, and overall impressions on the viability of basalt as a possible value chain in which to focus technical support within the EPI project.

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<sup>24</sup> Source: <http://www.knaufinsulation.com/en/home>

The basalt value chain in Georgia is underdeveloped. As a result, the team conducted only about a dozen interviews, spread between basalt quarries (miners of basalt stone, otherwise known as producers) basalt processors (those who transform basalt stone into fiber, mat, and wool), architects and interior designers (those who have the ability to recommend basalt fiber in construction applications), and construction companies (those that actually build with basalt stone and basalt fiber products).

Within these firms, company executives were targeted when interviewed.

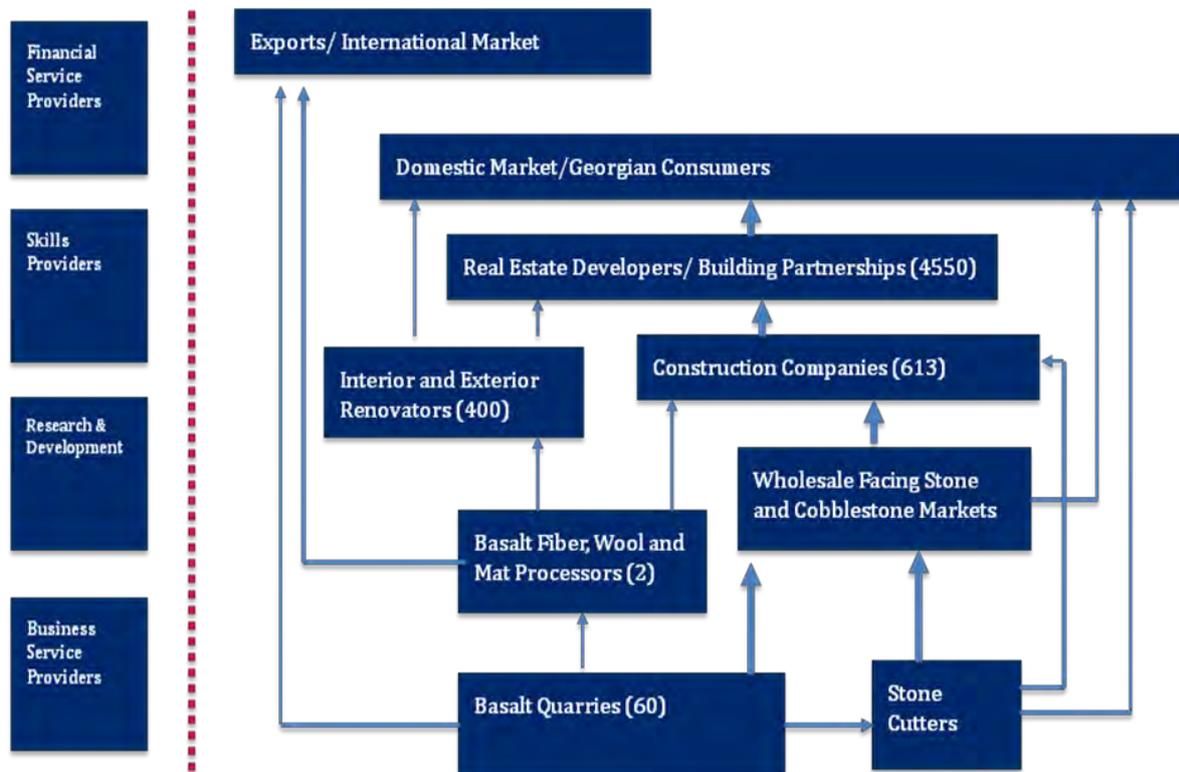
# OVERVIEW OF THE BASALT VALUE CHAIN

## Summary

Main Products/Services	Facing stone; cobblestone; basalt fiber, basalt fiber needle mat; stone wool; fiber concrete
Key Markets Served	Facing stone and cobblestone; sold on local and Azerbaijan markets. Basalt fiber, fiber mat, and wool; mat and wool is sold regionally to Azerbaijan and Turkey, and fiber sold into Europe (Croatia and Germany).
Production	0.7 million tons (annual avg) stone 96,000 m <sup>2</sup> mat/wool and 150 tons cut fiber (322 tons in total) with total value of GEL 1.11 million
Consumption	USD 0.67 million
Exports	2009 value of materials exported based on basalt fiber: USD 125,000
Imports	2009 value of materials imported based on basalt fiber: USD 680,000 2009 value of fiberglass imported: USD 2.4 million
Revenues	Unable to obtain at time of writing.
Employment	Approximately 1,220 employees work within the basalt value chain (1,200 within basalt quarries and 20 between two basalt fiber processors).
Productivity	Current production output for basalt fiber experienced in the larger of the two basalt processors is 250 tons/year. However, total current capacity is five times greater - 1,250 tons/year.
Positioning	Basalt fiber is a better thermal and sound insulator than fiberglass, while being more cost effective to use in building construction.
Key Processes	Basalt rock smelting into continuous basalt fiber. Basalt fiber processing into basalt wool and basalt fiber mat (used as a thermal and sound insulator).

## BASALT PRODUCTS VALUE CHAIN MAP

The EPI team developed the basalt value chain map, identifying the various value chain actors. This map was vetted with industry experts and used to identify as many actors as possible along the chain.



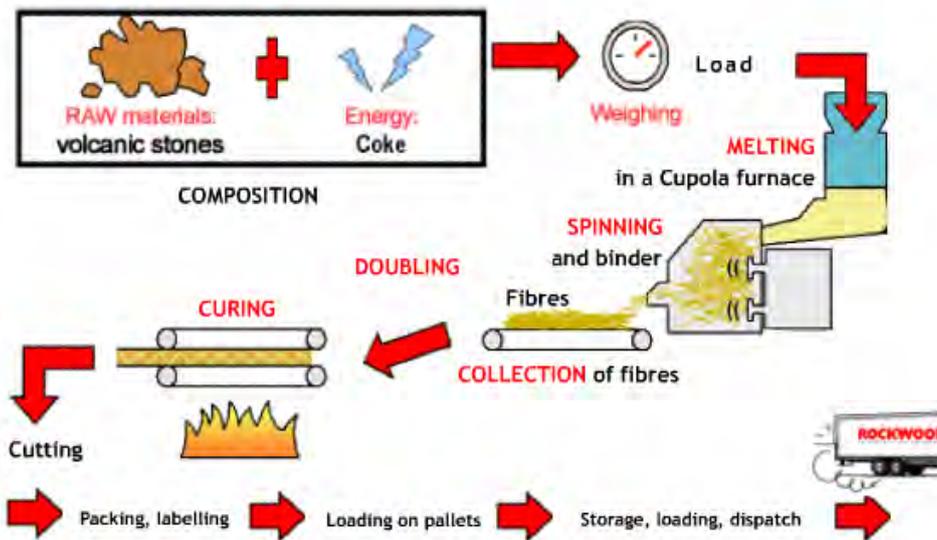
### *Basalt Value Chain Actors*

#### *Production*

60 companies currently hold licenses to mine basalt. Combined, their quarries employ approximately 1,200 people with a maximum annual production yield of 650,000 m<sup>3</sup>. After quarrying, basalt miners either cut the stone themselves or outsource to stone cutters to shape the stones for construction applications (facing stone for exterior walls and cobblestone). These stones are then sold wholesale in local markets frequented by construction companies and consumers.

A complete rock wool production line consists of several machines that process the material, from melting to packaging. The basalt rock is first melted and transformed into fiber using a Cupola furnace. This stage is followed by the polymerization and material processing stages, in which the product is converted into its final form (such as panels, mattresses, or felt). It is then packaged and prepared for warehouse or shipment. The basalt production process is illustrated in Figure 1 below.

Figure 1: Basalt Production Process<sup>25</sup>



As a natural resource in Georgia, the GoG issues licenses to firms wishing to quarry basalt rock. Georgia's Law on Licenses and Permits regulates basalt quarrying in the country. The following table summarizes the licenses and fees associated with basalt quarrying.

Table 2: Basalt Quarrying Licenses, fees and terms in Georgia

License issued by the Ministry of Economy and Sustainable Development:	By auction
License term:	10-20 years
License fee:	GEL 200
Fee for quarrying 1 m <sup>3</sup> basalt by license holder:	GEL 1

### Processing

In addition to basalt stone quarried in the country, processed by-products include: basalt fiber, basalt wool, and basalt mat. Two companies in Georgia (BPG Ltd and Euro Standard Ltd) process basalt rock into basalt fiber, mat, and wool. These firms employ 20 people between them and purchase basalt rock for melting at prices ranging from GEL 0.02 to 0.05/kg. Between them, the Georgian processors produce 96,000 m<sup>2</sup> of mat/wool and 150 tons of cut fiber, at a total value of GEL 1.11 million.

The larger of these two basalt processors is BPG LTD. As a result of years of research and technological innovations, BPG has developed efficient and economically viable technology to produce basalt fiber. The origins of this technology come from the former Soviet Union military.

BPG supplies local and international markets (Germany, Turkey, Croatia, and Azerbaijan) with a range of basalt fiber products - but due to certification requirements in Europe, only

<sup>25</sup> Source: Rockwool Website.

fiber can be exported there. BPG supplies basalt mat to Azerbaijan and can supply it to any of the former Soviet countries where certification requirements do not exist.

Applications of the firm's products include:

- **Construction:** Acoustic and thermal insulation; concrete reinforcement.

BPG products can also be used in:

- **Automotive production:** Insulation of modern systems of car exhaust; acoustic and thermal insulation of car cabins.
- **Shipbuilding, aviation:** Ship insulation and yacht composite parts manufacturing due to low water absorption properties. Insulation and reinforcement to apply at -260°C and +850°C.
- **Chemical industry, oil processing, filtration, and energy sector:** Insulation and filtration in acid and alkaline environment.

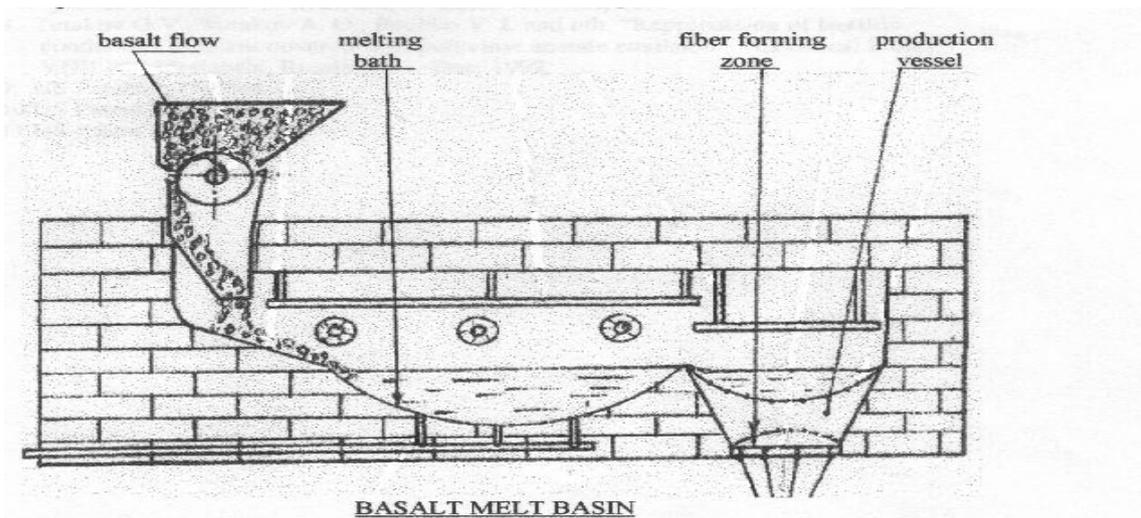
Wholesale prices sold for cut basalt average GEL 8/kg, and GEL 4.5 to 7.5/m<sup>2</sup> for basalt mat (depending on thickness and existence of foil). Retail prices for cut basalt fiber average GEL 8.5/kg, and GEL 5-8/m<sup>2</sup> for basalt mat (also, depending on the same product variances).

From a technological point of view, processing basalt fiber is relatively simple and, according to those currently processing, does not require large investment. For example, one investment project for basalt wool processing in Belarus requires USD 1.414 million, to produce 2,300 tons annually<sup>26</sup>. This investment covers the cost of purchase of the requisite equipment, and installation. In Georgia, existing processing capacity is estimated to be over 1,250 tons per annum. An interview with a company in the rock wool business in Turkey revealed that an investment for a 1,500 ton/year stone wool production facility (operating on diesel power) would cost between USD 700,000 and USD 800,000; while another, higher-technology facility that uses coking coal instead of diesel and a cupola furnace, with production capacity of 20,000-30,000 tons/year, would require an investment of around USD 5 million to USD 6 million.

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<sup>26</sup> Source: Thin basalt fiber production organization on FEZ Gomel-Raton territory in Belarus

**Figure 2: Typical technological requirements for basalt fiber processing**



### *Construction Companies*

A fundamental reform of the country's licensing system was carried out in 2005 when the *Law of Georgia on Licenses and Permits* was adopted. The Law abolished the license for design and construction activities. Nowadays, no license is required for design and construction activities, so anyone can easily register such companies.

Over 600 construction companies are registered in Georgia. For those that construct buildings, their primary knowledge of basalt as a construction material is mainly as a facing stone on exterior walls. Basalt stone is sourced from wholesale markets, with its price dependent on size, shape, and smoothness of the stones. Few are aware of the engineering and economic benefits of building with basalt fiber. Compounding this fact, Georgia lacks construction standards and codes that stipulate proper insulation requirements within buildings. As such, most builders import fiberglass-based insulation materials from Turkey to insulate roofs and attics, with little to no insulation installed in exterior walls, interior walls, or around plumbing.

EPI has interviewed numerous construction companies to determine their receptivity to building with materials other than fiberglass-based insulation. In speaking with engineering and architectural firms, the team determined that construction companies base their purchasing decisions on several factors. These factors include recommendations from engineering and architectural firms, and unit costs of construction materials. The typical construction company has little incentive to build with materials not easily obtained, or to use materials that do not add to the overall value of the property. For these reasons, they believe, basalt fiber is not widely used in Georgia.

### *Engineering and Architectural Firms*

Tasked with designing the exterior structures and providing recommendations on interior construction and engineering, these firms could play a pivotal role in expanding the use of basalt fiber, mat, and wool in Georgian construction. However, their role is presently limited, for many of the same reasons as construction companies. While these firms may be more

aware of the beneficial qualities of basalt fiber materials as thermal or sound insulators, because engineering and architectural firms design to specifications demanded by end users, they do not provide designs which require basalt fiber material use. In talking with two design companies, they admit that their end clients know little about the benefits of energy efficiency, and for those that understand these benefits, perceived costs outweigh potential gains in total cost of ownership in buildings.

### *Building Partnerships*

The majority of residential constructions are implemented through partnerships established by real estate developers. Partnerships represent groups of individuals, not registered as sole proprietors, associated for the purpose of developing immovable property without any further commercial interest. Thus, partnerships do not represent a legal entity and are organized in the course of construction on the basis of a partnership agreement. The agreement determines shares, specifically, the amount of property to be allocated to each member after completion of construction. The agreement also defines the management structure of the partnership as well as the person responsible for management and representation. Such a person, the chairman of a partnership, is usually assigned by the real estate developer.

The role of the real estate developer in the construction process is limited to services such as obtaining construction permits, developing designs, arrangements for putting the constructed premises into commission, and other less costly actions. By conducting construction through partnerships, the companies are free from expenses related to the actual costs of construction activities as these are financed by partnership members through advance payments for acquisition of their future property. There are 4,550 building partnerships in Georgia.

### *Supporting Institutions and Services*

The Ministry of Economy and Sustainable Development is responsible for legislating and regulating the country's construction sector. The main functions of the Department of Urbanization and Construction include: development, coordination and management of policies in spatial planning, construction activities, housing and communal infrastructure; organization, coordination and development of construction and design norms and rules; issuing construction permits and accepting construction works as fit for use, within its competence; etc.

As an unregulated sector, there are few private sector-led organizations that serve the entire construction market in Georgia. Three prominent organizations are the *Union of Architects*, *Builders Federation* and the *Constructors Association*, all based in Tbilisi. With no organization representing the combined elements of the construction sector, EPI sees an opportunity to help organize the value chain by bringing together its various actors in collaborative workshops to discuss basalt and basalt fiber opportunities within Georgia.

Quarries and basalt fiber processors (as with many other value chain actors) indicate that financing is available. However, the firms interviewed mention that financial institutions require significant collateral requirements and thus provide debt financing which is deemed to be too expensive.

The team identified the following business and technical institutions that play a support role for the sector:

- Skills Providers: Local companies and competitors in basalt fiber production (e.g. Ukrainian companies)
- Research & Development: Georgian Technical University
- Business Service Providers: Design services, testing services from foreign technical institutes and laboratories

## COMPETITIVENESS POTENTIAL

As a net importer of insulation materials, Georgia has the possibility for import substitution and market development to support a possible growing sector. Yet today, construction companies are not aware of the potential of basalt fiber in being more energy efficient and more cost effective. Customers are not aware of the benefits of basalt over fiberglass. Nor are there incentives for them replace fiberglass with basalt as there are no construction standards or regulations which influence them to build in a more energy efficient manner. Generally, only attics are insulated.

Just replacing the existing imported fiberglass with basalt fiber would equate to an approximate value of GEL 2.5 million<sup>27</sup> annually. However, within Tbilisi, new permits to build 1.2 million m<sup>2</sup> in total area of construction equates to an additional:

- 760,000 m<sup>2</sup> exterior walls;
- 950,000 m<sup>2</sup> floor/ceiling assemblies;
- 250,000 m<sup>2</sup> attic roofing;
- 500,000 m<sup>2</sup> partitions.

This amounts to 2,460,000 m<sup>2</sup> in possible insulated applications at an approximate value of GEL 12.3 million<sup>28</sup>. EPI estimates that this figure doubles to over GEL 24 million when taking into account renovations and planned construction anticipated throughout the rest of the country. EPI believes the market potential to be enough of an opportunity to entice investment into expanded basalt fiber product production.

In addition, the importation of alternative products is increasing every year (such as glass wall imports). This means that the demand for insulating materials increases and that the construction industry will become more aware of insulation benefits.

**Table 3: Fiber glass imports, 2006-2009**

Year	2006	2007	2008	2009
Fiberglass (Thousand GEL)	482	855	1,907	2,369

Source: GEOSTAT

<sup>27</sup> ITC data

<sup>28</sup> Based on total possible insulated applications times minimal retail price of 5GEL

The potential market for rock wool insulation materials is not limited to Georgia. Despite its bulkiness, size, and the high costs associated with transporting it, trade deficits for rock wool and glass fiber/wool insulation materials in Ukraine, Armenia, Azerbaijan, and Turkey mean unmet market demand in these markets is estimated at about USD 33.5 million and USD 74.6 million for rock wool and glass fiber/wool insulation materials, respectively. The major countries that satisfy the insulation materials demand in this region are China, Germany, Turkey, and some Eastern European countries.

#### *Comparison of Thermal Conductivity Coefficients*

Table 4 demonstrates that basalt fiber is a better thermal insulator when compared to fiberglass. According to this table, at 300<sup>0</sup>C, glass wool melts and becomes useless for insulation. Fiberglass cannot therefore be used when high thermal stability is required by fire safety codes. Thus, if the industry and GoG establish construction standards, the use of basalt fiber wool and mat may be more widely accepted, particularly as an alternative to fiberglass.

**Table 4: Comparison of Thermal conductivity of basalt wool/mat and fiberglass wool (W/m<sup>2</sup>/°C)**

Average Temperature	50 <sup>0</sup> C	300 <sup>0</sup> C	800 <sup>0</sup> C
Basalt mat Density: 130 kg/m <sup>3</sup> 150 kg/m <sup>3</sup>	0.031 0.031	0.056 0.054	0.274 0.268
Fiberglass	0.042	Could not stand 300 <sup>0</sup>	---

#### *Cost Economics*

Initial analysis demonstrates that not only is basalt more energy efficient in end use, but also less costly. Table 5 shows that including installation, construction companies can build with basalt mat (to replace fiberglass wool) at a savings of GEL 3.3 per m<sup>2</sup>.

**Table 5: Cost Comparisons (including installation) for basalt versus glass insulation.**

	Price GEL/m <sup>2</sup>	Quantity per m <sup>2</sup>	Additional material per m <sup>2</sup> (GEL)	Installation cost per m <sup>2</sup>	Total (GEL)
<b>Basalt Mat</b> (8mm)	6.5	1	-	-	6.5
<b>Glass wool</b> (6cm)	2	2	0.8	5	9.8

According to this example, the final price, including installation, is lower in the case of basalt mat, despite the big difference between basalt mat and fiberglass prices.

The major factors contributing to the cost-effectiveness of basalt fiber production are:

- Availability of the raw material;
- Labor is a considerable part (24-40 percent<sup>29</sup>) of the cost of production of basalt fiber products. Georgia is a relatively low-salary country (like Russia, Ukraine, and China, where the main producers exist);
- Production of basalt fiber does not need enormous investment;
- Basalt fiber has preferable technical characteristics, and in some cases has no rival (high cost carbon fiber, for example, has no prospects for mass application), especially, when high thermal stability and other similar characteristics are to be maintained;
- The main producer of basalt fiber in Georgia has annual production capacity of 1,250 tons, but currently operates at 20 percent of capacity. At full production, costs would drop by 30 percent<sup>30</sup>;
- EBRD has provided a USD 35 million credit line for Georgian banks to finance energy efficiency investments, including thermal insulation for walls, floors, and roofs. For residential loans, a 15 percent subsidy on the products is available.

However, there are some barriers that are likely to impede Georgia's growth in the basalt-based insulation market. The global insulation market is continuing to consolidate with some major international players acquiring local companies, such as Rockwool, Knuaf, and Uralita. They may be able to take advantage of the current deficit in rock wool in countries like Ukraine and Turkey if Georgia is unable to invest quickly enough. Some local firms are beginning to compete in their domestic markets as well.

## IMPACT POTENTIAL

A thorough analysis of the possible impacts basalt fiber production can have on the Georgian economy has not been conducted. However, the team believes that the following benefits can be realized:

- Import substitution and increased exports;
- New investments of up to USD 25 million, assuming a total of 12 investment projects;
- Business and job creation; and
- Improved energy efficiency.

By supporting the domestic production of basalt fiber, Georgia will no longer need to import fiberglass from neighboring countries. Local demand would be satisfied through local production. However, in order to meet this demand, new investment and business creation is necessary.

This new investment can come from existing basalt quarries interested in processing basalt fiber, or downstream investors. Coupled with production expansion of the existing basalt processors, these investments can serve as a demonstration effect to draw in additional financing. With new investment, EPI anticipates new businesses formed and new jobs

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<sup>29</sup> Source: —BPGLTD

<sup>30</sup> Source: —BPGLTD

created. Conservatively, EPI anticipates five new businesses formed over the lifecycle of the project with investments totaling USD 10 million. These new businesses will not produce many jobs directly (as the average employee size for basalt production is 10 employees per firm), however, EPI anticipates a spillover effect into other construction related jobs, particularly in construction as demand increases for more energy efficient construction.

Finally, improved energy efficiency is anticipated, thereby reducing the total cost of ownership in building construction, and lower energy costs for end-market consumers.

## INDUSTRY LEADERSHIP

EPI has not yet identified a major catalyzing organization to lead an effort for change in existing construction practices. A few basalt quarries have expressed an interest in learning more about the possibilities of vertically integrating the value chain by investing in basalt processing, thereby expanding the capacity to process basalt rock to basalt fiber-based materials in the country. The two basalt processing companies currently in operation have expressed interest in seeing more competitors enter the market, because they believe by doing so, a ready Georgian market for their products could materialize.

Based on this fact, EPI could support a market development campaign to encourage more Georgian investment and business creation in basalt fiber production.

Construction companies, engineering and design firms, as well as the existing processors have expressed interest in EPI assisting them to organize a sector-wide stakeholder group (which could later materialize into a representative association). Such an organization could be valuable in preparing the sector for development.

## CROSS-CUTTING THEMES

Basalt value chain development relates to several cross-cutting themes:

- **Lack of building codes and construction standards** – The main purpose of building codes are to protect public health, safety, and general welfare as they relate to the construction and occupancy of buildings and structures. Georgia is now utilizing Soviet-era technical standards for construction, which do not meet even local market requirements. Even the old ГООТ (Russian abbreviation of National Standards) construction materials standards are not in force. The government, with the support of USAID, has started the process of elaborating a Georgian Building Code, based on international building codes. But the process of developing these standards (which determines all kinds of specifications, test methods and practices for construction materials) is detailed and lengthy, and lacks resources. The lack of standards is one of the constraints for local and foreign investment.
- **Lack of product certification** – Certification of products indicates their established suitability for a specified purpose. Products, once certified, may be endorsed with a quality mark or be eligible to display a certification mark. Products must be used in accordance with their listing in order to perform as intended. Developed countries have mandatory certification systems, which ensure that construction materials comply with requirements determined by

National Standards. Due to certification requirements, Georgian producers are not able to enter the European market.

- **Lack of ecological or conservation awareness.**

These constraints have been highlighted primarily because it is the view of EPI that they are primary inhibitors to widespread adoption and the subsequent growth of basalt fiber production in Georgia. But they also have implications for other materials and processes.

With no building codes, construction standards, and few product certifications, there is a negligible market for basalt fiber products in the country. Similarly, with little history of building for energy efficiency, neither consumers, nor builders currently have an incentive to use insulation beyond its existing use (for roofs and attics).

In an effort to determine if increased production puts Georgians at risk of carcinogenic effects, the team explored the possible environmental risks associated with basalt fiber production. It was determined that basalt fiber does not pose a risk to employees because its fibers are typically too large to inhale. A brief on basalt's potential impact, based on information found through the World Health Organization (WHO), is located in Annex E.

## **STRATEGIC ENTRY POINTS AND RECOMMENDATIONS**

The following recommendations should be considered by EPI to support increased basalt production and use within Georgia. These initiatives include:

- Support businesses, associations, and GoG in elaboration of building codes and standards, based on International Code Council (ICC) codes and their referenced standards;
- Build awareness of interested parties (e.g. design and construction companies, quarries, consumers) of the benefits of basalt products as an insulation alternative;
- Identify and share information regarding new applications, technologies, and equipment with existing and potential investor companies. Investigate regional and international market trends, organize exhibitions, etc.
- Assess opportunities and requirements for attracting foreign direct investment to enable transfer of know-how in insulation materials;
- Assist industry organizations (e.g. Constructors Association) bring together all actors along the basalt value chain to develop a sector-wide action plan, to facilitate widespread adoption of that action plan, and to increase requisite investment and business creation;
- Develop export strategy to take advantage of demand in nearby countries.
- Develop necessary infrastructure for product testing and certification to enable exporting of finished goods to developed markets in the longer term

Consumers and value chain actors need to learn about the benefits, cost effectiveness and multiple applications of basalt fiber wool and mat. This market development activity will create the demand pull that demonstrates to construction companies that by building with basalt fiber, they can generate increased revenues and profit.

As the market matures, EPI might play a facilitative role by assisting the actors along the value chain in organizing themselves into a private sector led construction sector association. Its function, among others, would be to continue to attract investment for both business creation and research and development, collaborate in setting standards, and continue promoting more energy efficient applications for Georgian adoption.

# CONTACT DETAILS FOR VALUE CHAIN ACTORS

Company / Organization	Name & Position	Address	Contact Telephone Number	Email Address
Ministry of Economy and Sustainable Development	Grigol Kakauridze, Head of Construction Department	12 Chanturia str, Tbilisi, Georgia	891 197713	<a href="mailto:g_kakauridze@economy.ge">g_kakauridze@economy.ge</a>
"BPG" LTD	Paata Gogoladze, Director	7a Mshvidoba str. 3700, Rustavi, Georgia	899 949409	<a href="mailto:info@bpg.ge">info@bpg.ge</a>
—Eko Standard" LTD	Alfred, Director	Rustavi, Georgia	895 350589	
Knauf Marketing Tbilisi GmbH	George Japaridze, General Director	19 Gamrekeli str. 0160, Tbilisi, Georgia	877 400331	<a href="mailto:Japaridze.george@knauf.ge">Japaridze.george@knauf.ge</a>
—KO" LTD	Temur Japaridze, Director		899 550611	
—WDG"	Natalia Kvantaliani, President	23 Kazbegi str. 0160, Tbilisi, Georgia	032 392041	<a href="mailto:natalia@wdg.ge">natalia@wdg.ge</a>
Technical University	Zura Ezugbaia Professor	Kostava st.	899 341136	
Former Construction Materials Institute	Jenia Kashelnikov Professor	34 Kazbegi str. 0160, Tbilisi, Georgia	899 935084	
Construction Evaluation Union	Marina Khoferia, Head of Union	Tbilisi, Georgia	032 959588	<a href="mailto:ukia@list.ru">ukia@list.ru</a>

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## Additional Data

### Comparison of Basalt Fiber and Fiberglass

**Table 6: Comparative Characteristics between basalt fiber and fiberglass<sup>31</sup>**

#	Characteristic	Basalt fiber	Fiberglass
1.	Fiber diameter, micron	9	9
2.	Specific gravity, g/ cm <sup>3</sup>	2.65	2.54
3.	Operative temperature, C	-200 ... +900	-60 ... +500
4.	Sintering temperature, C	+1050	+600
5.	Thermal Conductivity, W/m <sup>2</sup> /°C	0,031	0,042
6.	Moisture regain, %	1.0	2.7
7.	Coefficient of filtering	0.7...0.9	-
8.	Chemical resistance: To 0,5N NaOH To 2.0N NaOH To 2.0N HCl	73...99% 48...92% 35...75% and 90...92% after crystallization	50% - 1.2%
9.	Sound proofing for 400...1800 Hz	80...95%	-
10.	Ecological cleanliness	Fiber from natural basalt	Has volatile resins, carcinogenic <sup>32</sup>
11.	The time of supply	Local production	Depends on import

### Technological Equipment for Basalt Fiber Production

<sup>31</sup> Source: Dr. Michael Ziv, —BASAL-TECH”, Phd.

<sup>32</sup> Due to non-existence of standards and certification of building materials, cheaper but ecologically more hazardous (because of non-qualitative volatile resins to link the structure) fiberglass is coming into the Georgian market. (Source: LTD —BPG

**Table 7: The main characteristics of BCTB 20M, BSTF 20 and BSTF 40**

#	Characteristic	Units	BCTB 20M	BSTF 20	BSTF 40
1	Production capacity	kg/hour ton/year	16-18 140-160	18-19 150-170	36-38 290-300
2	Consumption of natural gas, depending on its caloric, no more	m <sup>3</sup> /hour	55 – 60	35 – 40	70 – 80
3	Consumption of electric power: Installed capacity, Power consumption, no more	κVA κWthour	90 45	76 40	130 75
4	Characteristic of formed felts: width / density	Mm kg/m <sup>3</sup>	1000 18-23	1000 18-23	1000 18-23
5	Overall dimension of installation : Length/ width / height	mm	8000/6000/4500	8000/4000/4500	8000/5500/4500

*Possible Carcinogenic Risks of Basalt Fiber Production<sup>33</sup>*

**Man-made vitreous fibers**

- Special-purpose glass fibers such as E-glass and '475' glass fibers (Group 2B)
- Refractory ceramic fibers (Group 2B)
- Insulation glass wool (Group 3)
- Continuous glass filament (Group 3)
- Rock (stone) wool (Group 3)
- Slag wool (Group 3)
- Note: Group 2B – possibly carcinogenic to humans; Group 3 – not classifiable as to their carcinogenicity to humans

**Evaluation**

- There is *inadequate evidence* in humans for the carcinogenicity of rock (basalt, stone) wool/slag wool.
- There is *limited evidence* in experimental animals for the carcinogenicity of rock (stone) wool.

**Overall evaluation**

Insulation glass wool, continuous glass filament, rock (stone) wool and slag wool are *not classifiable as to their carcinogenicity to humans (Group 3)*.

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<sup>33</sup> World Health Organization, International Agency for Research on Cancer IARC Monographs on the Evaluation of Carcinogenic Risks to Humans, vol.81, Man-Made Vitreous Fibres, 2002, Lyon, France.

# ANNEX 11: CLAY PRODUCTS VALUE CHAIN ASSESSMENT

## ABSTRACT

Clay deposits are found in almost all regions of Georgia. Clay has been traditionally used in the country for many applications, including construction, art-ceramics, wine production, etc. Ceramic bricks and roofing tiles were traditionally used in construction; although construction companies now prefer locally produced concrete blocks for new construction because of cost savings. However, Georgia depends on imports of ceramic tiles due to a lack of production capabilities and large investment required for production.

This report is an assessment of the clay products value chain in Georgia and illustrates its limitations in contributing significantly to investment, business growth, exports, and employment. Since there was little justification for including clay products as a priority value chain for EPI collaboration, the team discontinued efforts to meet additional value chain actors.

## ABBREVIATIONS

EPI	Economic Prosperity Initiative
GoG	Government of Georgia
ITC	International Trade Center
USAID	U.S. Agency for International Development

# BACKGROUND ON CLAY

Clay is a naturally occurring aluminum silicate composed primarily of fine-grained minerals. Clay deposits are mostly composed of clay minerals, a subtype of phyllosilicate minerals, which impart plasticity and harden when fired or dried. Clay exhibits plasticity when mixed with water in certain proportions. When dry, clay becomes firm and upon kiln-firing, permanent physical and chemical reactions occur. These reactions, among other changes, convert the clay into a ceramic material.

Clay is one of the oldest building materials on earth, along with other ancient, naturally occurring materials such as stone and wood. Between one half and two thirds of the world's population, in traditional societies as well as more developed countries, still live or work in a building that has clay as an essential part of its load-bearing structure. Bricks are the main construction material made with clay; ceramic and roofing tiles are also common.

Georgia is rich in clay. It is found almost in all regions.

## Clay Products and Production in Georgia

Eighteen companies in Georgia have licenses to mine clay, with maximum annual mining limits per company of 12,450 m<sup>3</sup>. Several of the mines are inactive. The combined active operations employ approximately 360 people. Clay is used as a raw material in manufacturing construction materials such as bricks, ceramic tiles, and roofing tiles. Clay is also used as a raw material for art ceramics.

**Brick Production.** There are four companies in Georgia (two of which are active) that process (or can process) ceramic bricks. The two active firms together employ 195 people. They produce 16 million bricks annually, with a total approximate value of GEL 5.4 million.

**Roofing Tile Production.** There are three companies in Georgia that manufacture ceramic roofing tiles. Two of these companies primarily produce art ceramics and glazed ceramic roofing tiles for churches. Their production capacity is very low because of the hand-crafted nature of the production process. The third company employs three people and produces 40,000 tiles annually, with a total value of GEL 48,000.

**Ceramic Tile Production.** There is no ceramic tile production in Georgia; the team was unable to find any information regarding such production in Georgia. Ceramic tile specialists were active in Soviet times, but these skills have lapsed. However, the existing market for ceramic tiles is worth more than GEL 50 million. Given the size of the market, availability of raw materials, and the energy and labor intensive nature of production, EPI support to ceramic tile production could be considered in the future.

## Uses of Clay Products

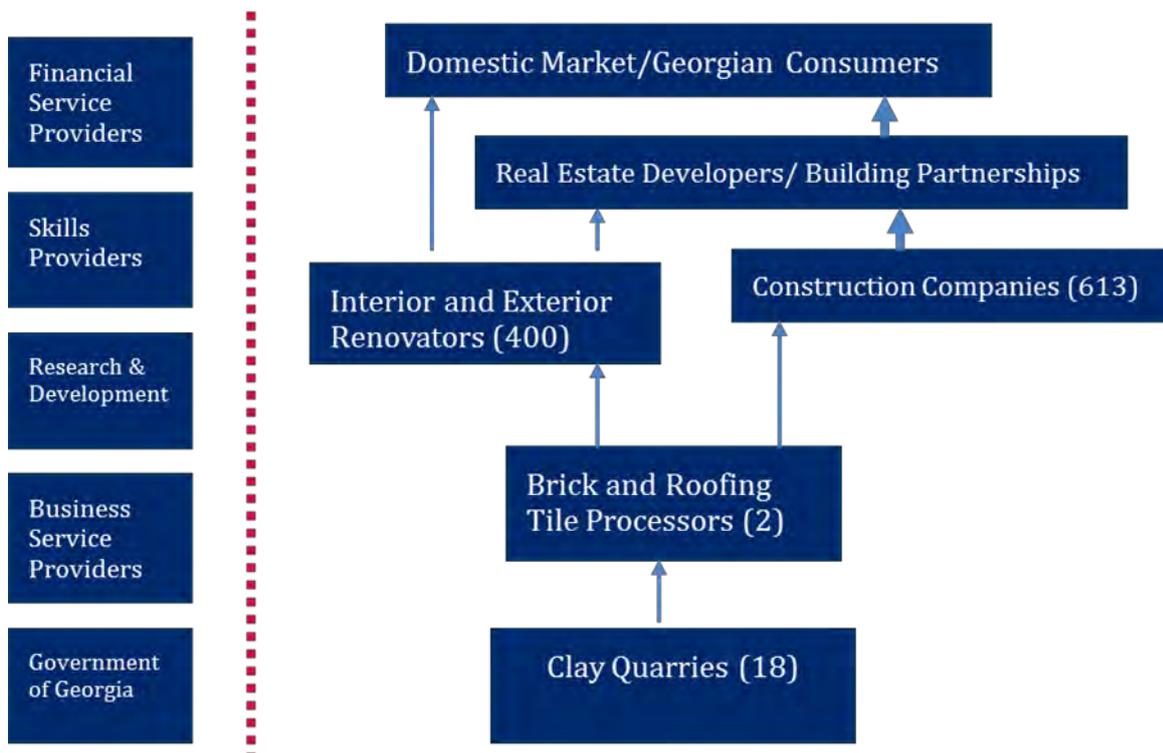
Bricks, ceramic tiles and roofing tiles can be used in the following construction materials:

- Bricks for building and pavement, for lining furnaces;

- Roofing tiles for roof covering;
- Ceramic tiles for floor and wall facing.

Competitiveness Potential	Impact Potential	Industry Leadership	Cross-Cutting Linkages	Overall Comments and recommendations
				Average: 1.5. NOT recommended for inclusion

## Clay Products Value Chain Map



### Clay Value Chain Actors

Eighteen companies have licenses to mine clay, but many are inactive. The maximum annual mining limit per company is 12,450 m<sup>3</sup> of clay.

As mentioned, there are only five active ceramic brick and roofing tile producers in the country. EPI identified two other factories that are inactive, but are attempting to obtain financing or investment capital.

# COMPETITIVENESS POTENTIAL

Presently, construction companies use mainly locally produced concrete blocks for new construction, even though brick has preferable qualities<sup>34</sup>. Because they are less expensive than bricks, customers are unaware of the advantages of brick, and building codes and standards encouraging use of brick are lacking. Efforts to increase customer knowledge, supported by building codes and standards, could create an incentive for use of brick in exterior wall assemblies and masonry veneers.

<b>Total Existing Market</b>				
<b>Material</b>	<b>Local Production (million USD)</b>	<b>Import (million USD)</b>	<b>Total Market (million USD)</b>	<b>Skills</b>
Bricks	3	3	6	Exist
Roofing Coverings (Tiles)	0.03	0.3	0.33	Exist
Ceramic Tiles	-	33.6	33.6	Do not exist
<b>Total</b>			<b>\$39.93mln</b>	

## Market Potential for Brick and Roofing Tile

There is no significant potential for brick exports. Armenia does not use a high quantity of bricks for construction; and brick and tile production in Azerbaijan and Turkey is enough to satisfy their domestic demand. Georgian production does not offer cost advantages over Azeri and Turkish production.

The maximum level of demand for clay products can be theoretically estimated as follows. Within Tbilisi, permits for construction of a total footprint of 1.2 million m<sup>2</sup> annually equates to an additional: 760,000 m<sup>2</sup> of exterior walls, which could use 42.5 million bricks at an approximate value of USD 8.2 million; and 40,000 m<sup>2</sup> of roofing for individual residential houses, which requires 600,000 ceramic roofing tiles at an approximate value of USD 800,000. The total market potential of ordinary bricks and roofing tiles is thus a maximum USD 9 million. This figure may be doubled to include construction in the rest of the country.

A stable market for traditional Georgian bricks and ceramic roofing tiles has arisen from the renovations of the historic city, Mtskheta, and old Tbilisi. The renovations are financed by

<sup>34</sup> For details please see below

Tbilisi Development Fund and Mtskheta Municipality. About USD 270,000 of traditional clay products will be needed annually over the next 5-6 years for:

- Renovation of old Tbilisi, financed by Tbilisi Development Fund - average annual demand for ceramic roofing tiles and Georgian traditional bricks of USD 140,000.
- Renovation of Mtskheta, financed by the municipality - average annual demand for ceramic roofing tiles and Georgian traditional bricks of USD 130,000.

The total national market potential for clay construction materials is a maximum of about USD 18 million. While this is substantial, EPI believes the market size, the limited number of value chain actors, and high level of market uncertainty will stand in the way of any significant foreseeable investment in the production of clay construction materials.

The EPI team also explored the potential for export. The ceramic tile manufacturing industry is extremely competitive. The higher-end segment of the market is dominated by the Italians and Spanish, while the lower-end segment is dominated by Turkey, the UAE, and China. Georgia lacks the skills and brand recognition to compete in the higher-end segment. The lower-end segment requires substantial investment (roughly USD 8 million just for the machinery and equipment<sup>35</sup>), offsetting Georgia's advantage in low-cost labor; and also requires extremely high volumes to offset lower margins (Turkish firms, for example, have trouble finding sufficient demand to keep their capacity utilization high enough).

Ceramic sanitary ware would be another possible product group, given the high labor intensity of the production process and presenting Georgia with an opportunity to take advantage of its lower wages. However, this segment requires sophisticated skills not possessed by Georgians; and the cost of energy (most of which is natural gas, of which Georgia is a net importer) would offset the lower cost of labor in Georgia. Additionally, sanitary ware is also extremely competitive, with 10 companies (such as Ideal Standard, Sanitec, Kohler, Roca, and Toto) representing 50 percent of global market share. Because of the sensitivity of the industry to logistics costs (due to the size of sanitary ware products), most of these firms have decentralized and established factories in multiple locations, limiting opportunities for local players.

This leaves one additional option, which is brick and roof tiles. Brick is a bulky construction material and therefore more suitable for local production (located close to demand). Trade data shows that there is limited demand nearby; only about USD 432,000. Roof tiles would on the surface appear to offer somewhat more promise: proximate countries offer about USD 7.5 million in export potential, about USD 6.3 million of which is in Ukraine. However, Poland, the Czech Republic, and Germany are the country's top suppliers, and all boast better geographic proximity to the country than does Georgia.

Based on this analysis, EPI does not recommend becoming involved with the clay products value chain.

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<sup>35</sup> Seramik duvar ve Yer Karosu Üretimi Sanayi Profili, Türkiye Sanayi Araştırma ve Geliştirme Genel Müdürlüğü, 2008. The indicated cost in 2008 has been multiplied by the inflation rates to estimate the cost in 2011.

# CONTACT DETAILS FOR VALUE CHAIN ACTORS

Company / Organization	Name & Position	Address	Contact Telephone Number	Email Address
Ministry of Economy and Sustainable Development	Grigol Kakauridze Head of Construction Department	12 Chanturia str, Tbilisi, Georgia	891 197713	<a href="mailto:g_kakauridze@economy.ge">g_kakauridze@economy.ge</a>
JSC "Metekhis Keramika"	Davit Chitashvili General Director	Station Metekhi, Kaspi, Georgia	899 106267	
"A.D.B." LTD	Dito Avaliani Director	Khoni, Georgia	999 302326	
"Duruji Minerali" LTD	Alex Rozomashvili Director	6 Kutateladze st. Tbilisi, Georgia	874 470741	
Ind. Ent. "Soso Ilashvili"	Soso Ilashvili	1 Aleqsidze st. Tbilisi, Georgia	899 191919	
Ind. Ent. "Maia Gabadadze"	Maia Gabadadze	263 Dadiani st. Tbilisi, Georgia	899 928575	
"Misadgomari" LTD	Koba Samxtuashvili Director	Sagarejo	899 568169	
Ind. Ent. "Tamaz Nadareishvili"	Tamaz Nadareishvili	Tarzi territory, Tbilisi	993 603078	
Technical University	Zura Ezugbaia Professor	Kostava st.	899 341136	
Former Construction Materials Institute	Jenia Kashelnikov Professor	34 Kazbegi str. 0160, Tbilisi, Georgia	899 935084	

## BIBLIOGRAPHY AND REFERENCES

- International Trade Center;
- Ministry of Economy and Sustainable Development Data

- National Statistics Office of Georgia;

## Brick Characteristics

BRICK	
Size	250 x120 65 mm
Mass	2 KG
Density	1025 KG/M <sup>3</sup>
Sturdiness	M-125, M-150, M-175
Water-Absorption	From 6 to 12%
Heat Conduction	0,4 VT/M <sup>o</sup> C

# ANNEX 12: PERLITE VALUE CHAIN ASSESSMENT

## ABSTRACT

Georgia is rich in perlite deposits. Perlite is used for construction purposes throughout the world because of its outstanding characteristics. Perlite products are excellent thermal and sound insulators, superior in quality to traditionally used concrete blocks and more cost effective to produce. However, Georgians have not widely adopted its application in building construction, unlike countries such as the USA, Canada, and Germany.

This report provides an assessment of the perlite value chain in Georgia and illustrates its viability as an industry that with proper support and coordination can grow, creating new investment, new businesses, employment, and exports.

## ABBREVIATIONS

EBRD	European Bank for Reconstruction and Development
EPI	Economic Prosperity Initiative
GoG	Government of Georgia
ICC	International Code Council
ITC	International Trade Center
NGO	Non-governmental Organization
UNCTAD	United Nations Conference on Trade and Development
USAID	U.S. Agency for International Development
WHO	World Health Organization
WTO	World Trade Organization
ГОСТ	Russian National Standards (государственный стандарт)

# EXECUTIVE SUMMARY

## *Background on Perlite*

Perlite (French perlite, from perle – pearl) is a glass of volcanic origin. At the edge of lava flows, where initial contact is made between magmatic melt and the earth's surface, quick magma chilling leads to the formation of volcanic glass called obsidian. Underground water penetrates obsidian, causing its hydration and formation of obsidian hydroxide – Perlite.

Perlite deposits are located in the mountains of Georgia, 130 km from Tbilisi, near Paravan Lake. Proven reserves of crude perlite, suitable for extraction, are about 15 million m<sup>3</sup>, in an area of 36.6 hectares.

When it reaches temperatures of 850–900 °C, perlite softens. Water trapped in the structure of the material vaporizes and escapes, causing the expansion of the material to 7–16 times its original volume. The expanded material is brilliant white, due to the reflectivity of the trapped bubbles. Unexpanded ("raw") perlite has a bulk density around 1,100 kg/m<sup>3</sup> (1.1 g/cm<sup>3</sup>), while typical expanded perlite has a bulk density of about 30–150 kg/m<sup>3</sup>.

## *Perlite Products and Production in Georgia*

Perlite-based heat-insulating materials include the following manufactured products: plasters, mortars, silicate perlite, carboperlite, gypsum perlite, glass perlite, basalt-perlite fiber material, bitumen perlite, perlite-containing brick and block and perlite-cement slabs. It is mainly perlite blocks and dry mortar mixtures that are known in Georgia.

Two companies in Georgia have 20-year licenses to quarry an unlimited volume of Perlite. (One of these two companies has recently received its license, and has not yet begun quarrying.) In addition to quarrying companies, there are two perlite processing companies, which employ approximately 105 people.

## *Use of Perlite in the Construction Industry*

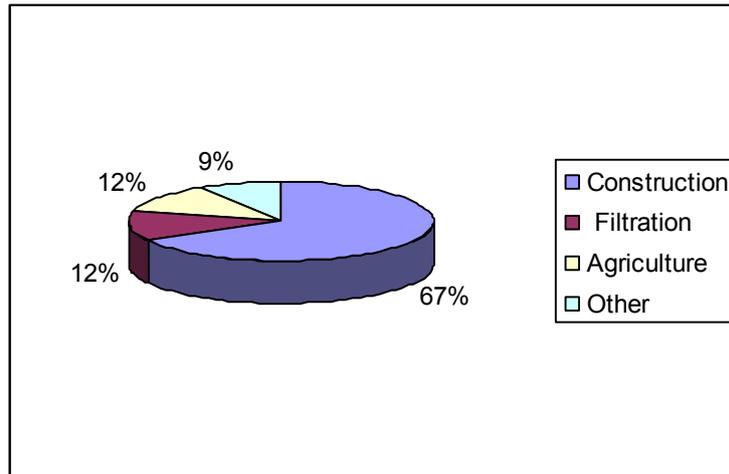
Because of perlite's outstanding insulating characteristics and light weight, perlite is widely used across the world as loose-fill insulation in masonry construction. Perlite is also ideal for insulating low temperature and cryogenic vessels. When perlite is used as an aggregate in concrete, a lightweight, fire resistant, insulating concrete is produced that is ideal for roof decks and other applications. Perlite can also be used as an aggregate in Portland cement and gypsum plasters for exterior applications and for the fire protection of beams and columns. Other construction applications include under-floor insulation, chimney linings, paint texturing, gypsum boards, ceiling tiles, and roof insulation boards<sup>36</sup>.

Perlite is also used in the following sectors: agriculture, filtration, food industry, pharmacology, metallurgy, etc. But in Georgia perlite and its products are used solely for construction purposes.

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<sup>36</sup> The above information is quoted from The Perlite Institute Inc. official web-page <http://www.perlite.org/>

**Figure 1: Perlite Consumption in the World According to Sphere of Application**



### *Perlite Applications*

Perlite is used in construction to enhance heat and acoustic insulation and fire ratings of buildings, reducing significantly the weight and volume of construction. The benefits of heat insulating perlite construction materials include:

- Reduction in heat loss from walls by 80 percent.
- Provision of optimal regime of temperature and wall dampness.
- Protection of walls from variations in temperature.
- Reduction in dampness, thereby increasing wall thermal resistance and slowing the process of deterioration.

Heat insulating materials, based on expanded perlite, are also the best sound absorbers and soundproofing materials, with high acoustic indices, making it possible to use them in buildings for acoustic purposes. Also, expanded perlite is chemically inert, non-combustible, fireproof, non-hygroscopic, frost-resistant, and protects against rodents and other pests.

However, to date, perlite is not widely used in Georgia for most of its potential applications. Some construction companies use perlite only for blocks, plaster, and mortar. In most cases, alternative materials, such as locally produced concrete blocks and gaj plaster, are used instead of perlite, because of low unit prices.

### *Perlite Value Chain Actors*

As mentioned, there are currently only two perlite products producers in the country. They sell locally, and also export to Azerbaijan, Ukraine, Russia, and Germany. EPI has determined that a second quarry is also about to commence operation. EPI has identified other vertical actors along the chain that need to be contacted and surveyed in order to validate the current findings. However, early indications suggest that the construction companies, along with targeted policy development, will play a major role in helping to

develop the perlite products market in the country. Up-front investment requirement is low. Requirements for an expanded perlite factory are substantial; a study by the Turkish Ministry of Industry and Trade on expanded perlite production showed that an investment of USD 1.3 to 1.5 million would be required. But other perlite products can be produced with more moderate investment.

### *Competitiveness Potential*

Georgia has the potential for export and domestic market development to support this growing sector. Yet today, construction companies are not aware of the potential of perlite in providing energy efficiency and cost effectiveness. Potential customers are not aware of the benefits of perlite over concrete block or gaj plaster; nor is there an incentive for them to replace concrete block or gaj plaster with perlite products, as there are no construction standards or regulations which influence them to build in a more energy efficient manner. In Georgia, generally only attics are insulated. However, just within Tbilisi, new permits for construction totaling a footprint of 1.2 million m<sup>2</sup> equates to an additional 760,000 m<sup>2</sup> in exterior walls and 500,000 m<sup>2</sup> in partitions. This amounts to 1,260,000 m<sup>2</sup> in possible insulation applications at an approximate value of GEL 50.8 million<sup>37</sup>. EPI estimates that this figure will increase significantly when taking into account renovations and planned construction anticipated throughout the rest of the country. EPI believes the market potential to be enough of an opportunity to entice new investment into expanded perlite production.

There is also increasing demand outside of Georgia and high export potential just for unexpanded perlite. The interested countries are Russia, Ukraine, and Azerbaijan<sup>38</sup>. The demand in these countries for unexpanded perlite, vermiculate, and chlorites products is USD 3.6 million. Turkey<sup>39</sup> and Armenia do not have trade deficits in unexpanded perlite. Georgian companies are the main sources of perlite and its products are imported into Azerbaijan.

### *Cost Economics*

Initial analysis demonstrates that not only is perlite more energy efficient in end use, but also less expensive<sup>40</sup>. Including transportation and installation, construction companies can build with perlite products (to replace concrete blocks) at a savings of GEL 12.96 per m<sup>2</sup>.

Additional benefits include:

- 50 percent cost savings in transporting the material to the construction site
- Reduced application times
- Reduction in concrete and steel framework requirements, due to lower tension on foundations

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<sup>37</sup> Based on —Transcaucasia Cristal” calculations.

<sup>38</sup> ITC data.

<sup>39</sup> Turkey’s perlite reserve is estimated at around 4.5 billion tons.

<sup>40</sup> Based on —Transcaucasia Cristal” calculations.

- Reduction in wall width by 0.2 cm over the whole perimeter of the building

Competitiveness Potential	Impact Potential	Industry Leadership	Cross-Cutting Linkages	Overall Comments and recommendations
				Average: 2.25. Recommended for inclusion.

#### *Possible Initial Activities*

EPI sees an opportunity to support the development of Georgian-produced perlite products. To do so, the following activities are suggested for further consideration:

- Support businesses, associations, and Government of Georgia (GoG) in elaboration of building codes and standards, based on International Code Council (ICC) codes and referenced standards;
- Build awareness of interested parties (e.g. design and construction companies, consumers) of the benefits of perlite products as building and insulation alternatives, as well as for other applications, such as in agriculture, chemicals, food, and pharmaceuticals;
- Identify and share information regarding new applications, technologies and equipment with existing and potential investors. Investigate regional and international market trends, organize exhibitions, etc.
- Assist industry organizations (e.g. Constructors Association) to bring together all actors along the perlite value chain to develop a sector-wide action plan, to facilitate widespread adoption of that action plan and to increase requisite investment and business creation.

#### *Investment Possibilities*

If successful in market development, new perlite processing facilities will be needed for Georgia to meet the local demand for building and insulation materials. While the local market today represents about 6,000 tons, it boasts a roughly calculated potential of 125,960 tons. Companies engaged in construction could be interested in perlite manufacturing.

#### *Recommended Next Steps*

EPI should develop its dialogue with value chain actors to prepare an action plan to develop perlite production in Georgia. With proper support, EPI believes that the perlite value chain can draw new investment, business creation, employment and export opportunities.

# INTRODUCTION

## Background

Perlite is an amorphous volcanic glass that has relatively high water content, typically formed by the hydration of obsidian. It occurs naturally and has the unusual property of greatly expanding when heated sufficiently. It is an industrial mineral and a commercial product useful for its light weight after processing. When it reaches temperatures of 850–900 °C, perlite softens (since it is a glass). Water trapped in the structure of the material vaporizes and escapes, and this causes the expansion of the material to 7–16 times its original volume. The expanded material is brilliant white, due to the reflectivity of the trapped bubbles. Unexpanded ("raw") perlite has a bulk density around 1,100 kg/m<sup>3</sup> (1.1 g/cm<sup>3</sup>), while typical expanded perlite has a bulk density of about 30–150 kg/m<sup>3</sup>. Perlite deposits are located in the mountains of Georgia, 130 km from Tbilisi, near Paravan Lake. Proven reserves of crude perlite suitable for extraction are about 15 million m<sup>3</sup>, in an area of 36.6 hectares<sup>41</sup>.

Perlite may be used in its natural form (in construction); however, expanded perlite is more commonly used. Perlite is used in construction to enhance heat and acoustic insulation and fire ratings of buildings, reducing significantly the weight and volume of construction. Expanded perlite is used separately (as a substitution for sand and broken stone, as loose-fill thermal and acoustic insulation of floors, walls, roofs) or mixed with other construction materials (as a component in manufacturing heat-insulating products, warm plasters, light mortars, fillers for linoleums, paints, and dry building mixes).

In Georgia, locally produced concrete blocks and gaj plaster are generally used for wall construction. However, these materials do not completely meet the requirements for best-practice construction practices, because of durability, application temperatures, etc.

Perlite has the following properties: 1) low density (cannot be compacted) – heated perlite increases in volume while keeping the same mass, expanded perlite has a very low density which, combined with other characteristics (neutral pH and porous texture), makes it an ideal filling material which cannot be further compacted; 2) chemically neutral – Perlite is an odorless, non-flammable, and non-explosive chemical; an inorganic component which does not deteriorate. These reasons explain its popularity for various applications; 3) low conductivity - insulation, fireproofing and soundproofing – Perlite's low conductivity makes it an ideal material for bricks or tiles.

There are reports of early investigations into perlite being carried out in Japan in 1929. In the mid to late 1930's, many people were working in America to find uses for the material. In 1938 a patent application was made for a process to expand perlite and convert it to an insulation or refractory material. The Second World War brought a temporary halt to the industry's development until the late 1940's and early 50's when work progressed in the USA

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<sup>41</sup> Ministry of Economy and Sustainable Development data

and Holland<sup>42</sup>. Nowadays, perlite is mined and expanded (i.e. the expansion process) all over the world. The United States is estimated to be the largest consumer and producer of crude and expanded perlite. Other leading countries producing perlite include China, Greece, Japan, Hungary, Armenia, Italy, Mexico, Philippines, and Turkey. There are many uses for perlite, which can be described as three general categories: construction applications, horticultural applications, and industrial applications.

## Methodology

EPI carried out this value chain assessment to assess the viability and utility of perlite as a locally-produced and used construction material. The team gathered documents from government statistics on imports, exports, production and economic contribution; the UNCTAD/WTO sponsored International Trade Center's (ITC) TradeMap and COMTRADE web portals, and other available industry reports. After the document review, the EPI team developed a value chain map to assist in identifying actors along the chain. With the value chain map in hand, Georgian and international experts conducted semi-structured interviews with perlite value chain actors to understand their business models, production volumes, markets, costs and prices, anticipated investments, and opportunities and constraints when operating in the Georgian perlite value chain.

These acquired data points were then synthesized and analyzed to make judgments on the competitiveness potential, impact potential, industry leadership, cross-cutting linkages, and overall impressions on the viability of perlite as a possible value chain in which to focus technical support within the EPI project.

The perlite value chain in Georgia is underdeveloped. As a result, the team conducted only about nine interviews, spread between perlite quarries (miners of perlite, and otherwise known as producers), perlite processors (those who transform raw perlite stone into expanded products), architects and interior designers (those who have the ability to recommend perlite products in construction applications), and construction companies (those that actually build with perlite products).

Within these firms, company executives were targeted when interviewed. A contact list of those interviewed is provided at the end of this document.

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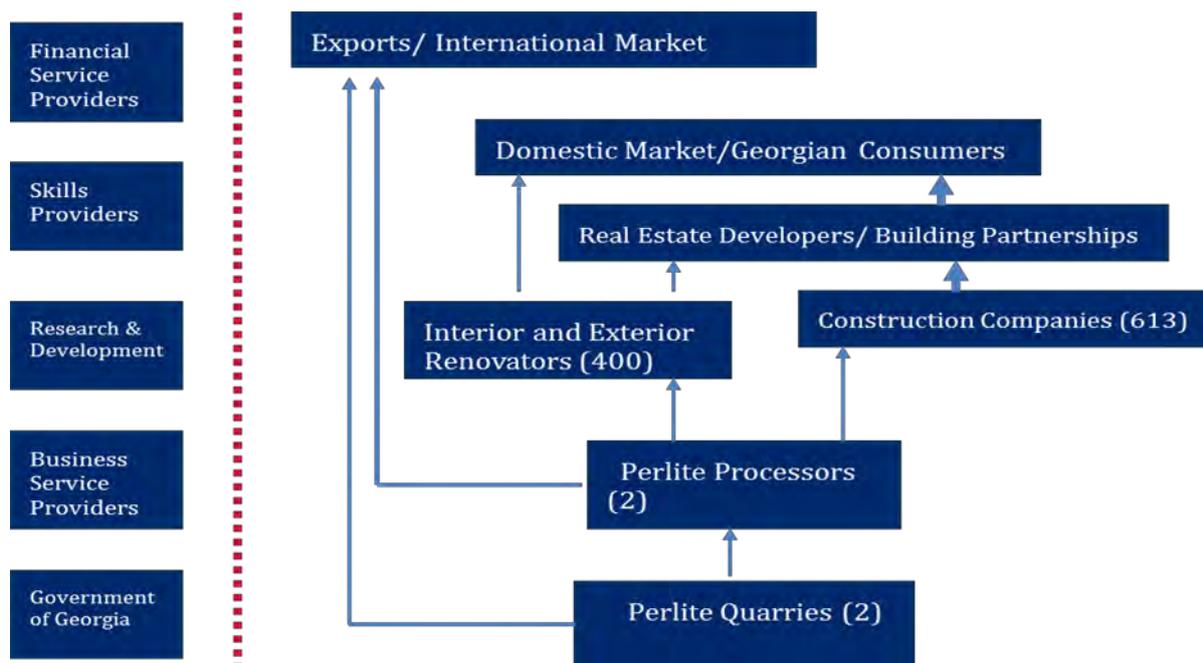
<sup>42</sup> The above information is quoted from [www.Perlite.info](http://www.Perlite.info) sponsored by INCON CORPORATION

# OVERVIEW OF PERLITE VALUE CHAIN

## Summary

Main Products/Services	Perlite blocks, plasters, and dry mortar mixtures
Key Markets Served	Perlite products are sold domestically and also in Azerbaijan, Ukraine, Russia, and Germany.
Production	1.7 million units of block and 14,000 m <sup>3</sup> of dry mortar mixture, with a total value of GEL 5.23 million.
Consumption	Unable to obtain at time of writing.
Exports	9.6 thousand tons with a total value of GEL 3.13 million in 2009
Imports	2010 value of perlite imported: GEL 14,000
Revenues	GEL 5.23 million
Employment	Approximately 105 employees work within the two perlite processors
Productivity	16 thousand tons/year. However, total current capacity is three times greater - 48 thousand tons/year
Positioning	Perlite is a better thermal and sound insulator than concrete, while being more cost-effective to use in building construction
Key Processes	Expansion of the raw perlite rock

## Perlite Value Chain Map



The EPI team developed the perlite value chain map, identifying the various value chain actors. This map was vetted with industry experts, and used to identify as many actors as possible along the chain.

### *Perlite Value Chain Actors*

#### *Production*

Two companies in Georgia have 20-year licenses to quarry an unlimited volume of Perlite. One of these two companies has recently received its license, but has not yet begun quarrying. After quarrying, miners either process the perlite materials themselves or outsource production of unexpanded perlite for construction applications.

The production of perlite particles from perlite ore requires that the ore be crushed and ground; the ground perlite is then dried, ground again, and filtered. Based on the particle size, the perlite grains are classified and bagged. Because different sizes of perlite particles are required, flexibility in the grinding operations is the key to success.<sup>43</sup>

Perlite ore must be processed into coarse particles near the quarries. However, the expanded perlite, although it is a light material, is highly sensitive to logistics costs due to its volume. This requires that the expansion process be undertaken close to the location of the final demand.

<sup>43</sup> — Expanded Perlite Production Feasibility Study, Turkish Ministry of industry and Trade, 2009.

As a natural resource in Georgia, the GoG issues licenses to firms wishing to quarry perlite. Georgia's Law on Licenses and Permits regulates perlite quarrying in the country. The following table summarizes the licenses and fees associated with perlite quarrying.

**Table 1: Perlite Quarrying Licenses, fees and terms in Georgia**

License issued by the Ministry of Economy and Sustainable Development:	By auction
License term:	10-20 years
License fee:	GEL 200
Fee for quarrying 1 m <sup>3</sup> perlite by license holder:	GEL 1

### *Processing*

The expanded perlite processing facilities consist of three primary elements: raw material storage; expansion; and filtering and packaging.

The perlite grains, classified according to grain size (based on the quality of the perlite ore) are pre-heated (some perlite ores may not require pre-heating). The perlite grains are expanded in vertical and rotating horizontal furnaces. Finally, the expanded perlite is sorted with cyclone and multi-cyclone separators and bagged.

The furnaces used for expanded perlite production depend upon the type of perlite product to be produced. Fixed, vertical furnaces are generally preferred.<sup>44</sup>

In addition to quarrying companies, there are two perlite processor companies, which employ approximately 105 people and produce 16 thousand tons of perlite products (perlite blocks and dry mortar mixtures) annually. Each company is of moderate size. Perlite products are exported to Azerbaijan, Russia, Ukraine and Germany.

Wholesale prices for perlite block average GEL 2.5/unit, and GEL 70/m<sup>3</sup> for dry mortar mixtures.

From a technological point of view, perlite processing is relatively simple and, according to those currently processing, does not require large investment. For example, one investment project for perlite products processing, with an annual production capacity of 14,000 tons of perlite blocks, mortar and plaster, required USD 250,000. This investment covered the cost of purchase of the requisite equipment, and installation. In Georgia, existing processing capacity is estimated to be over 48,000 tons/year.

A discussion with Tasper, a Turkish company that designs, engineers, and installs perlite production facilities, also suggested that the investment required to penetrate the perlite business does not have to be significant. For instance, the machinery and equipment investment required for establishing a small-scale production facility with the capacity to process perlite ore (processing seven tons/hour of perlite ore, with one shift per day), including the process of crushing, drying, grinding, filtering, and bagging (without expansion machinery), is approximately USD 700,000-800,000.

The investment required to set up an expanded perlite production facility to process coarse, medium, or fine dry perlite is approximately USD 500,000. This assumes a plant with

<sup>44</sup> Ibid.

processing capacity of 15-20 tons/day of perlite particles, which would require about 7-8 employees. Expansion of one ton of perlite yields approximately 10-20 m<sup>3</sup> of expanded perlite depending on the type and quality of perlite used. This results in production of approximately 73,000-146,000 m<sup>3</sup> of expanded perlite per year.

Importantly, although the investments required for establishing perlite ore processing or expanded perlite production facilities are low, perlite manufacturing is not a profitable business unless the company also produces final products such as plasters, perlite blocks/panels and micronized perlite.

According to a feasibility study conducted by the Turkish Ministry of Industry and Trade on expanded perlite production, the investment of about USD 1.3 to 1.5 million is required for machinery and equipment for an expanded perlite factory (assuming one shift per day and 350 working days) with the capacity to process 3,600 tons of perlite ore in order to produce 5,700 m<sup>3</sup> of expanded fine perlite, 1,900 m<sup>3</sup> of expanded coarse perlite, 4,200 m<sup>3</sup> of expanded medium perlite, or 360,000 m<sup>2</sup> of roof mattress, and 15,900 m<sup>3</sup> of plaster/mortar.

### *Construction Companies*

A fundamental reform of the country's licensing system was carried out in 2005 when the *Law of Georgia on Licenses and Permits* was adopted. The Law abolished the license for design and construction activities. Nowadays, no license is required for design and construction activities, so anyone can easily register such companies.

Over 600 construction companies are registered in Georgia. For those that construct buildings, their primary knowledge of perlite as a construction material is very low. Few are aware of the engineering and economic benefits of building with perlite products. Compounding this fact, Georgia has few construction standards and codes that stipulate proper insulation requirements within buildings.

### *Engineering and Architectural Firms*

Tasked with designing the exterior structures and providing recommendations on interior construction and engineering, these firms could play a pivotal role in expanding the use of perlite products in Georgian construction. However, their role is presently limited, for many of the same reasons as construction companies. While these firms may be more aware of the beneficial qualities of perlite materials as thermal or sound insulators, because engineering and architectural firms design to specifications demanded by end users, they do not provide designs which require perlite material use. In talking with two design companies, they admit that their end clients know little about the benefits of energy efficiency, and for those that understand these benefits, perceived costs outweigh potential gains in total cost of ownership in buildings.

### *Building Partnerships*

The majority of residential constructions are implemented through partnerships, established by real estate developers. Partnerships represent groups of individuals, not registered as sole proprietors, associated for the purpose of developing immovable property without any further commercial interest. Thus, partnerships do not represent a legal entity and are organized in the course of construction on the basis of a partnership agreement. The agreement determines shares, specifically, the amount of property to be allocated to each member after completion of construction. The agreement also defines the management

structure of the partnership as well as the person responsible for management and representation. Such a person, the chairman of a partnership, is usually assigned by the real estate developer.

The role of the real estate developer in the construction process is limited to services such as obtaining construction permits, developing designs, arrangements for putting the constructed premises into commission, and other less costly actions. By conducting construction through partnerships, the companies are free from expenses related to the actual costs of construction activities as these are financed by partnership members through advance payments for acquisition of their future property. There are 4,550 building partnerships in Georgia.

### *Supporting Institutions and Services*

The Ministry of Economy and Sustainable Development is responsible for legislating and regulating the country's construction sector. The main functions of the Department of Urbanization and Construction include: development, coordination, and management of policies in spatial planning, construction activities, housing and communal infrastructure; organization, coordination, and development of construction and design norms and rules; issuing construction permits and accepting construction works as fit for use, within its competence; etc.

As an unregulated sector, there are few private sector-led organizations that serve the entire construction market in Georgia. Three prominent organizations are the *Union of Architects*, *Builders Federation*, and the *Constructors Association*, all based in Tbilisi. With no organization representing the combined elements of the construction sector, EPI sees an opportunity to help organize the value chain by bringing together its various actors in collaborative workshops to discuss perlite product opportunities within Georgia.

Quarries and perlite processors (as with many other value chain actors) indicate that financing is available. However, the firms interviewed mention that financial institutions require significant collateral requirements, and thus provide debt financing which is deemed to be too expensive.

The team identified the following business and technical institutions that play a support role for the sector:

- Skills Providers: *Local companies*
- Research & Development: *Georgian Technical University*
- Business Service Providers: *Design services, testing services from foreign technical institutes, and laboratories*

## **COMPETITIVENESS POTENTIAL**

In 1990, worldwide quarrying of perlite totaled 2 million tons. By 2005, that number had increased by 25 percent, to 2.5 million tons. According to estimates in the March 2008 report from Global Industry Analysts, in 2010 the perlite market was expected to exceed 3.1 million tons.

The perlite market offers many possibilities for future development. This market is characterized by relatively low investment requirements and attractive possibilities for using the final product in construction and many other applications.

Georgia has the potential to export and develop the domestic market for perlite products. Yet today, construction companies are not aware of the potential of perlite in providing energy efficiency and cost effectiveness. Customers are not aware of the benefits of perlite over concrete block or gaj plaster; nor is there an incentive for them replace concrete block or gaj plaster with perlite products, as there are no construction standards or regulations which influence them to build in a more energy efficient manner. In Georgia, generally, only attics are insulated. However, just within Tbilisi, new permits to build on a 1.2 million m<sup>2</sup> footprint would equate to an additional 760,000 m<sup>2</sup> of exterior walls and 500,000 m<sup>2</sup> of partitions. This amounts to 1,260,000m<sup>2</sup> in possible insulation applications at an approximate value of GEL 50.8 million<sup>45</sup>. EPI estimates that this figure will increase significantly when taking into account renovations and planned construction anticipated throughout the rest of the country. EPI believes the market potential to be enough of an opportunity to entice new investment into expanded perlite product production.

There is also increasing demand outside of Georgia and high export potential (for unexpanded perlite to countries such as Russia, Ukraine, and Azerbaijan. Total unmet demand in these countries, based on the trade deficit for unexpanded perlite and vermiculite products is about USD 3.6 million. Turkey and Armenia do not have trade deficits in unexpanded perlite. Georgian companies are the main sources of perlite and its products imported by Azerbaijan. There are ongoing negotiations by the Georgian suppliers with companies operating in Azerbaijan regarding the supply of a large quantity (volumes could not yet be specified) of perlite products; this opportunity results from more energy-efficient regulations<sup>46</sup> being adopted by the Government of Azerbaijan.

## Cost Economics

Initial analysis demonstrates that not only is perlite more energy efficient in end use, but also less expensive<sup>47</sup>. Tables 2 and 3 show that, including transportation and installation, construction companies can build with perlite products (to replace concrete blocks) at savings of GEL 12.96 per m<sup>2</sup>.

**Table 2: Calculation for 1 m<sup>2</sup> wall construction with ordinary blocks.**

Block	Cost (GEL)
Mortar (1 m <sup>3</sup> sand GEL 24) + (Cement 0.3m <sup>3</sup> GEL 36) = 60.00 GEL * 0.05 m <sup>3</sup>	3

<sup>45</sup> Based on —Transcaucasia Cristal” calculations.

<sup>46</sup> Source: Perlite processor companies

<sup>47</sup> Based on —Transcaucasia Cristal” calculations.

Block (pumice) = GEL 1.30 * 25 units	32.50
Laying of Blocks = GEL 0.50 * 25 units	12.50
400 units. Transportation to point of construction = 100 GEL/400 * 25	6.25

**Total: 54.25 GEL**

**Table 3: Calculation for 1 m<sup>2</sup> wall construction with perlite blocks.**

Block	Cost (GEL)
Mortar (1 m <sup>3</sup> sand 24GEL) + (Cement 0.3m <sup>3</sup> 36 GEL) = 60.00 GEL * 0.025 m <sup>3</sup>	1.5
Block (perlite) = 2.60 GEL * 12.5 units	32.50
Laying of blocks = 0.50 GEL * 12.5 units	6.25
1200 units. Transportation to point of construction = 100 GEL/1200 * 12.5	1.04

**Total: 41.29 GEL**

Additional benefits include:

- 50 percent cost savings for transporting material to destination
- Time saving for stocking the material
- Reduction in concrete and steel framework requirements, due to lower tension on foundations
- Reduction in width of walls by 0.2 cm over the whole perimeter of the building

The main factors contributing to the cost-effectiveness of perlite production in Georgia are:

- Availability of the raw material;
- Low labor and power costs, which represent a considerable part (60 percent<sup>48</sup>) of the cost of production of perlite products;
- Processing of perlite products requiring moderate investment
- Preferable technical characteristics, e.g. high thermal stability

<sup>48</sup> Source: Perlite processor companies

- Existing producers of perlite products in Georgia have annual production capacity of 48,000 tons, but due to demand currently operate at only 30 percent of capacity. At full production, costs would drop significantly;
- European Bank for Reconstruction and Development (EBRD) has provided a USD 35 million credit line for Georgian banks to finance energy efficiency investments, including thermal insulation for walls, floors, and roofs. For residential loans, a 15 percent subsidy on the products is available<sup>49</sup>.

## IMPACT POTENTIAL

A thorough analysis of the possible impacts perlite production can have on the Georgian economy has not been conducted. However, the team believes that the perlite value chain can generate new investment, new export opportunities, and new businesses and jobs.

By supporting the domestic production of perlite products, Georgia will be able to meet neighboring countries' demands. However, in order to meet this demand, new investment and business creation is necessary.

With new investment, EPI anticipates new businesses formed and new jobs created. These new businesses will not produce many jobs directly (as the average employee size for perlite production is 50 employees per firm). However, EPI anticipates a spillover effect into other construction related jobs, particularly in construction as demand increases for more energy efficient construction.

Finally, improved energy efficiency will reduce the total cost of building operation and maintenance, and offer lower energy costs for end-market consumers.

## INDUSTRY LEADERSHIP

EPI has not yet identified a likely catalyzing organization to lead an effort for change in existing construction practices. The two perlite processing companies currently in operation have expressed interest in working with EPI. They have also expressed interest in seeing more competitors enter the market, because they believe by doing so, it could encourage a larger Georgian market for their products.

Based on this fact, EPI could support a market development campaign to encourage more Georgian investment and business creation in perlite production.

Construction companies, engineering and design firms, as well as the existing processors have expressed interest in EPI assisting them to organize a sector-wide stakeholder group (which could later materialize into a representative association). Such an organization could be valuable in preparing the sector to the development.

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<sup>49</sup> Source: [www.energocredit.ge](http://www.energocredit.ge) and Georgian Banks

# CROSS-CUTTING THEMES

Perlite value chain development addresses several cross-cutting themes:

- **Lack of building codes and construction standards** – The main purpose of building codes are to protect public health, safety, and general welfare as they relate to the construction and occupancy of buildings and structures. Georgia is now utilizing Soviet-era technical standards for construction, which do not meet even local market requirements. Even the old ГООТ (Russian abbreviation of National Standards) construction materials standards are not in force. The government, with the support of USAID, has started the process of elaborating a Georgian Building Code, based on international building codes. But the process of developing these standards (which determines all kinds of specifications, test methods, and practices for construction materials) is detailed and lengthy, and lacks resources. The lack of standards is one of the constraints for local and foreign investment;
- **Lack of product certification** – Certification of products indicates their established suitability for a specified purpose. Products, once certified, may be endorsed with a quality mark or be eligible to display a certification mark. Products must be used in accordance with their listing in order to perform as intended. Developed countries have mandatory certification systems, which ensure that construction materials comply with requirements determined by National Standards. Due to certification requirements, Georgian producers are not able to enter the European market;

These themes have been highlighted, primarily because they are primary inhibitors to widespread adoption and the subsequent growth of perlite production in Georgia, but also apply to other construction materials.

With no building codes, construction standards, and few product certifications, there is a negligible market for perlite products in the country. Similarly, with little history of building for energy efficiency, neither consumers, nor builders currently have an incentive to build in a more energy efficient manner.

# STRATEGIC ENTRY POINTS AND RECOMMENDATIONS

The following recommendations should be considered by EPI to support increased perlite production and use within Georgia. These initiatives include:

- Support business and GoG to elaborate building codes and standards, based on ICC codes and its referenced standards;
- Help processors to raise awareness of interested parties on benefits of perlite products, both in construction materials as well as in applications for agriculture, chemicals, food and pharmaceuticals;
- Identify and assist companies with interest in investing in perlite production. This may take the form of raising awareness regarding information on new technologies

and equipment, providing them with information on regional and international market trends, and organizing exhibitions, among others.

- Assist industry organizations (such as non-governmental organizations (NGOs) and groups of local companies) to bring together all actors along the perlite value chain to develop a sector-wide action plan, to facilitate widespread adoption of that action plan, and to increase requisite investment and business creation.

Consumers and value chain actors need to learn about the benefits, cost effectiveness, and multiple applications of perlite products. This market development activity will create the demand pull that demonstrates to construction companies that by building with perlite products, they can generate increased revenues and profit.

As the market matures, EPI might play a facilitative role by assisting the actors along the value chain in organizing themselves into a private sector led construction sector association. Its function, among others, would be to continue to attract investment for both business creation and research and development, collaborate in setting standards, and continue promoting more energy efficient applications for Georgian adoption.

# CONTACT DETAILS FOR VALUE CHAIN ACTORS

Company / Organization	Name & Position	Address	Contact Telephone Number	Email Address
Ministry of Economy and Sustainable Development	Grigol Kakauridze, Head of Construction Department	12 Chanturia str, Tbilisi, Georgia	891 197713	<a href="mailto:g_kakauridze@economy.ge">g_kakauridze@economy.ge</a>
"ParavanPerlite" Ltd	Nugzar Samkharadze, Director	29 Abashidze str. 0179, Tbilisi, Georgia	899 414465	<a href="mailto:contact@perlite.ge">contact@perlite.ge</a>
—რანსკასია "Cristal" Ltd	Mamuka Skhvitaridze, Director	5 Pekini str. 0160, Tbilisi, Georgia	877 404422	
Knauf Marketing Tbilisi GmbH	George Japaridze, General Director	19 Gamrekeli str. 0160, Tbilisi, Georgia	877 400331	<a href="mailto:Japaridze.george@knauf.ge">Japaridze.george@knauf.ge</a>
—AKOLD	Temur Japaridze, Director		899 550611	
Technical University	Zura Ezugbaia Professor	Kostava st.	899 341136	
Former Construction Materials Institute	Jenia Kashelnikov Professor	34 Kazbegi str. 0160, Tbilisi, Georgia	899 935084	
Construction Evaluation Union	Marina Khoferia, Head of Union	Tbilisi, Georgia	032 959588	<a href="mailto:ukia@list.ru">ukia@list.ru</a>

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- [www.Pperlite.info](http://www.Pperlite.info)

## World Perlite Resources

World Perlite Resources	
Country	Reserve Base
(By Principal Countries)	World Resources of Perlite (In '000 tones crude ore)
Greece	300000
Turkey	5700000
USA	200000
Other countries	1500000
<b>World Total</b>	<b>7700000</b>

Source : Mineral Commodity Summaries, 2004.

# ANNEX 13: WOOD PRODUCTS VALUE CHAIN ASSESSMENT

## ABSTRACT

Georgia has very substantial timber resources, yet is a net importer of wood products used for construction materials. There are few wood processors in the country, and those that exist, use antiquated processing techniques. Because of this, virtually all Georgian wood exports are in unprocessed form; Georgia then re-imports wood products in finished form for use in construction. EPI carried out a value chain assessment of wood products used for construction materials to determine the sector's growth potential and needs for future support.

This report presents an assessment of the wood products value chain in Georgia and discusses the sector's constraints and possible growth opportunities to encourage steps to promote new investments, new businesses, and import substitution.

## ABBREVIATIONS

EPI	Economic Prosperity Initiative
GoG	Government of Georgia
ICC	International Code Council
ITC	International Trade Center
LVL	Laminated Veneer Lumber
MDF	Medium Density Fiber Board
OSB	Oriented Strand Board
UNCTAD	United Nations Conference on Trade and Development
USAID	U.S. Agency for International Development
WTO	World Trade Organization
ГОСТ	(государственный стандарт) Soviet National Standard

# EXECUTIVE SUMMARY

## *Background on Wood Products for Construction*

Wood has been an important construction material since humans began building shelters and houses. Today, new domestic housing in many parts of the world is commonly made from timber-framed construction. Specifically, engineered wood products are a growing segment of the construction industry, used in both residential and commercial buildings for structural and aesthetic purposes.

In Georgia, buildings are typically made of stone. However, wood is used as a supporting material, especially for the construction of roofs, interior doors and their frames, and exterior cladding. Wood is also commonly used as shuttering material to form the mold into which concrete is poured during reinforced concrete construction - but it is inefficient to use wood materials for such purposes, especially for large projects.

## *Wood Products and Production in Georgia*

Georgia is rich in forests. The following table presents some general statistics on Georgia's forestry sector<sup>50</sup>:

**Table 1: Statistics on Georgia's Forestry Sector**

Item	Statistic
Total forest fund area	2.98 million hectares, including 2 million ha covered by timber (40% of country territory)
Total volume timber	451.7 million m <sup>3</sup>
Annual wood surplus/re-growth	4.6-4.8 million m <sup>3</sup>
Average volume of timber per ha	163 m <sup>3</sup>
Average surplus of timber per ha	1.8 m <sup>3</sup>

According to the Forestry Departments' "Georgian Statistical Yearbook of Forestry" (2006), in 2005, Georgia's timbered land areas consisted of the following varieties of timber classifications:

- Coniferous forest cover 365,297 ha (15.8 percent), with reserve of 105.7 million m<sup>3</sup> (27.3 percent) – Abies 46.1 percent, Picea 27.4 percent, Pinus 25.1 percent;
- Deciduous forest cover 1,687,297 ha (72.9 percent), with reserve of 264.5 million m<sup>3</sup> (68.5 percent) – Beech 64.5 percent, Oak 14.7 percent, Hornbeam 11.4 percent, Chestnut 4.4%;
- Soft leafy wood cover 199,892 ha (8.5 percent), with reserve of 14.3 million m<sup>3</sup> (3.7 percent);
- Other species – 11,396 ha (0.5 percent), reserve – 0.5 million m<sup>3</sup> (0.1 percent).

<sup>50</sup> Forestry Department data. It has not been updated in recent years

### *Uses of Wood Products in Georgia*

In Georgia, wooden materials are effectively used in/as:

- Elements of, or the complete main structure in, timber-framed construction;
- Sloping roof structures;
- Floor coverings;
- Doors, windows, and their frames;
- Interior/exterior cladding;
- Particle and fiber boards for engineered doors;
- Production of architectural and aesthetic materials.

However, most of the above products are imported, despite Georgia's rich timber supply. Cut timber is rarely used for local applications, due to two main issues:

- Most timber cultivated in Georgia is not processed (dried)
- The little timber that is processed is not properly dried, and is thus considered very poor quality,

Thus, almost 100 percent of Georgia's timber is exported as raw material (primarily to Armenia, Azerbaijan, Turkey, and Iran), processed into wood products abroad, which are often imported into Georgia for use.

### *Wood Value Chain Actors*

There are currently eight timber processors in the country. EPI has also identified two additional timber companies entering the processing market. These companies recognize the high domestic demand for processed wood products and the potential for Georgian timber to fill that demand. They are planning to cut and dry wood locally, for direct sale to Georgian construction companies, as well as for regional export.

EPI has identified a number of vertical actors along the value chain. While many remain to be surveyed, early research suggests that for wood to be domestically consumed, significant investment and technical assistance are required in the area of wood processing. EPI continues to meet with actors throughout the value chain to validate current findings, identify potential lead firms and individual champions, and socialize key actors to the potential wood products that could be produced domestically.

### *Competitiveness Potential*

As a net importer of wood products (USD 50.3 million in 2010), Georgia has great potential for import substitution and domestic market development to support a growing value chain. Yet today, construction companies cannot use locally cut wood because of its poor quality. This is the Georgian wood industry's main weakness. Without significant investment, and new market entrants, Georgia will continue to rely on imported wood to serve its market demand.

The Georgian wood industry's key comparative advantages are:

- Ample supply: More than 40 percent of Georgia is covered in forest – a high proportion by global standards (0.13 percent of the world timber resources)<sup>51</sup>
- Existing enterprises successfully compete in the sector
- Low wage costs
- Competitive energy costs
- Favorable taxes and business environment

The large domestic demand for wood materials and the dearth of domestic supply has led to high import levels, creating a great opportunity for import substitution. According to the Ministry of Finance and ITC Trademap, the total value of imported wooden materials/products in 2010 was USD 50.3 million, and the trade deficit in wood products was USD 41 million.

There is also strong export potential. It is estimated that with necessary improvements, the value of wood exports could be doubled, reaching up to USD 37 million.

Competitiveness Potential	Impact Potential	Industry Leadership	Cross-Cutting Linkages	Overall Comments and recommendations
				Average: 2.5. Recommended for inclusion.

### *Possible Activities*

Based on these preliminary findings, EPI sees an opportunity to support the sector. The following recommendations should be considered by EPI to support increased wood-product production and use within Georgia:

- Support business, associations and Government of Georgia (GoG) in developing clear environmental regulations covering all aspects of timber extraction – replanting, erosion-management, chemical usage, transportation, etc. to ensure sustainability of supply of raw material.
- Support business, associations, and GoG in developing building codes and standards, based on International Code Council (ICC) codes and their referenced standards;
- Identify and assist existing companies as well as companies having an interest in investing in wood processing. Examples of types of assistance may include activities such as raising awareness of new technologies and equipment, inform companies of regional and international market trends, organize exhibitions, workforce development;
- Assist industry organizations that bring together all actors along the wood value chain in developing a sector-wide action plan, facilitating widespread adoption of that action plan, and increasing requisite investment and business creation.

<sup>51</sup> FAO

- Help to develop an export strategy to take advantage of demand in neighboring countries.
- Help to develop the capacities needed to undertake product testing and certification, enabling export to more developed markets.

### *Investment Possibilities*

For Georgia to meet local demand for wood materials, new investments are required, most importantly in wood processing facilities. Time and financial investments are substantial for new entrants that must acquire timber licenses and equipment to properly process logs for domestic use. Based on interviews with the existing processors, the following is a typical example of a necessary investment.

One investment project for wood processing (doors, windows, floor coverings, architectural, and aesthetic materials, etc.) with annual production capacity of 200 m<sup>3</sup>, required USD 150,000 for land, facility, and equipment purchase. The other bigger company, with planned annual production capacity of 11,000 m<sup>3</sup>, seeking to enter the market has already invested EUR 600,000 for equipment for two different process lines: sawmill and wood drying/treatment machinery, plus production of final products. There is a prospect that companies that are engaged in wood cutting would be interested in wood processing also.

### *Recommended Next Steps*

Through expanded dialogue with value chain actors, including the GoG, EPI should prepare an action plan to expand wood production and processing in Georgia. With proper support, the wood value chain can draw new investments and promote business creation, employment opportunities, and import substitution.

# INTRODUCTION

## Background

Wood has been an important construction material since people began building structures for shelter. Today, new domestic housing in many parts of the world is commonly made from timber-framed construction. Specifically, engineered wood products are becoming a bigger part of the construction industry, used in both residential and commercial buildings for structural and aesthetic purposes.

In Georgia, buildings are typically made of stone. However, in some cases, wood is still used as a primary building material, especially in western Georgia, where there is a culture of using wooden materials in houses. Where buildings are made of stone, wood is used as a supporting material, especially for the construction of roofs, interior doors and their frames, and exterior cladding. Wood is also commonly used as shuttering material to form the mold into which concrete is poured during reinforced concrete construction - but it is inefficient to use wooden materials for such purposes, especially for the large projects. This analysis looks specifically at wood for construction purposes.

### *Wood Production in Georgia*

Georgia is rich in wood. The total forested land area is 2.98 million hectares, which constitutes 40 percent of the country's land surface.<sup>52</sup> This compares with about 30 percent of total land area worldwide. Much of the forested land area is highly dense; 2 million ha are covered by 451.7 million m<sup>3</sup> of timber.<sup>53</sup> The average forest density in Georgia is 157 m<sup>3</sup>; this is high relative to competing producer countries Ukraine (at 87 m<sup>3</sup>) and Russia (80 m<sup>3</sup>). Ninety-seven percent of Georgia's forests, however, reside on mountainous slopes. Because of these slopes, and concerns that unrestricted timbering could upset ecological balances, the Forestry Department has attempted to regulate the industry, although with limited success.

Mature trees constitute 33.4 percent of forest coverage, and old trees constitute 35.4 percent. Productivity is fairly high, with an average 157.8 m<sup>3</sup> of timber per hectare. The average annual surplus of timber is 1.8 m<sup>3</sup> per ha and the total annual wood surplus is 3.6-3.8 million m<sup>3</sup>.

In 2005, Georgia's timberland areas consisted of the following varieties of timber classifications:<sup>54</sup>

- Coniferous forest cover 365,297 ha (15.8 percent), with reserve of 105.7 million m<sup>3</sup> (27.3 percent) – Abies 46.1 percent, Picea 27.4 percent, Pinus 25.1 percent;
- Deciduous forest cover 1,687,297 ha (72.9 percent), with reserve of 264.5 million m<sup>3</sup> (68.5 percent) – Beech 64.5 percent, Oak 14.7 percent, Hornbeam 11.4 percent, Chestnut 4.4 percent;

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<sup>52</sup> Forestry Department data. It has not been updated after 90<sup>th</sup>.

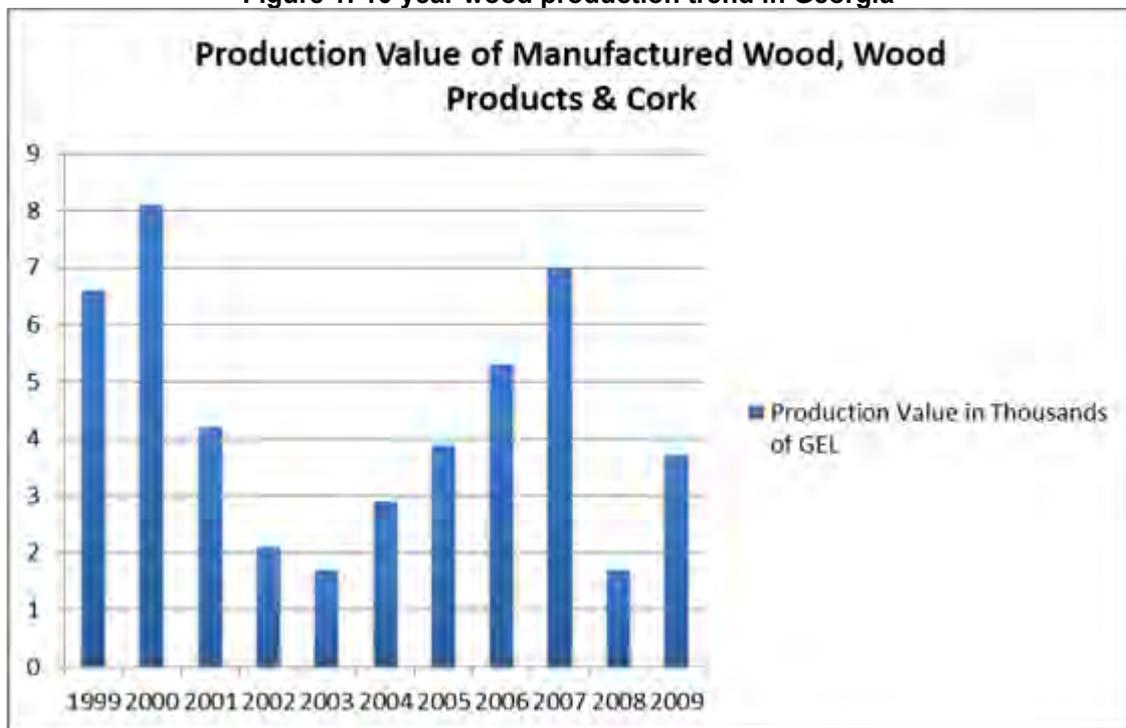
<sup>53</sup> Forestry Department, under the Ministry of Environment Protection and Natural Resources,

<sup>54</sup> Forestry Departments' — Georgian Statistical Yearbook of Forestry" (2006)

- Soft leafy wood cover 199,892 ha (8.5 percent), with reserve of 14.3 million m<sup>3</sup> (3.7 percent);
- Other species – 11,396 ha (0,5 percent), reserve – 0.5 million m<sup>3</sup> (0.1 percent).

While the value of manufactured wood and wood products in Georgia has varied over the past ten years, dips in 2003 and 2008 correlate to reduced production due to in-country instability, with value levels increasing in the years following national crises, reaching a high of over GEL 8,000 during the period.

**Figure 1: 10 year wood production trend in Georgia**



### *Quality*

There is varying information about the quality of local raw wood materials and their potential use in Georgian construction. Sources surveyed by EPI report that Georgia features many chestnut trees, but there is a general impression that local wood varieties have too many branches and corns, which complicate the treatment processing. Also, local consumers prefer wood that has few pits and scores, so Georgian wood is not viewed as attractive for use in flooring. However, there is demand for Georgian raw wood materials in neighboring countries.

The quality of wooden raw materials depends on many factors, the most significantly, production standards. Lack of standards and non-compliance with existing rules affect the quality of wooden construction materials/products (produced from local raw materials). According to construction companies, this is the principal reason they import wood. In Georgia, standards are lacking in the following areas: cutting and transport of trees, processing of trees into logs, sawing of logs into boards, drying of boards, and technical characteristics of boards,

In addition to the lack of standards for raw wood materials, most Georgian cultivated timber is not processed; leaving construction companies no choice but to import necessary wood

materials. Minimal investment is needed for wood processing; one investment, required USD 150,000 for land, facility, and equipment purchase and achieved annual production capacity of 200 m<sup>3</sup>. Furthermore, companies engaged in timbering may also be interested in expanding into wood processing and benefit from cost synergies in doing so.

- In most cases the timber that is processed is not properly dried, and thus is considered very poor quality,
- In most cases there is no wood-product processing in Georgia to produce goods needed by the construction industry.

Thus, Georgia exports unprocessed timber (mainly to Armenia, Azerbaijan, Turkey, and Iran) and imports processed wood products.

### *Demand*

There is a consistently strong domestic market for wood construction materials in Georgia because wooden materials are traditionally used in building houses, especially in the western part of the country. Companies use imported wood for the main structure in timber-framed construction, as well as its elements, including sloping roofs, floor coverings, doors and door frames, windows and window frames, interior/exterior cladding, and aesthetic materials. According to the Ministry of Finance, imports of wood construction materials/products totaled USD 47.4 million in 2009. Given the high import levels and the minimal investment needed for entry into the wood processing market, there is large potential for import substitution.

There is also strong demand outside of Georgia, particularly from Azerbaijan, Armenia, and Turkey, and high export potential as current timber exports of USD 18 million could be increased with additional local processing capacity.

By investing in production of engineered products such as fiber boards, particle boards, and plywood, Georgia can increase its share in the timber trade within the region as well. The total deficit in the four countries surrounding Georgia (Armenia, Azerbaijan, Ukraine, and Turkey) in products such as these was approximately USD 478 million in 2009.

## **Methodology**

EPI conducted an assessment of the value chain of Georgian wood products for use in construction, to determine the sector's domestic growth potential and needs for future support. The information collection included review of government statistics on imports, exports, production and economic contribution; the UNCTAD/WTO sponsored International Trade Center's (ITC) TradeMap and COMTRADE web portals; and other available industry reports. The team developed a value chain map to identify and describe the actors along the chain and the linkages among them. A Georgian and international expert then conducted semi-structured interviews with wood value chain actors to understand their business models, production volumes, markets, costs, pricing, anticipated investments, and opportunities and constraints when operating in the Georgian wood value chain.

These data points were then synthesized and analyzed to make judgments on the potential, competitiveness and impact, industry leadership, cross-cutting linkages, and the overall viability of the construction wood products sector as a value chain for EPI support.

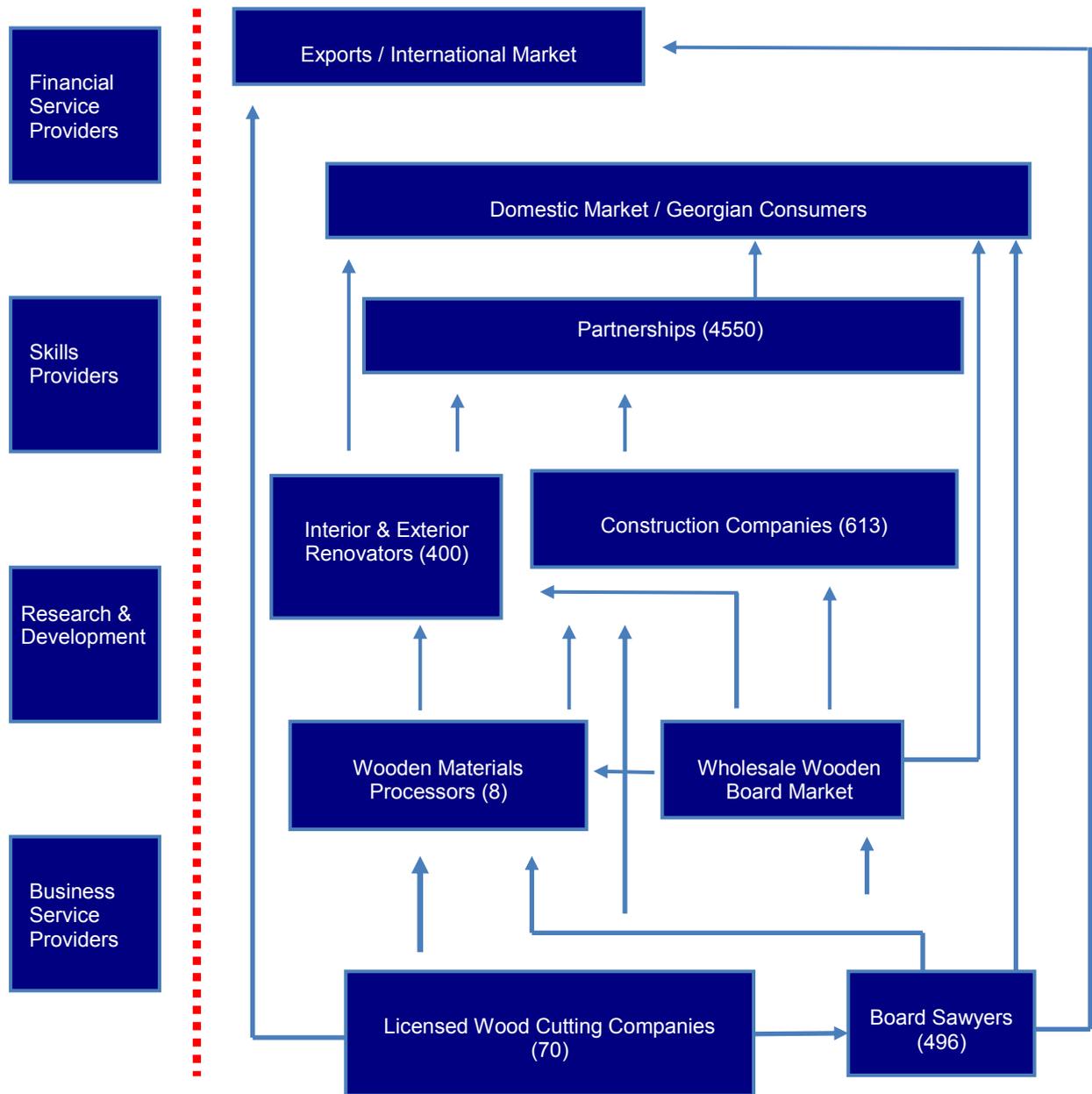
The list of those interviewed is included at the end of this annex.

# OVERVIEW OF THE PROCESSED WOOD VALUE CHAIN

## Summary

Main Products/Services	Wood flooring; doors, windows and their frames; wooden houses, shuttering for concrete construction, engineered products such as fiber and particle boards, plywood, etc.
Production	Maximum volume of annual cutting: 1,314,000 m <sup>3</sup>
Key Markets Served	Export of raw materials to Armenia, Azerbaijan, Turkey, and Iran, as well as Georgia itself. Almost no current exports of fabricated wooden construction materials.
Exports	USD 18,684,275 (primarily raw timber)
Consumption	Unable to obtain at time of writing.
Imports	USD 47,423,527 (primarily for processed wood)
Revenues	Unable to obtain at time of writing.
Employment	Estimated 3,500 employees in timber sector (taking an average of 50 employees per company for 70 timber companies)
Productivity	Less than 1% of cut domestic timber is processed and used within Georgia
Positioning (current)	Current production is of very poor quality, and is for local consumption
Key Processes (current)	Raw timber, along with a small percentage of sun-dried and treated wood, all of which is exported for further processing and wood-product production

# Wood Products Value Chain Map



The EPI team developed a value chain map of wood construction products, identifying key actors and the linkages between them. The map was vetted with industry experts, and used to identify as many actors as possible along the chain.

## ***Wood Products Value Chain Actors***

### ***Production***

Currently, 70 companies hold wood cutting licenses. More than 99 percent of these products are exported logs cut to various sizes. Over the next ten years, according to the Ministry of Economy and Sustainable Development, Georgian timber production is estimated to be 13,140,000 m<sup>3</sup> annually.

Georgia's Law on Licenses and Permits regulates the country's timber industry. The government of Georgia issues licenses firms wishing to cut timber, summarized in the following table.

**Table 2: Timber licenses, fees and terms in Georgia**

License issued by the Ministry of Economy and Sustainable Development:	By auction
License term:	10-20 years
License fee:	GEL 200
Fee for cutting 1 m <sup>3</sup> wood (other than firewood) by license holder:	From GEL 13 to 102 (depending on variety of wood)

The bottom third of the tree is considered to be most valuable. It is used in doors/ windows and their frames, plywood, veneer manufacturing, and solid wood furniture. As Georgia has a deficit in these products, there is a potential for import substitution. However, as these timber products (i.e. joinery) need to be customized per project requirements, it is difficult to export finished goods such as windows and doors. The second third of the tree is generally utilized as lumber for construction materials, posts and beams, etc. The rest of the tree is a candidate for the production of processed products such as particle board/chipboard or MDF (medium density fiber board) made from wood particles or flakes. Particleboard and MDF are cheaper than solid wood and plywood and can be substituted where cost is more important.

Approximate investments required for machinery and production capacities are shown in the following chart.<sup>55</sup>

Wood Products	Production Capacity*	Investment Required (machinery & equipment)**	Overview of Production Process
Dried lumber (kiln dried)	Each line has 50-60 m <sup>3</sup> capacity	EUR 50-60.000 (single line however approximately 10 lines are necessary for economical production)	
Chips	1.200 green ton chips / day (equates to 700 bone dry metric tonnes / day)	≈ EUR 500.000 (machinery for debarking and chipper)	
MDF Production	1.000 m <sup>3</sup> /day	≈ EUR 30 - 32 million (includes preparation line)	Hardwood or softwood residuals are broken into wood fibers with a defibrator. Later the fibers are combined with wax and a resin

<sup>55</sup> Source: Interview with a Turkish company. Capacity levels are indicated as average capacities to manufacture products economically. Additional investment is required for land, construction and additional expenses.

			<p>binder.</p> <p>Other chemicals can also be mixed such as wax, dyes, etc. to make the final product water resistant, fireproof, insect proof, etc.</p> <p>Then MDF panels are formed by applying high temperature and pressure.</p>
Particle Board Production	600 m <sup>3</sup> /day	≈ EUR 20 million (includes preparation line debarking, chipper, drying, gluing)	<p>Wood particles or flakes formed by a chipper are dried. Liquid resin is then sprayed onto the particles.</p> <p>Other chemicals can also be mixed such as wax, dyes, etc. to make the final product water resistant, fireproof, insect proof, etc.</p> <p>Liquid mixture is made into a sheet. The sheets formed are then cold-compressed. The boards are then cooled, trimmed and sanded.</p>
Plywood Production	150m <sup>3</sup> /day	≈ EUR 5 million (including steaming and drying)	<p>Log laid horizontally is rotated along its long axis with a blade peeling a thin layer of wood off the log. These sheets can be cut to specific dimensions, dried, patched, glued together.</p> <p>Later the boards are baked in a press to form the plywood.</p>

### *Processing*

There are currently eight timber processors in Georgia; two other timber companies are about to enter the market. These companies realize the potential of the domestic wood market and are planning to cut and dry wood locally, for direct sale to Georgian construction companies and for regional export.

### *Construction*

Over 600 construction companies are registered in Georgia. Those that construct buildings use wood for:

- Houses;
- Flooring;
- Doors, windows and their frames;
- Glued laminated timber (Glulam - vertical columns or horizontal beams, as well as curved, arched shapes);
- Laminated veneer lumber (LVL);
- Chipboard;
- Hardboard; and
- Medium-density fiberboard (MDF); Oriented strand board (OSB)

EPI identified Georgian construction company, Pako Ltd that source these materials locally. The main direction of the company is to build wooden houses. The company uses local coniferous raw material for the structural part and imported material for other parts of the houses.

### *Supporting Institutions and Services*

The Forestry Department of Georgia, under the Ministry of Environment Protection, is responsible for supervision of forest logging processes, while the Ministry of Economy and Sustainable Development is responsible for issuing wood cutting licenses according to Georgia's Law on Licenses and Permits.

EPI has not identified a private sector-led organization that serves the entire timber and wood-products market in Georgia. The Georgian wood products market has no representative body.

Financial institutions exist, and according to timber companies, finance is available to them. However, the firms interviewed suggest that significant collateral requirements make actually obtaining finance a challenge.

## **COMPETITIVENESS POTENTIAL**

As a net importer of processed wood products, Georgia has great potential for import substitution and market development to support a sector growth.

The Georgian wood industry's key competitive advantages are:

- Ample supply: more than 40 percent of Georgia is covered in forest – a high proportion by global standards (0.13 percent of the world timber resources)<sup>56</sup>
- Existing enterprises successfully compete in the sector
- Low wage costs
- Competitive energy costs
- Favorable taxes and business environment

The large domestic demand for wood materials and the dearth of domestic supply has resulted in high import levels. According to the Ministry of Finance, the total value of imported wooden materials/products in 2010 was USD 50.3 million. With such high net import levels there is a great opportunity for import substitution.

The EPI team analyzed prices along the wood construction value chain. To do so, the team compared unit prices of exported boards of multiple varieties to the price per unit of wood of imported wood products of the same wood variety. Based on 2009 figures, from one construction company, the prices per unit of wood of imported pine materials/products were three to 22 times higher than the unit prices of exported raw wood of the same variety (Turkish imports were three times as high, Ukrainian 16 times as high, and Finnish 22 times as high).

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<sup>56</sup> FAO

If Georgian companies invest in machinery and equipment for manufacturing engineered products such as particle board or fibre products (i.e. MDF), more value addition can be undertaken in the country. For instance, engineered doors made of particle/MDF boards represent 80 percent of the doors used (compared to solid doors). In an engineered door of USD 60, the solid joinery only represents USD 20 of the door. The rest is the MDF/particleboard, which is currently imported by Georgia.

## IMPACT POTENTIAL

Increased domestic manufacturing of processed wood products will contribute to import substitution, new investments, and new business creation.

By growing domestic wood processing capacity, Georgia will no longer need to import wooden construction materials from neighboring countries; local demand would be satisfied through local production. However, new investment and business creation is necessary to meet this demand.

## INDUSTRY LEADERSHIP

Without a private sector-led organization representing the value chain actors, EPI has been unable to identify a catalyzing organization to lead an effort to change existing wood processing practices. Currently eight companies are involved in the wood processing industry, but each processes only a limited amount; only about one percent of local wood is processed.

**Pako LTD**, established in 1999 in Adigeni, Georgia, is the main wood processing company in Georgia. The company's main service is building wooden houses. Pako uses local coniferous raw material for housing structures, and imported materials for the other housing components. Construction materials are treated<sup>57</sup>.

Pako Ltd summary data:

- Main products/services: Wooden houses
- Volume of production: Annual 250-500 m<sup>3</sup>; production capacity is seven or eight times more
- Key markets served: Local
- Process lines: Wood drying/treatment machinery and production of final products

**GORA** is a small Georgian-Dutch joint venture established in 2002. The company produces goods made from solid wood. GORA uses only local wooden raw materials (beech and coniferous varieties). The company purchases additional materials and accessories (paints, locks, knives, etc.) from the EU and the US.

GORA summary data:

- Main products/services: Internal doors, outside doors and windows, solid parquet, technological drying of wood, wood coverings, furniture and installation works
- Volume of production: Annual 80-100 m<sup>3</sup>; production capacity is two times more
- Key markets served: Local
- Process lines: Wood drying/treatment machinery and production of final products
- Certification: Products are not certified
- Remains: Remains (25-30 percent) are used for heating purposes

**Guria Gf LLC** is moving into the processed wood products market and has already built a wood processing factory. The company will produce various wood products: lumber and structural materials for construction.

Guria Gf LLC summary data:

- The license: Guria GF LLC is owner of 8,600 ha of forest (constituted mainly from beech and coniferous trees) in Guria region
- Maximum volume of annual cutting: 11,000 m<sup>3</sup>
- Process lines: Two different process lines: sawmill and wood drying/treatment machinery, plus production of final products
- Key markets served: local and international markets like Armenia, Azerbaijan, Turkey, China, Iran, and the EU

## CROSS-CUTTING THEMES

The processed wood industry lacks:

- **Building codes and construction standards.** Building codes protect public health, safety, and general welfare as related to the construction and occupancy of buildings and structures. Georgia currently employs Soviet-era technical construction standards, which do not meet even local market requirements. The old ГОСТ (Russian abbreviation for National Standards) construction materials standards are not even enforced. The government, with the support of USAID, has begun to create a Georgian Building Code, based on International Building Codes. But developing the standards (which outline specifications, test methods, and practices for construction materials) is a detailed and lengthy process, and demands resources which are currently lacking. The lack of standards is a key barrier to local and foreign investment.
- **Wood processing and production standards and wood certification** - wood processing standards for aspects of production such as tree felling, log care and transport, are crucial to the growth of the industry. Certification of products is also key, as it signals their established suitability for a specified purpose. Once certified, products may be endorsed with a quality stamp or become eligible to display a certification mark. Products must be used in accordance with their certified use to perform as intended. Developed countries have mandatory certification systems, which ensure that construction materials comply with requirements determined by national standards. Such certification requirements are barriers to entry of Georgian producers into the European market;
- **Market and technology knowledge** among Georgian timber companies, as well as other companies interested in entering the processed wood market.

# STRATEGIC ENTRY POINTS AND RECOMMENDATIONS

The following recommendations should be considered by EPI to support increased wood product production and use within Georgia:

- Support business, associations and GoG in developing clear environmental regulations covering all aspects of timber extraction – replanting, erosion-management, chemical usage, transportation, etc. to ensure sustainability of supply of raw material.
- Support business, associations and GoG in developing building codes and standards, based on International Code Council (ICC) codes and their referenced standards;
- Identify and assist existing companies as well as companies having an interest in investing in wood processing. Assistance may include raising awareness of new technologies and equipment, inform them of regional and international market tendencies, organize exhibitions, workforce development, etc.;
- Assist industry organizations that bring together all actors along the wood value chain in developing a sector-wide action plan, facilitating widespread adoption of that action plan, and increasing requisite investment and business creation.
- Help to develop an export strategy to take advantage of demand in neighboring countries.
- Help to develop the capacities needed to undertake product testing and certification, enabling export to more developed markets.

# CONTACT DETAILS FOR VALUE CHAIN ACTORS

Company / Organization	Name & Position	Address	Contact Telephone Number	Email Address
Ministry of Economy and Sustainable Development	Grigol Kakauridze, Head of Construction Department	12 Chanturia str, Tbilisi, Georgia	891 197713	<a href="mailto:g_kakauridze@economy.ge">g_kakauridze@economy.ge</a>
Ind. Ent. Vakhtang Betlemidze	Vakhtang Betlemidze, Owner	Avchala, Tbilisi	874 626202	
"Villa Pako" Ltd	Lasha Tsereteli, Deputy Director	Demetre Taviddebuli st. Tbilisi	855 551111	<a href="mailto:info@pakohouse.ge">info@pakohouse.ge</a>
"Wood Service" Ltd	Archil Papava, Marketing Manager	David Aghmashenebel i Lane 15th km., Tbilisi	899 542484	<a href="mailto:wservice@geo.net.ge">wservice@geo.net.ge</a>
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# **ANNEX 14: PAPER/PAPERBOARD/ CORRUGATED PACKAGING VALUE CHAIN ASSESSMENT**

## **ABSTRACT**

The assessment examines the paper/paperboard/corrugated packaging value chain. The competitiveness potential of the value chain is assessed and impact potential is analyzed along the value chain. Recommendations are given to develop a consistent source for recycled fiber to support paper making capabilities in Georgia, apply competitive advantages in energy and labor to bring more paper and corrugated manufacturing to Georgia, and encourage product identification and differentiation of paper, paperboard, and corrugated board products.

## **ABBREVIATIONS**

ASTM	American Society for Testing and Materials
EU	European Union
FSU	Former Soviet Union
GEL	Georgian Lari
HDPE	High Density Polyethylene
ISO	International Standards Organization
PET	Polyethylene terephthalate
TAPPI	Technical Association of the Pulp and Paper Industry
TMI	Testing Machines, Inc.
USAID	U.S. Agency for International Development
USD	United States Dollar
WPO	World Packaging Organisation

# EXECUTIVE SUMMARY

Generally the paper/paperboard/corrugated value chain is competitive and low-margin. Many goods packed in corrugated boxes are low value, sold in bulk, and can be packed in corrugated packaging made from 100 percent recycled fiber. Local paper production used for linerboard (which is then used to make corrugated board) utilizes recycled fiber from Georgia. No virgin fiber is harvested in Georgia. One Georgian company produces office paper, but no packaging paper, from virgin fiber imported from Russia, Ukraine, and Finland. Paper liner made from virgin fiber is imported primarily from Turkey and Ukraine. Higher value added paper packaging is imported mainly from Turkey.

Some higher value added paperboard packaging is being produced locally and demand for such higher value added packaging is increasing. Local manufacturers need new and better quality equipment to substitute for imports in this segment. Limited testing equipment is available from the EU and USA that provides technical support to demonstrate differentiated products (e.g. stronger paper in terms of tear and burst, or corrugated in terms of impact resistance and stacking strength). There is a good opportunity for local producers to earn stable or increasing margins by gradually substituting imported paper packaging. High import costs (often transportation is the main driver of costs and these costs are expected to rise) and minimum buying quantity constraints are factors, which will favor local production over imports. A more competitive (cost efficient, better quality) packaging sector may also reduce the cost of inputs into other sectors that use packaging (pharmaceuticals, agriculture, wine, apparel, etc.) – thereby helping to make them more competitive internationally. Labeling is an important informational, service, and presentation element of higher value added final products.

Surveys and semi-structured interviews were used during the report preparation. All necessary data were obtained from National Statistics Office of Georgia and Ministry of Finance. The paper/paperboard/corrugated value chain will be analyzed in the report to assess competitiveness and impact potential.

## Paper/paperboard/corrugated value chain

Competitiveness Potential	Impact Potential	Industry Leadership	Cross-Cutting Linkages	Overall Comments and recommendations
				Average rating: 3.0. Recommended for inclusion

# INTRODUCTION

## Background

Packaging is central to economic development as it serves multiple functions - to contain, protect, transport, present, market, and inform consumers about virtually all goods. The contain and transport functions allow goods to enter domestic and export markets, and the present and inform functions introduces those products to new consumers. It is packaging that generates interest for the initial sale and product quality that influences subsequent sales.

The packaging sector discussed in this report on paperboard includes shipping containers that are the most common form of transport packaging and decorated boxes, such as those containing multiple bottles of wine, that present the product face to the consumer.

Paper is made from cellulosic fibers. Virgin fiber can be used, typically from softwood trees that have long fibers; recycled fiber can be used from waste paper and paperboard; or mixed fibers can be used. Virgin fibers produce brown paper, but can be bleached to form white paper and produce a stronger product. Recycled fibers can make weaker and less consistent strength paper, and strength decreases as fibers break down with continued recycled cycles. Paper and paperboard made from recycled fibers can be brown to grey in color. No wood is harvested in Georgia for paper production and no virgin fiber is imported for making linerboard in Georgia.

Three companies make paper in Georgia, two for packaging and one for office paper. One of the firms can produce 1,000 tons of paper per month from 100 percent recycled fiber, but is currently producing 300 tons per month because of lack of a consistent supply of recycled paper. This company reports it is currently making 150 tons per month with a capacity of 300 tons per month using recycled fiber. Another company produces office paper from virgin fiber and up to 20 percent recycled fiber.

Paper is made in varying thicknesses, measured by basis weight in grams/m<sup>2</sup>. These papers are used as linerboard. Corrugated board is made by combining at least two liners separated by at least one corrugated medium (made by Seka, Ruloni or imported from Turkey). Multi-walled corrugated board adds additional corrugated medium and linerboards to build strength. Corrugated construction offers high strength with little material and is the basis for most transportation packaging. Corrugated board can vary in strength and properties by varying the height of the corrugated medium (thicker corrugated provides more impact protection), number of flutes per centimeter (more flutes provide increased stacking strength), using different weight linerboard (higher basis weight affords higher strength), and composition of linerboard (longer fibers offer higher strength, shorter fibers, including recycled fiber, reduces strength).

Since fibers degrade with successive recycles, one could segregate office papers, corrugated, and other paper sources to combine for a degree of consistency. The marketplace includes recycled board, paper, and domestic imported corrugated board, made from virgin fiber. As mentioned above, corrugated board could be made from each batch of recycled paper and then graded for strength and sold accordingly.

Strength of paper and corrugated board is a key attribute and being able to assess that strength offers an opportunity to grade the board and sell it on the basis of strength. Standards and test equipment exist to measure tear strength of paper (Elmendorf tester), burst strength of corrugated (Mullen tester), an index of stacking strength (edge column crush), and myriad other parameters. These testers are affordable for small companies that could measure and sell higher performance packaging. Testing that requires more expensive test equipment includes tensile testing, compression testing, and performance testing, but these tests are usually performed by companies with large volumes that justify it to define minimum packaging required to yield acceptable performance. Standards can be obtained from ISO, American Society for Testing and Materials (ASTM), or Technical Association of the Pulp and Paper Industry (TAPPI) that include procedures and equipment to provide these measurements.

One company is producing stronger and more water resistant linerboard using chemical additives in their process. Their linerboard does not absorb water within a 25 second exposure. The strength of their 80g/m<sup>2</sup> basis weight liner appeared good based on a visual and manipulation assessment, without the benefit of testing. This company has ordered equipment to further bridge the quality gap between linerboard made from virgin versus recycled fiber. The equipment will separate fiber from contaminants, thereby reducing the mottled appearance of linerboard made from recycled fiber, and will include a filter system that removes short fibers and retains fibers with a minimum 0.7mm fiber length. These procedures will produce a linerboard that is more competitive with linerboard made from virgin fiber. Testing will be required to determine if performance is matched.

Seven companies make corrugated board in Georgia, including the two that make paper. Both paper-making companies were interviewed. These companies require a more steady supply of recycled paper to maintain production than they currently enjoy. Seka is in the process of negotiations with a Turkish company in order to double their paper making capacity. Both companies have plans to utilize white recycled paper to make a white liner for (one-side) corrugated board. White liner is currently produced in Georgia by Seka Ltd in very small quantities from white paper waste. The company stated that the main impediment to increased production of white liner board is limited supply of white paper waste.

Corrugated board is used to make shipping containers and retail packs such as boxes for wine. The board can be printed, cut, and scored to form the final shipper. Corrugated linerboard can be printed in-line, which requires sufficient quantities of boxes to justify. Small and medium sized box makers can purchase corrugated sheets that can be printed or can print linerboard that is then combined with single faced corrugated (available in roll form) to make printed corrugated board. This latter procedure often utilizes imported white liner.

Quality boxes are prepared in Georgia using 100 percent imported materials. Gofratara LTD imports linerboard and corrugated medium from Turkey and prepares corrugated board in three different thicknesses: 2mm, 3.5 mm, and 5 mm.

Good communication is lacking between Georgian packaging suppliers and potential customers. Often agricultural, food producer, and other sector companies import paper boxes, citing quality as the main problem for the local production. Georgian boxmakers that make boxes destined for the EU either import corrugated or prepare corrugated board from imported linerboard made from virgin fiber.

Corrugated box sales are to domestic customers and those customers that export do so primarily to central Asia and Ukraine with limited sales to the EU. With the loss of substantial market to Russia, it remains a question if manufacturing to industry performance standards would be a strategic move for Georgian corrugated manufacturers that utilize board made from recycled fiber.

## **Methodology**

The value chain was assessed through direct interviews, GeoStat figures, internet searches, and through contacts in Turkey.

# OVERVIEW OF THE PAPER/PAPERBOARD/CORRUGATED VALUE CHAIN

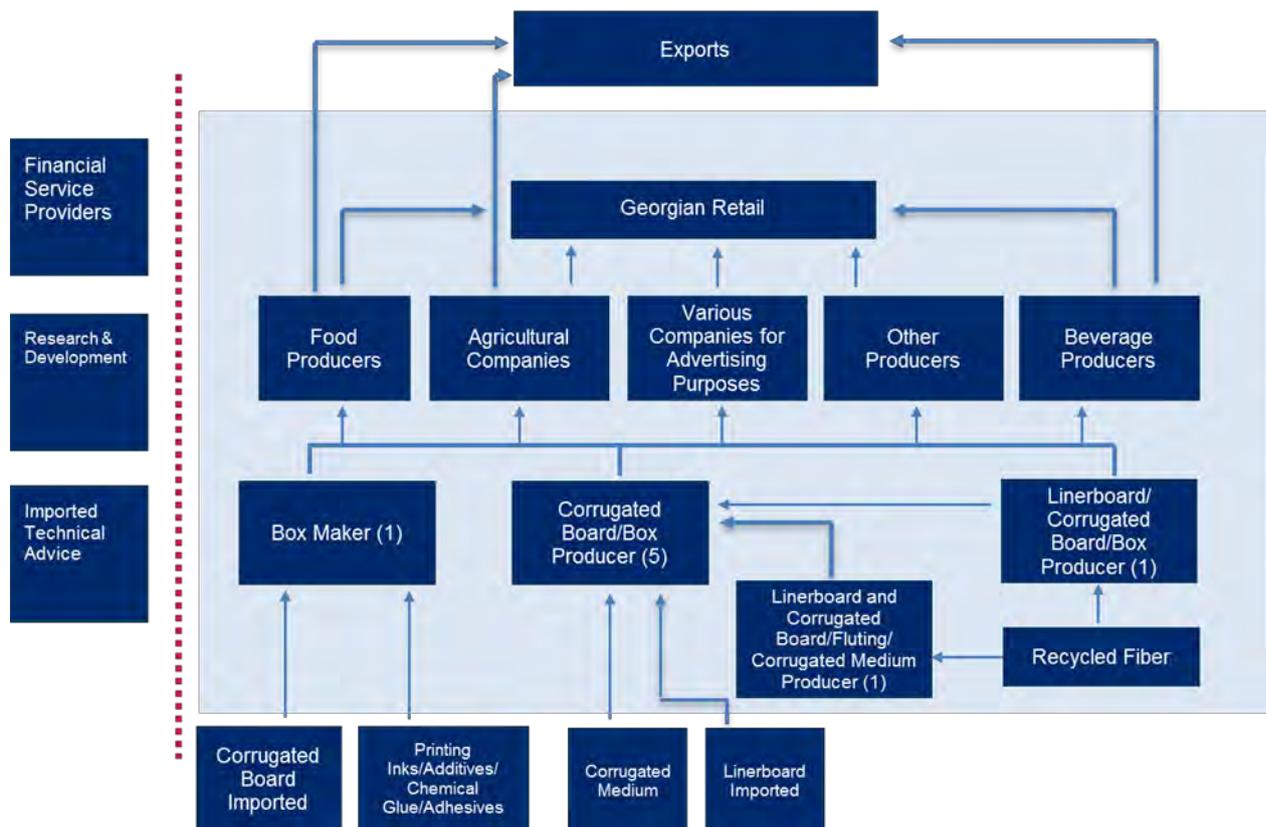
## Summary

Main Products/Services	Paper boxes/containers
Key Markets Served	Georgian retail Supply chain Exports including agricultural produce, wines, processed foods, finished goods, and industrial components
Production of Paper in Georgia	700 tons of paper boxes monthly
Consumption (including imports)	4133 tons of paper boxes, around USD 8,634,000
Exports	3 tons, USD 149,500
Imports	3,433 tons, USD 7,172,097
Revenues	Unavailable
Employment	55 people work for corrugated paper producer companies. 175 people work for paper box/container producer companies. Several thousand people work for agricultural, food processor and beverages producer companies using the paper packaging.
Productivity	420 tons of corrugated paper are produced monthly (USD 210,000 worth), total capacity – 1,300 tons 700 tons of paper boxes/containers are produced monthly, total capacity – 1,400 tons
Positioning	Better packaging creates sales and export opportunities in different sectors
Key Processes	Corrugated paper is produced from recycled paper and white test liner. Different type of paper boxes/containers are produced from corrugated paper that are used by different sectors

## Paper/Paperboard/Corrugated Packaging Value Chain Map

The main products of the sector are various sizes of corrugated boxes. These boxes are used by food producers, agricultural, and other sector companies.

There are two paper liner producer companies operating in the Georgian market. They produce linerboard paper at a price of around USD 460/ton and corrugated medium (fluting) at USD 450/ton. Both companies produce corrugated board and one also makes finished



boxes. Around USD 200,000 investment is needed for the “white test liner” production equipment.

There are five companies that make corrugated board from local or imported linerboard and corrugated medium, and produce corrugated boxes from their corrugated. One boxmaker prepares boxes from imported corrugated board. Imported liner and board are mainly from Turkey. Prices of the products vary. Around USD 250,000 investment is needed for offset printing equipment (only two companies have offset printing equipment).

Many different companies in food production (pies and cookies producers, butter producers etc.), agriculture (fruit and herbs producers, dairy producers, tea producers etc.), and alcoholic beverage producers use corrugated boxes/containers. Some of the goods produced by these companies are sold in the retail sector, while others (especially agricultural production and alcoholic beverages) are exported.

Examples of exports using paper packaging:

- USD 15,674,819 of citrus was exported in 2009. The main exporting countries were: Ukraine (USD 11,823,819), Azerbaijan (USD 2,438,879), Belarus (USD 1,020,465), and Kuwait (USD 172,489).
- USD 30,715,956 of wine was exported in 2009. The main exporting countries were: Ukraine (USD 24,351,674), Belarus (USD 5,114,422), Kazakhstan (USD 4,535,875), and Azerbaijan (USD 3,198,683).
- USD 34,176,779 of alcoholic beverages (except wine) was exported in 2009. The main exporting countries were: Ukraine (USD 28,798,189), Azerbaijan (USD 2,117,555), Kazakhstan (USD 1,952,699), and Belarus (USD 532,273).

# COMPETITIVENESS POTENTIAL

The demand for paper packaging is increasing steadily as new businesses are opening. Businesses in different sectors need paper packaging.

Corrugated paper producers produce around 420 tons of paper monthly (USD 210,000 worth), paper box/containers producers around – 700 tons of paper boxes monthly.

Liners from Turkey and Georgia are competitively priced. However, transportation costs from Turkey add USD 100 per ton with a result that costs compare as follows:

Cost in USD/ton	Turkey	Georgia
Brown liner	560	460
White liner	826	NA
Corrugated medium	540	450

The price composition for corrugated end product is 50 percent raw materials, 20 percent wages, five percent utilities, and 25 percent margin<sup>1</sup>.

The biggest growth opportunities are meeting growing local demand and import substitution. USD 7,172,097 paper boxes and containers were imported in 2009. Low energy and labor costs are the Georgian producer's main competitive advantages. Fuel prices in Turkey are 25 percent higher than in Georgia, electricity is 50 percent higher, and labor costs are up to 400 percent higher. Turkey, however, has economy of scale advantages.

## Constraints

- High bank interest rates, with no economic/environmental incentives for consumers to recycle materials and few outlets to sell recycled goods that are collected.
- Lack of support from government to establish collection systems/facilities.
- Lack of supportive waste management law (draft developed) and strategy (to be devised with EU support in 2011).
- Waste disposal is inexpensive (and not taxed), making recycling unattractive in economic terms.

Competitiveness in this value chain is enhanced with low energy costs and low labor costs.

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<sup>1</sup> Gofratara

# IMPACT POTENTIAL

Development of second-hand paper collection systems will improve raw materials supply, while at the same time contributing to ecological benefits and sustainability.

Investing in new production lines (white test liner production, offset printing, and new boxes production) will substitute imports and create employment opportunities.

Direct foreign investment will be encouraged that will bring much needed financial resources, know-how, technical assistance, high quality production, and access to foreign markets.

Local availability of paper, corrugated, and white liner will encourage development of small boxmakers to supply other small enterprises. Small and starting businesses require quantities of boxes that do not attract large producers, so small box makers fill this need by purchasing corrugated sheets from corrugated companies and filling small orders from multiple small firms.

Meeting market demands and producing better quality packaging will increase the competitiveness of several value chains.

# INDUSTRY LEADERSHIP

One company has plans to double its capacity to make paper, add a white liner capability if they can obtain sufficient recycled white paper, and are considering a bag making capability if the municipality bans plastic bags in retail establishments.

Another company is also considering a white liner line with the significant difference that their white liner will be made from recycled fibers that are cleaned and sorted by size, and from a virgin fiber component.

Corrugated companies build on their experiences under the Former Soviet Union (FSU) in which full, undifferentiated production was sold within the FSU. They have little experience related to competing for limited resources. Identifying options to prepare white liner when none is manufactured in Georgia, or make paper bags when plastic bags will be outlawed, for example, are undifferentiated products for which need is growing. Georgian corrugated companies exhibit leadership in identifying such potential and seizing opportunities to manufacture towards that potential.

Supplying products into a competitive and differentiated market is less obvious to companies with limited experience in such markets. Corrugated board made from recycled fiber is not made to industrial performance standards. Performance standards state that liners of specified basis weight, combined with a corrugated medium of a defined composition and defined flute height and number of flutes per centimeter, will have a predictable burst strength and/or compression strength. In other words, corrugated board can be made to a variety of constructions with a variety of strength and cushioning properties – i.e. differentiation. If other companies are not familiar with industry performance standards in the EU or US and wish to compete in those markets, perhaps Georgian corrugated producers would consider building joint ventures with foreign companies that will generate financial resources and will bring specialist knowledge in both product quality improvement

and domestic or foreign customer reach. Sponsored seminars could introduce advantages and use standards to the industry. Performance standards in the US are embraced by the customers of corrugated packaging companies because use of specification packaging shifts liability from the shipper (producer of the product) to the carrier. Essentially, this states that if a product is presented to a carrier in good condition and is packaged in an approved container, any damage in transit is the responsibility of the carrier. The shipper does not have to prove where the damage occurred (*prima facie* case). Box makers therefore benefit from meeting specifications and are more competitive because of them.

Inter-firm coordination could be enhanced with consideration of a Georgian institute of packaging. Such an organization would promote cooperation between packaging companies (paper, plastics, glass, and metal), allow consideration of training and development of standards (e.g. bringing in trainers could be cost prohibitive for one firm but not multiple firms), and provide potential access to packaging experts, suppliers and companies in other countries. Country packaging institutes can join the World Packaging Organisation (WPO), which has over 60 country members. Packaging institutes often sponsor packaging contests that promote competition, innovation, and a significant benefit to call attention to packaging to the public and to firms that use packaging. (WPO sponsors the World Star competition that brings country competitions to an international level.)

## CROSS-CUTTING THEMES

Availability of increased packaging capabilities directly impacts virtually all other consumer sectors. Packaging is used to transport, protect, and market goods. It is critical to agricultural exports, protects apparel, and presents wine to consumers.

Efforts to promote recycling contain the duality of collecting cellulosic fibers (reducing waste) as well as making economic use of that waste by utilizing those fibers for new products.

One paper producer in Turkey is negotiating with a company in Georgia to increase the Georgian company's paper making capacity, considering adding manufacture of white linerboard, and considering paper bag manufacture to offer an alternative to polyethylene bags currently used in retail.

Another company is considering manufacture of linerboard (both brown and white) with increased strength and appearance, resulting in corrugated board that could more effectively compete with imports.

## STRATEGIC ENTRY POINTS AND RECOMMENDATIONS

*Recommendation 1: Develop systems in conjunction with municipality to recycle paper, including separation of white office paper from mixed paper*

Recycled fiber used in paper production is collected locally without a formal system in place. One company hires individuals and small companies to collect fiber from markets and stores, including Populi and Goodwill, and generates sufficient fiber to manufacture 300

tons/month. Municipality support for city collection could be a mutually beneficial program with the potential to generate sufficient fiber to maintain production at 1,000 tons/month, and build capacity towards the 2,000 tons/month objective. If offering USD 100/ton were offered for mixed paper and USD 200/ton for white, the municipality would replace its costs of disposing of this waste with a positive revenue stream. In addition, the collection is environmentally responsive and supports local industry.

This company estimated that 100 to 120 tons of paper waste is generated in Tbilisi each day, which translates to about 3,000 tons of paper waste per month.

Current municipality considerations are for normal waste collection and separating waste from recyclables and recyclables from each other with machinery (as yet identified) at the landfill site. Such a program would not take advantage of the additional value of clean white paper waste, nor provide for the raw materials to prepare white liners. This recommendation, therefore, includes influencing the municipality to consider options that overcome these shortcomings.

#### *Recommendation 2: Promote private sector recycling*

Related to Recommendation 1 are private sector opportunities to provide recycling services. Private sector offices generate substantial quantities of white office paper waste as well as brown paper/cardboard that incur disposal costs. Collecting this waste for sale to companies that could use the fiber offers a business opportunity as separated white and brown paper, cardboard, and corrugated paper has more value than mixed paper.

#### *Recommendation 3: Promote differentiated products and evidence of same*

Linerboard can be produced in various thickness and varying strengths and quality. Equipment can separate cellulosic fiber from other components in recycled papers that makes linerboard that has less of a mottled appearance. Preparing fiber for paper making can also include a step that keeps longer fiber and removes shorter fiber resulting in stronger paper (One company has ordered this equipment). Corrugated board that is made from stronger linerboard also exhibits improved performance characteristics in terms of burst strength (index of impact and puncture resistance) and stacking strength.

Differentiated linerboard and corrugated can command different prices and stand out against competition. Stronger board can command a higher price, but companies need evidence of higher quality (or current quality) to advertise these benefits. Testing for linerboard and corrugated properties is therefore advantageous.

Note: Package testing equipment ranges in price and relatively inexpensive testers provide technical support for differentiated products (e.g. stronger paper in terms of tear and burst, or corrugated in terms of impact resistance and stacking strength). Testing Machines Inc (TMI) is one source of bench package test equipment

#### *Recommendation 4: Produce white liner in Georgia from recycled white office paper*

With a source of recycled white office paper, two companies, Seka and Ruloni, can produce white linerboard in Georgia. It was suggested that a Green Box program is being considered that would provide for collecting white office paper waste (in a Green Box) from educational institutions and government offices. Expectations are to collect 300 to 600 tons/month, which is sufficient to initiate a line to produce white liner. One of the companies suggested

that 600 tons/month of white paper would allow it to produce white liner to meet demand in Georgia. If it collects more than 600 tons per month, it could export to Turkey (earning USD 600 to USD 700/ton for white liner).

*Recommendation 5: Produce a higher quality white liner in Georgia*

One company expressed interest to invest in a white liner production line that would produce linerboard from a combination of recycled and imported white virgin fiber to compensate for an inconsistent source for recycled white fiber. As mentioned above, another company is investing in equipment to remove contaminants from recycled paper (reducing mottled appearance) and equipment to filter out fibers below a 0.7 mm fiber length. This liner would serve a more upscale market, as board from virgin liner and longer fibers can be made to higher standards and possibly adhere to international packaging standards. This would bring an additional packaging component into Georgian manufacture.

*Recommendation 6: Encourage partnerships with Turkish paper manufacturers to bring additional paper making capabilities to Georgia.*

Paper manufacturing is energy intensive, as it involves laying down fibers onto a screen in a water slurry and then driving out moisture. Georgia's production of electricity through hydroelectric power is considerably less expensive than Turkey's carbon-based electricity generation. This factor offers a competitive advantage to paper manufacturing in Georgia. Partnership with Turkish companies to bring manufacturing to Georgia offers employment opportunities, brings in expertise and access to foreign markets, and brings in foreign investment since credit in Georgia is expensive.

*Recommendation 7: Offer seminars on packaging as a marketing tool*

Suggestions to improve communications between suppliers and users can include information concerning packaging capabilities to better present products to new markets. Capabilities of different printing systems, liners, and board constructions are often underestimated in their potential to increase sales, especially with companies with limited export experience. Quality and design of boxes/containers can be improved to increase sales (for both box producing and different sector companies using paper packaging). In this manner, domestic production of quality boxes would make Georgian product exports (not packaging) more competitive.

An extension of this recommendation would be consideration of a packaging institute that could help define, coordinate, and consolidate training, certification, standards, and promote the packaging sector. Packaging institutes offer packaging competitions that specifically promote the marketing function of packaging. National packaging institutes that join the World Packaging Organisation gain access to international cooperation and the WorldStar packaging competition.

*Next Steps*

- Complete Georgian paper packaging industry study.
- Complete a demand assessment to identify packaging requirements that are not being met with Georgian production.
- Complete a demand assessment that identifies potential for value-added exports to the EU and other countries that are currently hampered by Georgian packaging production that is not built to standards required in those countries.

- Meet with municipality to encourage a more formal recycling effort. Additional recycled materials could also be considered. Recycled Polyethylene terephthalate (PET) and possibly High Density Polyethylene (HDPE) can have value after uses for these materials can be established (this is a chicken and egg scenario).
- Encourage additional second-hand paper collection programs through the private sector.
- Develop assistance programs that will enable local producers to produce white linerboard used in corrugated boxes/containers production locally as well as qualitative final packaging at competitive prices.
- Assist local producers to analyze market requirements and opportunities.

#### *Near-Term Interventions*

- Assist in development of paper recycling systems – both through the municipality and through private sector involvement.
- Assist paperboard/corrugated manufacturers to differentiate their product offerings and help establish means to define and verify that differentiation.
- Assist Ruloni in their identification and acquisition of equipment to remove contaminants from recycled paper and filters to assure minimum fiber length in papermaking.
- In direct relation to the above, offer assistance to identify and/or design and establish package material and product performance testing facilities that can both differentiate product offerings and verify conformance to standards.
- Georgia mandarins could command a higher price with packaging that better represents its superior quality. Corrugated shippers with white liner and high-quality multi-color graphics would help differentiate Georgia mandarins from competition. Incorporating a “Made in Georgia” logo to help build the brand. Molded pulp dividers could be incorporated by the farmers to separate layers and provide a better product presentation.
- Offer seminars to demonstrate benefits of specific packaging and competitive advantages of differentiation.

# CONTACT DETAILS FOR VALUE CHAIN ACTORS

Company / Organization	Name & Position	Address	Contact Telephone Number	Email Address
1. Legi	Levan Demetrashvili, Director	87 Chkondideli Street, Tbilisi	99 747274	
2. Milangi	Levan Demetrashvili	Gori	99 74 7274	
3. Seka Paper Georgia	George Jikia		77 228011	
5. Caucasus Pack	Tato Makharadze, Director	Tetri Khevi HPP, Orkhevi District	99 500150	<a href="mailto:tato@pepsi.ge">tato@pepsi.ge</a>
6. Gofratara	Alexander Tvaltvadze	2 Beliashvili street, Tbilisi	97 293477	
7. Ruloni	Teimuraz Janjalia, Director	8 Akaki Beliashvili street, Tbilisi	99 574140	
8. Karabok		Moscow Avenue, Tbilisi		
9. GMP-Georgia Paper Making		Lilo, Tbilisi		
10. Georgia Cardboard		Orkhevi, Tbilisi		
11. Kakheti	Robitashvili	Umashev Street, Lilo, Tbilisi		
12. Vesta 07			77 47 44 55	
13. Gosselin Georgia	John Braegaveldt, General Director	Didi Digomi 3 <sup>rd</sup> Micro Region, Tbilisi	99 303253	<a href="mailto:JohnB@georgia.gosselingroup.eu">JohnB@georgia.gosselingroup.eu</a>

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# ANNEX 15: PLASTIC CRATES/BEVERAGE BOTTLES VALUE CHAIN ASSESSMENT

## ABSTRACT

This assessment examines opportunities to expand and improve the competitiveness of Georgian plastic packaging in two specific areas: plastic crates and PET beverage bottles. In the former category, plastic crates may offer competitive advantages via competitive pricing, reduced weight (thereby allowing more produce per truck and lower transportation costs), and improved cleanliness over wood crates that are used for fresh produce. Plastic crates have been produced in Georgia that meet EU standards, offering an additional advantage over wood crates.

PET beverage bottles are prepared from materials that are sourced through domestic production and imports. Potential to shift more of this production into Georgia is explored. This report serves as a preliminary assessment of these plastic container value chains in Georgia and illustrates how domestic production can be expanded with proper support and coordination.

Plastic recycling is also considered.

## ABBREVIATIONS

EPI	Economic Prosperity Initiative
EU	European Union
NSC	Non-agricultural Sector Component
PET	Polyethylene Terephthalate
USAID	U.S. Agency for International Development
USD	United States Dollar
WPO	World Packaging Organization

# EXECUTIVE SUMMARY

Georgia produces many packaged products for domestic and export markets. A large number of enterprises in the agricultural, wine, and transport/logistics sectors import significant quantities of paper and plastics used for making packaging. With energy and labor costs favoring Georgia, especially in comparison to Turkey, the Georgian packaging sector should be capable of replacing a significant portion of packaging material imports with domestic production. Plastic packaging can also prove advantageous as a replacement for other packaging materials, thereby making the sector more competitive.

## *Plastic crates*

Plastic crates are convenient for containing, carrying, protecting, and transporting fresh produce and packaged goods to both domestic and export markets. They offer a number of advantages over wood crates that are used for fresh produce, primarily apples and mandarin oranges.

Production quantities in 2009 for apples, mandarins, and grapes used both domestically and for export suggest a potential market for 2.7 million large crates and 7.5 million smaller crates. Replacing wood crates with plastic, therefore, offers significant opportunity.

In the last few years, the prices of wood crates have risen, and plastic crates are now of comparable costs.

Recommendation: Inform farmers of the advantages of plastic crates to replace wood crates. The potential is sufficiently large to justify continued efforts in this area.

## *Polyethylene Terephthalate (PET) Beverage bottles*

Approximately 300 million PET bottles are used for beverages annually in Georgia. Bottle production involves a two step process through which a test tube shaped plastic preform is injection molded from PET resin and that preform is then heated and blow-molded into the finished bottle. The two processes can be done in single or separate locations.

One hundred eighty million bottles are prepared from preforms made in Georgia and another 120 million are made from imported preforms. Lower energy and labor costs in Georgia suggest a competitive advantage to bring manufacture of the imported preforms into Georgia.

Recommendation: Bring manufacture of the 120 million preforms, currently imported from the Ukraine, into Georgian manufacture.

## *Plastic recycling*

Recycling polymers is more complex than recycling paper. Plastics encompass a variety of polymers and recycling plastics requires sorting, cleaning, and pelletizing (making plastic into beads that can be melted into new forms).

PET is a valuable plastic and recycled PET is used for non-food packaging applications, including PET fiber (used in apparel and rugs) and insulation. With value for recycled PET,

and the ease of sorting resulting from a large quantity of beverage bottles made from PET, recycling is encouraged for uses other than food or beverage packaging.

*Recommendation: Meet with municipal representatives to consider recycling programs.*

Georgia produces many packaged products for domestic and export markets. A large number of enterprises in the agricultural, wine and transport/logistics sectors are importing significant quantities of paper and plastics used for making packaging. With energy and labor costs favoring Georgia, especially in comparison to Turkey, the Georgian packaging sector should be capable of replacing a significant portion of packaging material imports with domestic production. This assessment addresses a few aspects of plastic packaging, specifically plastic crates, PET beverage bottles, and an introduction to plastics recycling. Additional plastic packaging, including rigid packaging (jars, bottles) and flexible (films, laminates, bags and pouches) may be reviewed separately, but could benefit from some of the analysis herein.

Plastic resins are imported from numerous countries, including Turkey, UAE, Iran, and South Korea. Summary figures for 2010 Packaging Sector Exports from Turkey to Georgia included 9,639,505 Kg plastics with a value of USD 29,405,294.<sup>2</sup> By comparison, Georgian plastics exports to Turkey were 47,062 Kg valued at USD 81,910.

Surveys and semi-structured interviews were used during the report preparation. All data were obtained from National Statistics Office of Georgia and Ministry of Finance unless otherwise noted.

The plastic crate value chain is analyzed in the report to assess competitiveness and impact potential.

Competitiveness Potential	Impact Potential	Industry Leadership	Cross-Cutting Linkages	Overall Comments and recommendations
				Average rating 2.25. Recommended for inclusion

<sup>2</sup> Interview with Dögan Erberk

# INTRODUCTION

## Background

Packaging serves as a cross-cutting component of many sectors and value chains, including most of those value chains that have been selected for attention by EPI. It is vital to agricultural and non-agricultural sectors and is a key factor for competitiveness, especially for export goods. Packaging serves functions of containment, protection, and marketing. The marketing function is often overlooked by companies that consider packaging primarily as a cost factor that must be minimized. Packaging presents a product to a new audience. Therefore, the packaging presentation is often the motivator for the initial sale of a new product or an existing product in a new market. Product quality impacts successive sales. This critical combination of roles suggests the inclusion of packaging in any economic and competitiveness initiative.

## Methodology

The value chain was assessed by identifying and interviewing key players in the appropriate packaging sectors. The interviews included plant visits when possible and appropriate. Data was also collected from GeoStat, internet searches, and discussions with other industry experts.

# OVERVIEW OF THE PLASTIC CRATES/BEVERAGE BOTTLES VALUE CHAIN

## Summary

Main Products/Services	Plastic crates, and separately, PET beverage bottles
Key Markets Served	Georgian retail Agricultural distribution Agricultural export Transfers between manufacturer and retail outlets
Production	Plastic crates 350,000 in 2010, 450,000 in 2009 PET beverage bottles – 300 million bottles blown from 180 million preforms prepared in Georgia and 120 million from Ukraine
Consumption	Unavailable
Exports	0.369 tons, USD 5,927
Imports	565 tons, USD 1,955,580
Revenues	Not available
Employment	Full time 4 persons, In high season (September-February) additionally 6 persons (Georgia Plastic)
Productivity	570,000 plastic crates with molds for crates of 8, 12, 20 and 24 Kg capacity. PET beverage preforms – 180 million and PET bottle production of 300 million.
Positioning	Better packaging creates sales and export opportunities in various sectors Increased domestic supply for preforms used to manufacture PET beverage bottles
Key Processes	Raw materials are imported. Various types of plastic crates/containers are produced from polymer resins and designed for specific use, e.g. crates for agriculture, bottle holders for beverage carriers, custom sizes, etc.

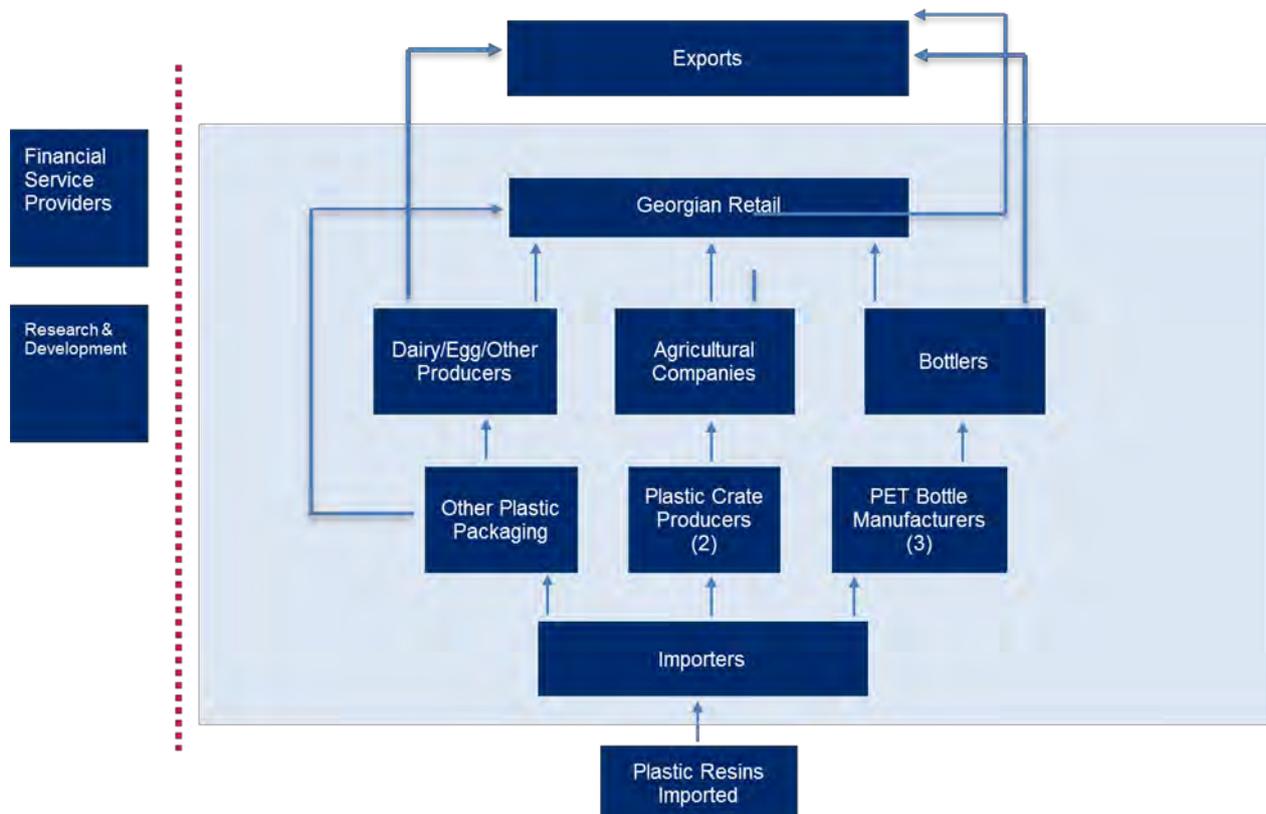
This assessment concentrates on plastic crates and plastic bottles. In addition to these products, two companies are producing plastic packaging for dairy product producers. Two companies are producing plastic packaging for egg producers. Three more companies are producing plastic packaging for a variety of sectors (agricultural companies, supermarket chains, fairs, banks, and food producer companies). These companies buy polymer raw materials from importers. There are several importers of polymer raw materials

Some of the final value chain goods are sold in the retail sector; others (e.g. agricultural products especially) are exported.

Example:

- USD 15,674,819 of citrus was exported in 2009. The main export countries were: Ukraine (USD 11,823,819), Azerbaijan (USD 2,438,879), Belarus (USD 1,020,465), and Kuwait (USD 172,489).

## Plastic Crate/Beverage Bottle Value Chain Map



## COMPETITIVENESS POTENTIAL

The demand for plastic packaging is increasing steadily as new businesses are opening and existing industries grow. Businesses in many different sectors need plastic packaging.

The biggest growth opportunities for plastic packaging are meeting growing local demand and substituting domestic production for imports. USD 1,955,580 of plastic boxes and containers were imported in 2009. Low energy and labor costs are the main competitive advantages to bring this production into Georgia. Fuel prices in Turkey are 25 percent higher than in Georgia; electricity is 50 percent higher; and labor costs are up to 400 percent higher. Turkey, however, has economy of scale advantages.

Key constraints include:

- High bank interest rates, with no governmental incentive programs for the packaging sector.
- Lack of domestic polymer resin production (resin is raw material to make plastics).
- Lack of communication between crate manufacturing and the agriculture sector to identify advantages of plastic crates over wood crates.

- Injection molding capacity for preparing preforms (bottle manufacture) (i.e. does capacity exist within Georgia to meet demand - currently 40 percent preforms are imported).
- No economic/environment incentives for consumers to recycle nor has business been established to utilize recycled plastics.
- Lack of support from central government and local municipalities to establish collection systems/facilities.
- Absence of a supportive waste management law through the municipality and strategy (planned to be devised with EU support in 2011).
- Waste disposal is inexpensive (and not taxed), making recycling unattractive in economic terms.

Competitiveness of plastic packaging manufacture is enhanced with low energy costs and low labor costs.

## IMPACT POTENTIAL

Wood crates are used to transport produce between farm and market as well as used for export. Wood is heavy and adds significant weight to the transport of agricultural products such that the net weight in the truck is lower than achieved with lighter packaging afforded through plastic. Wood is also porous and has the potential to harbor insects and microorganisms. Plastic crates offer improvements in both categories.

Wood crates have been made to accommodate up to 35 Kg. These large crates promote up to 20 percent product damage (bruising and crushing), which is accentuated by a tendency to drop heavy packages (albeit short distances) during transfer. Heavy crates also preclude access to EU and US markets that specify lighter crates. Wood crates are not easily refrigerated (and absorb moisture if they are), which further accentuates product damage.

The cost of wood has been rising and plastic crates are now competitive with wood. With the weight and other advantages, plastic crates become even more attractive.

Limited numbers plastic crates have been manufactured (because of demand rather than production) and used in Georgia but the potential to replace wood offers a significant opportunity for the manufacture of plastic crates in Georgia.

PET beverage bottles are produced in a two step process through which a preform is made from plastic resin and then blown into a finished bottle. There is no resin produced in Georgia and all PET resin is imported. Imported resin is used in Georgia to produce 60 percent of the needed preforms. The other 40 percent of preforms are imported from Ukraine. This additional preform manufacture could be brought into Georgia.

The recommendations to replace wood crates with plastic crates and bring more of PET beverage bottle preform manufacture into Georgia both involve bringing substantial and long standing business into Georgia. Plastic container fabrication is performed with heat, and energy savings in Georgia support these developments. Employment and potential for molding capabilities to expand to additional businesses will result.

Plastic molding and forming (such as thermoforming used to make trays and clam shell packages) is utilized for making a wide range of products including packaging (from small

retail containers, bottles and trays, to large containers such as crates), fasteners, toys, closures, appliances, etc. Increased plastic molding capabilities in applications above, as well as others, result in people trained in plastic molding and forming that can be the basis for small business development. Plastic molding and forming machines are available in a wide range of capabilities and costs.

## **INDUSTRY LEADERSHIP**

Plastic molding in Georgia is currently serving applications to transport goods primarily between manufacturer and retail, with an emphasis on food, dairy, bottled water and beverages, and provide plastic crates for agricultural use – both domestically and for export. A large proportion of packaging (50 percent) is typically used for food. Plastic crate manufacture for agricultural produce has been used for applications that specify their use, such as circumstances that preclude wood crates that can harbor molds, fungi, and other microorganisms, and for local and export distribution. Georgia Plastics produces 350,000 to 450,000 plastic crates, designed for 12 Kg produce, per season, depending on market demand. They have capabilities to make crates designed for 8 Kg, which is the standard for the EU, and crates designed to hold 20 Kg. Giko makes plastic crates designed for 24 Kg of fruits. Georgian farmers are using heavier wood crates designed to hold up to 30 Kg, but damage is up to 20 percent due to crushing, and wooden crates cannot be refrigerated. Farmers tried using 12 Kg plastic crates and continued to use them after the first season. Wood crates required to satisfy Georgian agricultural production are estimated to be 2.7 million crates designed for 30 to 35 Kg produce and 7.5 million crates to contain 12 Kg produce (or proportional for 8 Kg or 24 Kg crates). Replacing wood crates with plastic crates is therefore a substantial potential market, with five percent currently in plastic crates. Georgia Plastics currently produces for the season, from late August through February, and can double capacity with existing equipment. Giko also has capacity to double their production and are willing to expand if demand increases and they have access to investments. Turkish owners of Georgia Plastics also broker injection molding equipment from China to Turkey and can increase their production as necessary. These companies meet current demand and have capacity to grow with that demand. Their leadership is in production, but opportunities are substantial to build farmer awareness of the advantages of plastic crates.

Increasing Georgian capabilities or interest to produce an additional 120 million PET preforms (current production is 180 million) is yet to be confirmed.

## **CROSS-CUTTING THEMES**

Availability of increased packaging capabilities directly impacts virtually all other consumer, and many processing, sectors. Packaging is used to transport, protect, and market goods. It is critical to agricultural exports, protects apparel, and presents wine to consumers, among many other examples.

Recycling in Georgia is currently limited to paper, with the driving force being paper-making companies (notably Seka and Ruloni) that pay for recycled materials. Municipality coordination does not currently exist (but will be explored through the EPI program).

Plastics, paper, glass, and metals can be recycled if businesses accept and find uses for recycled materials. The demand for paper already exists. Aluminum is a valuable material that must be processed by heat that destroys any potential contamination. Since the energy to recycle aluminum is much less than extracting aluminum from bauxite, recycling aluminum is easily justified. Glass manufacture requires recycled glass (called cullet). Glass is less valuable than aluminum and is heavy – therefore more expensive to ship than other recyclables, but glass manufacture in Georgia is sufficiently close to making glass recycling beneficial. Plastic recycling is more complex as it requires sorting (there are many types of plastic) and cleaning (heat to process plastic is lower than, for example, metals or glass). It also requires sufficient quantity to make it profitable. PET beverage bottles are easily identified (promote sorting) and in sufficient quantity to be economically recycled. Recycled PET is used to make insulation, PET fibers used in apparel and rugs, and fibers used in winter clothing. In addition to recycling being a source for materials that can be economically reprocessed, these actions promote sustainability and encourage new small businesses as uses for recycled materials develop.

Plastic molding is utilized for making plastic packaging, but the skills transfer to making many other plastic products.

## **STRATEGIC ENTRY POINTS AND RECOMMENDATIONS**

### *Plastic crates*

Plastic crates are convenient for containing, carrying, protecting, and transporting fresh produce and packaged goods to both domestic and export markets. Crate walls support weight, allowing stacking and transport with less damage in comparison with jute sacks and other packaging. Jute is frequently used for produce because it is one of the cheapest packaging materials available to contain and ship agricultural products. However, it does not protect against compression (as do crates) resulting in food losses that often exceed 20 percent.

Plastic is less susceptible to moisture in comparison to wood crates. Plastic crates are non-porous, so useful for fruits and vegetables as well as pharmaceutical applications (such as transport into sterilization chambers), in which porous materials could harbor microorganisms. The market for plastic crates therefore shows significant opportunity.

Wood crates, however, have been cheaper, traditionally used for the Russian market, and exhibit less movement in transport.

Large #5 wood crates are used for handling apples. Smaller #3 wood crates are used for citrus, primarily mandarins and grapes. Kiwi and persimmons are exported in crates, but their numbers are low so the calculations for crate potential are based on the larger volume apples and mandarins. Production figures for 2009 were 93,600 tons for citrus, 150,100 tons for grapes, and 80,700 tons for apples. This translates to 2.7 million 30 Kg crates and 7.5 million 12 Kg crates. Most of the apple production was used in Georgia and 189.98 tons were exported to Armenia, Azerbaijan, and Ukraine. 2010 had a lower harvest that required fewer crates.

Plastic crates designed to hold approximately 12 Kg and 24 Kg fruit are made in Georgia. Farmers were used to larger capacity, wood crates but stayed with plastic crates after the first use. Both Georgia Plastics and Giko claimed capacity double that of current production.

Two to three years ago, wood crates had a price advantage over plastic crates. Wood prices have risen, however, and plastic and wood crates are now comparable in cost. Wood is also heavy and the weight of the wood crates alone ranges from 2 to 3 Kg, or close to 2 tons per truck. Plastic crates (0.5 Kg) therefore allow for shipping more produce in a truckload. Energy costs are expected to continue to rise, so the weight savings will continue to favor plastic over wood crates.

These companies import polypropylene resin, primarily from Turkey.

Recommendation: Plastic crates should be manufactured in Georgia to replace wood crates. Current production represents approximately five percent of the total market, offering substantial opportunities for growth. Plastic crate producers are running at 50 percent capacity (Georgia Plastics operates crate production seasonally between late August and February), allowing room for growth without investment, but are willing to invest to satisfy the market. This recommendation, therefore, is to promote advantages of plastic crates over wood to farmers, starting with a demand assessment.

#### *PET Beverage bottles*

Approximately 300 million PET bottles are used for beverages annually in Georgia. Bottle production involves a two-step process through which a test tube shaped plastic preform is injection molded from PET resin and that preform is then heated and blow molded into the finished bottle. This stretch blow process orients the PET such that increased strength can be achieved with less polymer and results in a lighter bottle. The two processes can be done in single or separate locations.

One hundred eighty million bottles are prepared from preforms made in Georgia and another 120 million are made from imported preforms. Lower energy and labor costs in Georgia suggest a competitive advantage to bring manufacture of the imported preforms into Georgia.

Recommendation: Bring manufacture of the 120 million preforms currently imported from the Ukraine into Georgia, either by increasing capacity of the current manufacturers or adding injection molding capacity through other companies.

#### *Plastic recycling*

Recycling polymers is more complex than recycling paper. Paper recycling uses paper (cellulose) fibers to make additional paper. Plastics encompass a variety of polymers and recycling plastics requires sorting, cleaning, and pelletizing (making plastic into beads that can be melted into new forms).

Plastics at the plant level (e.g. trim waste) are recycled back into the extrusion process. The pellets are clean and of the correct polymers. This recycling is critical in making plastics competitive as it converts waste into product. Post-consumer plastic waste may be contaminated (residual food or beverage or non-food product) and is rarely used for food products. PET is a valuable plastic and recycled PET is used for non-food packaging

applications including PET fiber (used in apparel and rugs) and insulation. With value for recycled PET, and the ease of sorting resulting from a large quantity of beverage bottles made from PET, recycling is encouraged for uses other than food or beverage packaging. Plastic crates represent a non-food application because there is no mechanism for components in the crate to transfer into the food (crates are classified as transport packaging, not primary packaging that is in intimate contact with food.)

Georgia Plastics reported that a company used to collect and separate post-consumer plastics and offer palletized plastics to manufacturers, but the company no longer exists.

### *Recommended Next Steps*

#### Plastic crates

- Assist local producers to analyze market requirements and opportunities to replace wood crates with plastic.
- Convey advantages of plastic crates over wood crates to farmers.

#### Plastic bottles

- Determine if existing producers of PET preforms in Georgia could increase production to satisfy the entire need for PET preforms in Georgia.
- Explore if new additional suppliers could satisfy the increased demand for PET preform production in Georgia.

#### Plastic recycling

- Continue to meet with municipal representatives to consider, design, and implement recycling programs.

### *Near-Term Interventions*

- Complete Georgian plastic crates and plastic bottles packaging industry study. Complete a demand assessment to identify packaging requirements that are not being met with Georgian production.
- Complete a demand assessment that identifies potential for value-added exports to the EU and other countries that are currently hampered by Georgian packaging production that is not built to standards required in those countries.
- In direct relation to the above, offer assistance to identify and/or design and establish package material and product performance testing facilities that can both differentiate product offerings and verify conformance to standards.
- Identify equipment to separate, sort, clean, and pelletize recycled plastics on the supply side, and companies that could economically utilize those pellets on the demand side, to justify a plastics recycling program.
- Identify molded plastic products that match material (resin) and production capabilities of molders to utilize excess capacity.
- Expand the packaging evaluation to include glass and primary packaging other than bottles. Thermoform, form, fill, and seal; bagmaking and filling, etc. Offer opportunities that require modest investments and short time to production.
- Georgian mandarins could command a higher price with packaging that better represents its superior quality. Mold inserts can be added that allows molding of branded crates (company and/or a Georgia logo), and molded pulp dividers could be incorporated by the farmers to separate layers and provide a better product presentation.

- Offer seminars to demonstrate benefits of specific packaging and competitive advantages of differentiation.

# CONTACT DETAILS FOR VALUE CHAIN ACTORS

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Caucasus Pack	Tato Makharadze, Director	Tetri Khevi HPP, Orkhevi District	995 99 500150	<a href="mailto:tato@pepsi.ge">tato@pepsi.ge</a>
TG	Kakha Gabrichidze, Director	6 Mukhadze street, Orkhevi District	995 77 761515	<a href="mailto:k.gabrichidze@tgplastic.ge">k.gabrichidze@tgplastic.ge</a>
Giko	Gia Fanculaia, Director	38 Shusha street, Tbilisi	995 77 456699	

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# ANNEX 16: ADVENTURE TOURISM VALUE CHAIN ASSESSMENT

## ABSTRACT

Adventure tourism offerings in Georgia range from paragliding and mountain climbing to rafting and fishing. Although many tourists do not visit Georgia expressly for its adventure tourism, many end up participating in one or more adventure tourism activities. The most popular adventure activities for both international and domestic tourists are skiing, hiking, and trekking; while some get involved in hunting, fishing, and rafting; and a more limited number in rock climbing, paragliding, and mountain biking.

This report assesses the adventure tourism value chain in Georgia, including characteristics, the country's competitiveness potential, potential impact of working with the sector, assessment of industry leadership, and potential strategic entry points.

## ABBREVIATIONS

FDI	Foreign Direct Investment
GEL	Georgian Lari
GITOA	Georgian Incoming Tour Operators Association
GIZ	Gesellschaft für Internationale Zusammenarbeit
GNTA	Georgian National Tourism Agency
GoG	Government of Georgia
GTA	Georgian Tourism Association
LEPL	Legal Entity of Public Law
MoA	Ministry of Agriculture of Georgia
NGO	Non-Governmental Organization
SDC	Swiss Agency for Development and Cooperation
SME	Small Medium Enterprise
TIC	Tourism Information Center
UNESCO	United Nations Educational, Scientific and Cultural Organization

UNWTO United Nations World Tourism Organization

USAID U.S. Agency for International Development

## EXECUTIVE SUMMARY

While this report discusses a number of adventure tourism activities, skiing is the primary focus. It is concentrated in Gudauri, Bakuriani, and Svaneti. Although tour operators offer skiing and other adventurous pursuits, such as rafting, diving, biking, trekking, riding, paragliding, speleology, and more, most tourists choose to book directly with service providers rather than through operators.

Georgia has strong competitive potential in this industry. It has numerous natural advantages, is close to key markets for European adventure tourists, and is a low-cost provider relative to many countries with which it competes (such as Italy and Austria). The Government of Georgia (GoG) has invested heavily in Gudauri and Bakuriani and has now turned its focus to Svaneti. It will invest GEL 76.5 million on developing Mestia's ski resort; mainly to improve transportation links. The government has also been involved in regional road rehabilitation and has aggressively promoted Georgia as a ski tourism destination both domestically and internationally. Also, the government recently opened an airport in Svaneti to attract both domestic and international tourists. Limited data suggests that in Gudauri, the majority of foreign tourists are Ukrainian, German, and Turkish.

For the reasons listed above and its close links with other tourism value chains such as wine and MICE tourism, adventure tourism has significant potential to drive economic growth in Georgia. However, for the sector to realize its potential, several obstacles must be removed, one of the largest being the lack of industry cooperation. While there are a number of strong leaders in this subsector, they do not collaborate, and there is no unified vision for the future of the subsector. Although associations exist, they do not have the potential to lead the sector. However, there are a few Georgians interested in investing money, time, and other resources in developing secondary adventure tourism options.

There are other issues as well. Infrastructure in Georgia supporting adventure tourism is sub-par: hotel rooms are of low quality and Gudauri and Svaneti do not offer enough accommodation to satisfy increased demand. Very little training is available to upgrade hospitality skills and the roads to Gudauri and Svaneti need improvement. Marketing and finance are substantial obstacles for tourism businesses as well and there are very few supporting businesses (such as mountaineering, rafting, hunting, fishing, hiking, or trekking shops).

Proposed entry points in the value chain include quick wins as well as longer-term recommendations.

Quick wins may include:

1. Design and development of adventure promotional materials in coordination with private sector actors and tour operators.
2. Devotion by part of each tourist information center to adventure tourism information.
3. Develop action plan to post appropriate signage for adventure tour destinations.
4. Link primary adventure tourism options with secondary and tertiary options.

Longer-term recommendations include:

1. Increase Interest in Georgian Adventure Tourism (Demand Side):
2. Determine target markets, starting with markets with populations that are interested in skiing, hiking, or trekking, and develop a more aggressive marketing campaign to attract visitors.
3. Develop a Georgian skiing and adventure brand that is promoted internationally. Work with the National Tourism Agency and the private sector to establish ways to promote Georgian skiing and adventure tourism through websites, key messages, and images that would be used by the Georgian Government and the private sector.
4. Host other adventure writers whose influence could attract more tourists.

Improve Quality of Adventure Tourism (Supply Side):

1. Develop an action plan to link secondary and tertiary adventure activities with primary adventure activities.
2. Encourage adventure tourism companies to hire graduates of guide schools.
3. Provide training or establish a vocational school for guides in Svaneti.
4. Work with industry leaders to establish an association.
5. Assist tour companies in accessing credit

Competitiveness Potential	Impact Potential	Industry Leadership	Cross-Cutting Linkages	Overall Comments and recommendations
				<p>Average – 2.75. Recommended for Inclusion</p>

# INTRODUCTION

## Background

In general, the most popular adventure tourism activities are mountain-related, such as skiing, hiking, and trekking. On January 7<sup>th</sup>, 2011 the New York Times listed Georgia as number six out of 41 places to visit in 2011 because of its skiing. Kimberly Bradley of the New York Times wrote:

A rustic ski wonderland on the verge of discovery...ski buffs don't usually think of Soviet Georgia when planning their next backcountry outing. But some ambitious plans in the Caucasus are trying to change that fast. Tucked between the Black and Caspian seas and smattered with mountains, Georgia has the kind of terrain adventurous skiers yearn for: peaks reaching 16,000 feet, deep valleys and largely untouched slopes. Known best for spectacular off-piste and heli-skiing, Bakuriani and Gudauri — each a short drive from Tbilisi — saw 30,000 visitors in 2009 and are expanding fast.<sup>60</sup>

There are also other numerous adventure and outdoor tourism options. Tourism that involves being outdoors or involves nature can include a wide range of activities, both intense and leisurely.

People travel to Georgia for many reasons. Because Georgia's tourism market consists mostly of mixed tourism, adventure tourism is often one of many activities in which tourists take part. In 2007, eight percent of international tourists listed adventure tourism as one of the main reasons they were visiting Georgia, three percent listed nature based tourism (mountain), and two percent listed eco-tourism.<sup>61</sup> Roughly 13 percent of tourists visited Georgia to experience adventure or nature/outdoor tourism.<sup>62</sup>

While only 13 percent of tourists came to Georgia with the primary intention of taking part in adventure tourism, many more participated in adventure/outdoor/nature tourism during their stay: 60 percent of tourists engaged in hiking/trekking, 37 percent visited national parks, 10 percent went climbing, and another 10 percent participated in wildlife viewing.<sup>63</sup> Skiing was not expressly asked about in the questionnaire, but it is the most popular adventure tourism activity in the country.

Both international and domestic tourists participate in adventure and outdoor tourism. The number of people visiting protected areas (areas in which people hike, horseback ride, raft,

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<sup>60</sup> Kimberly Bradley, "The 41 Places to go in 2011." The New York Times. Jan 07, 2011.

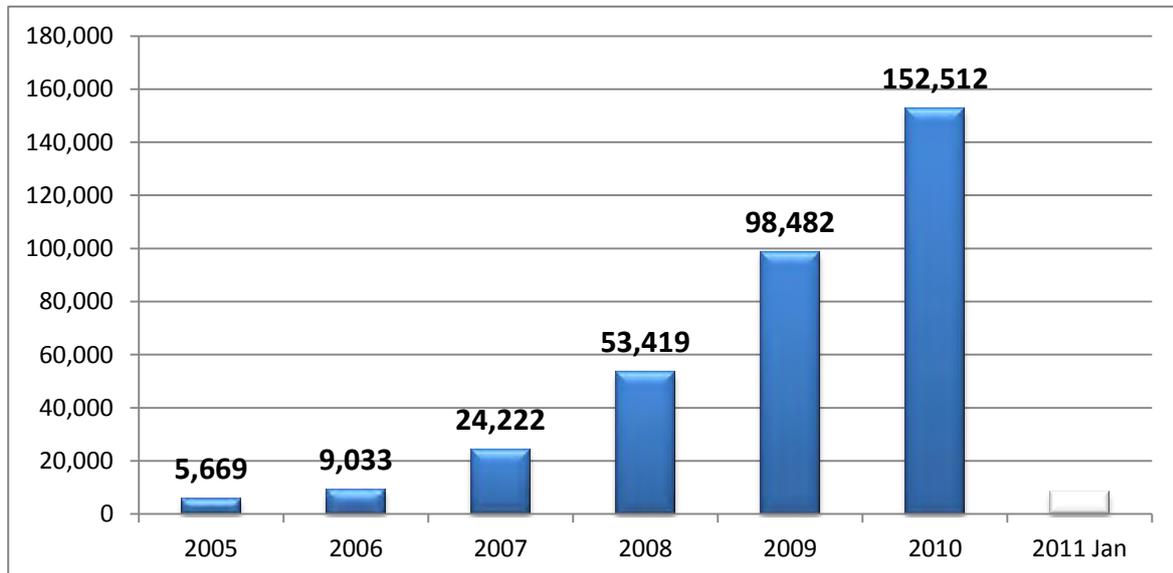
<sup>61</sup> Georgian National Tourism Agency

<sup>62</sup> Georgian National Tourism Agency

<sup>63</sup> Georgian National Tourism Agency

and partake in other adventure/outdoor tourism options) increased from 5,000 visitors in 2005 to 150,000 visitors in 2010.<sup>64</sup>

**Table 1: Visitors to Protected Areas**



Source: Agency of Protected Areas

### *Types of Tourists Engaging in Georgian Adventure Tourism Activities*

One way to subdivide adventure tourists is by their interest in adventure tourism, for example:

- *The accidental adventure tourist:* These tourists get involved in adventure tourism activities, but they might not have planned on doing so.
- *The interested adventure tourist:* These tourists have some interest in adventure tourism and decide to participate in adventure tourism as one part of their experience in Georgia.
- *The dedicated adventure tourist:* These tourists come to Georgia to hike/trek or ski. They travel to different countries to experience adventure activity in different environments.

<sup>64</sup> Agency of Protected Areas

In adventure tourism markets throughout the world, the majority of adventure tourists are between the ages of 20 and 60. The majority of international tourists in Georgia are between the age of 20 and 50, one reason for adventure tourism to be selected for support by EPI.

## Methodology

This report has been prepared in close cooperation with the Georgian National Tourism Agency and tour operators across Georgia. The EPI team met with many stakeholders to collect information to analyze the strengths and weaknesses of Georgian adventure tourism. The discussions with stakeholders focused on identifying and prioritizing key challenges in adventure tourism, as well as possible solutions. In addition to meetings, the team conducted a review and assessment of the policy related to the sector, and of the environment for adventure tourism in Georgia.

### Assessment steps:

1. Reviewed and analyzed reports, conducted research, collected available data from the Georgian National Tourism Agency, the National Agency of Protected Areas, the National Statistics Office, the Investment Agency and sector associations on the types of adventure tours offered and the value of products;
2. Conducted interviews with tour operators (6), a rafting company (1), sport utility shops (mountaineering, ski, and bike shops) (2), local experts and other tourism industry stakeholders - Georgian Incoming Tour Operators Association (GITO), Georgian Tourism Association (GTA), Georgian Guides Association, Georgian Mountain Guides Association, etc.

# OVERVIEW OF THE ADVENTURE TOURISM VALUE CHAIN

## Summary

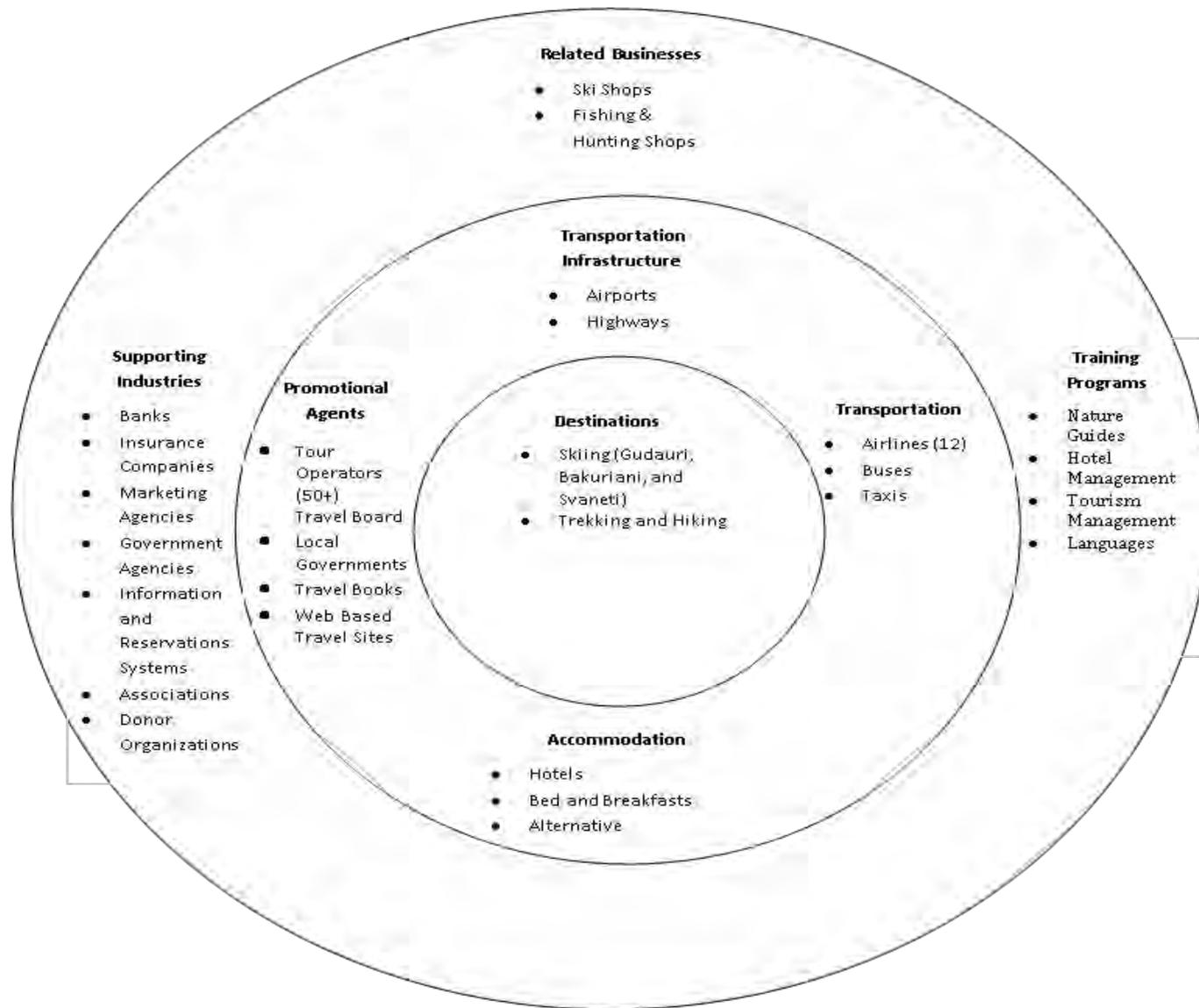
Main Products/Services	Most popular activities include skiing, hiking, and trekking. Rafting, fishing, and hunting are also popular; while some tourists also get involved in horseback riding, mountain biking, off-road auto tours, paragliding, and speleology.
Key Markets Served	Data was not available on key markets in the adventure tourism segment. However, data on the ski segment, which is a primary area of focus for Georgia, show that visitors to Gudauri are primarily Ukrainian, German, and Turkish.
Tourist Arrivals	The total number of visitors to Georgia was 1.05 million in 2007, according to the Travel and Tourism Competitiveness Index. This does not include domestic tourists. Of these, 13% came with the purpose of conducting adventure tourism; although many more participated in adventure tourism activities while in Georgia, even if that was not the primary purpose of their visit.
Revenues	Revenue data for adventure tourism is not available. However, international tourists generated USD 402 million in 2008, according to Georgia National Tourism Agency statistics. Since 13% of tourists come to Georgia specifically for adventure tourism, we can reasonably attribute about USD 52 million to this segment; although this may understate total spending given the number of individuals who come to Georgia primarily for other tourist activities but undertake adventure tourism as part of the trip.
Employment	Data for total employment in adventure tourism was not available. Employment in the tourism sector generally was about 35,000 people in 2008.
Productivity	International tourism generated USD 365 per visitor in 2007 (total revenues/total visitors).
Positioning	Georgia's current advantage is as a low-cost provider of adventure tourism. However, at present the quality is not high enough to take full advantage of this potential competitive edge.
Key Processes	Various

## Adventure Tourism Value Chain Map

Many actors are involved in Georgia's adventure tourism sector. While some may view the adventure tourism market as a chain of linear interrelations, EPI has chosen to depict

tourism as an interconnected network. Below is a graphic illustration of the way different actors participate in the adventure tourism network.

The adventure tourism network is represented by three rings. The “destination” is the central ring, and is the main focus of adventure tourism. The second ring represents the businesses that directly support the “destinations” (including accommodations, promotion agents, and transportation); and the outer ring represents the businesses that directly support the second ring and indirectly support the center ring. These supporting businesses include training programs, related businesses (ski and fishing shops, etc.) and other supporting businesses (financial services, accounting services, etc.).



## Adventure Tourism Value Chain Actors

### Destinations

The main destination for adventure tourists is the mountains, where they can find ski resorts and hiking/trekking areas. However, there are alternate adventure tourism destinations throughout the country. The most popular adventure tourist destinations are listed below, divided into primary (most popular), secondary (popular), and tertiary (less popular, but still significant). This table illustrates the other adventure options that can be found in the same areas. Promoting the less popular adventure activities in the locations where the primary activities also exist can help create linkages between them.

**Table 2: Primary Tourist Activities and Destinations and Linkages with Secondary and Tertiary Adventure Activities**

Primary adventure activities	Location	Tertiary adventure activities
Skiing	Gudauri, Bakuriani, Mestia, Svaneti	Svaneti: Off roading, biking, hiking, trekking
Hiking & Trekking	Svaneti Metskheta-Mtianeti Protected Areas	Svaneti: Off road, biking, skiing Metskheta-Mtianeti: Off road tours, paragliding Protected areas: Trekking, horseback riding
<b>Secondary Adventure Activities</b>		
Hunting & Fishing	Kakheti	Kakheti: off road tours, paragliding, horseback riding
Rafting	Metskheta-Mtianeti, Samtskhe-Javakheti, Racha-Lechkhumi	Samtskhe- caving, off road tours

Source: Websites of tour operators

### Tour Operators

There are more than 50 tour operators in Georgia, most of which are associated either with the Georgian Tour Association (GTA) or Georgian Incoming Tour Operators Association (GITO). However, most travelers book directly through service providers rather than use the operators.

The key tour operators offering adventure tourism packages in Georgia include Caucasus Travel, Concord Travel Georgia, ExoTour, Georgian Discovery Tours, Explore Georgia, Omnes Tour, Visit Georgia, Jomardi Adventure Club, Rafting.ge, and Caucasus Reisen.

Packages range from 3-15 days in length and include rafting, diving, biking, trekking, skiing, riding, paragliding, speleology, and more.

### *Promotional Websites*

Each of the country's inbound tour operators has a website and many of the adventure tourism providers also have websites. The National Tourism Agency has a website ([www.georgia.travel](http://www.georgia.travel)) which highlights some adventure options in Georgia, but it is not particularly useful because it does not provide contact information for destinations. In addition, a trekking in Svaneti website is hosted by the Svaneti Tourism Center (a nonprofit organization). The Tourism Agency and the Svaneti Tourism Center should invest in search optimization because their websites are not listed options in Google search. The National Tourism Agency is also planning to develop a nationwide online reservation service.

### *Tour Books*

Tour books that highlight Georgian adventure tourism include the Lonely Planet Guidebook: Georgia, Armenia, Azerbaijan, 2008 (3<sup>rd</sup> edition); The Bradt Travel Guide (3<sup>rd</sup> edition), 2008; Under Eagles Wings. Hikes, Bike, Horseback and Ski Tours in Georgia, by Katharine Haberli and Andrew Parker (2005); and Peter Nasmyth's Walking in the Caucasus (2006).

### *Svaneti Tourism Center*

The Svaneti Tourism Center, a non-governmental organization, was established in 2006. The Center's objectives are to increase the participation of the local population in the development of the tourism business, hold seminars on providing top-quality tourist services, demarcate new hiking and horseback riding routes, organize regular exhibition-sales of folk handcrafts, and deal with other local issues associated with the tourism business.<sup>65</sup>

### *Accommodation*

In Bakuriani, there are a total of 3,000 beds at hotels. However, the majority of these rooms are not high quality.<sup>66</sup> There are three restaurants, two marketplaces, and a small shop. While Bakuriani appears to have sufficient accommodation options, both Gudauri and Svaneti (Mestia) do not. Gudauri has 18 hotels and four guesthouses. In Svaneti, in 2009, there were 16 hotels, three more hotels and about 100 more rooms than the previous year.<sup>67</sup> Svaneti can host between 400-450 people at a time.<sup>68</sup> There are 50 family hotels in Mestia which can hold 250-300 people total and there are three larger hotels with a maximum capacity of 70 people.<sup>69</sup>

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<sup>65</sup> Vano Vashakmadze, Gudauri Ski Resorts. Mountain Resort Development Georgia 2010.

<sup>66</sup> [www.bakuriani.ge](http://www.bakuriani.ge)

<sup>67</sup> National Tourism Agency Statics

<sup>68</sup> Vano Vashakmadze, Gudauri Ski Resorts. Mountain Resort Development Georgia 2010.

<sup>69</sup> Ibid

### *Training Programs*

Local training options are limited to non-existent. For example, there are no domestic training options for skiing instructors, heli-skiing instructors, or any other adventure tour instructors. There are ski schools in Gudauri and Bakuriani which offer three levels of skiing and snowboarding courses: beginners, intermediate, and expert skiers. Most Georgian ski instructors are not internationally certified. While there are two mountaineering training organizations with the capabilities to train adventure guides in Georgia, the Georgian Mountain Guides Association and the Georgian Mountain Lovers Association, they are not currently doing so. The Georgian Mountain Guides Association is working with the GoG on guides' certification system and is planning to establish guides training school in Georgia.

### *Transportation Infrastructure*

Most transport issues were covered in the section above. It is worth mentioning that the main roads to Gudauri and Svaneti are in fairly poor condition. The GoG does have plans to upgrade the roads to Svaneti.

### *Related Businesses*

There are no dedicated mountaineering, rafting, hunting and fishing, or hiking and trekking shops in Georgia, although some basic gear can be purchased at sports shops. The equipment for these tourism options are either provided by the tour operators or the adventure tourism companies or must be purchased outside of Georgia.

### *Supporting Industries*

The adventure tourism network depends on supporting industries. These include financial services, support services, business development services, information technology, marketing and advertising, and auditing and accounting. While all of these supporting industries need to be strengthened, marketing and finance were identified by most sector stakeholders as the key constraints to expanding output from the tourism sector in Georgia.

## **COMPETITIVENESS POTENTIAL**

Georgia is close to key European adventure tourism markets. Georgian adventure tourism (specifically skiing and hiking/trekking) has the potential to make Georgia a competitive destination as skiers, hikers, and trekkers are always looking for new destinations. Additionally, Georgia is price competitive. When the EPI team compared the cost of ski tourism in Georgia with a range of other destinations, Georgia was less expensive than nearly all alternatives, including Romania (4 percent more expensive), Austria (13 percent), Italy (17 percent), Germany (23 percent) and Norway (26 percent). Only the U.S. and France were less expensive.

The GoG has made tourism one of the three priorities of its administration and has been investing and promoting investment in tourism. Internationally, tourist arrivals in 2010 were up by 6.7 percent compared to 2009. The interest and investment in the Georgian tourism market has been growing, as has the number of international visitors to Georgia.

The GoG has invested heavily in Gudauri and Bakuriani and has decided to focus on Svaneti (Mestia) for the next few years. It will invest GEL 76.5 million in developing Mestia's

ski resort, mainly to improve the transportation links. The Government has also been involved in regional road rehabilitation and has been aggressively promoting Georgia as a ski tourism destination. Also, the government recently opened an airport in Mestia to attract both domestic and international tourists. All of this support will increase the regional competitiveness of Georgian ski resorts, and tourism in general.

An average of 80,000 skiers annually (3,000 skiers daily) visit Bakuriani and Gudauri.<sup>70</sup> Seventy percent of people visit during the weekends or during the holidays and the peak months are January, February, and March.<sup>71</sup> The geographic distribution of tourists who visit these ski resorts are 70 percent Georgians, 20 percent regional tourists, and the remaining ten percent are international tourists.<sup>72</sup> In Gudauri, the majority of foreign tourists are Ukrainian (26 percent), German (26 percent), and Turkish (12 percent).<sup>73</sup>

Ski tourism in Georgia is expected to increase in the future. Ski destinations operated at full capacity during the winter of 2010, but due to the unusually snow-free winter, 2011 has seen relatively few visitors and hotels have been operating below capacity. To become a competitive ski destination, Georgia must invest in prolonging its ski season by producing artificial snow when natural snow is not available. Many countries already do this to remain competitive. Annual turnover of ski lifts in winter resorts is GEL 1.2 million and there has been 15 percent annual growth in the recent past.<sup>74</sup>

Adventure tourism has the following strengths:

- Close to Europe
- Variety and landscape
- Protected areas
- Low level of crime
- Quick reforms and upgrading infrastructure development (flexible taxation and improved roads and sightseeing)
- Competitive prices for heli-skiing
- High quality skiing

## IMPACT POTENTIAL

As the industry grows, there will be an increase in employment opportunities in higher paid jobs such as ski instructors, ski masters, hiking and trekking guides, and rafting guides. The sector also has the potential to be a key driver of both domestic and foreign investment. Already, the GoG and foreign and local investors have invested over USD 27 million (GEL 47.35 million) in skiing in Georgia. The growth in adventure tourism will have a significant

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<sup>70</sup> Vano Vashakmadze, Gudauri Ski Resorts. Mountain Resort Development Georgia 2010.

<sup>71</sup> Ibid

<sup>72</sup> Ibid

<sup>73</sup> Georgian National Tourism Agency

<sup>74</sup> Ibid

impact on Small and Medium Enterprise (SME) participation and growth because adventure tourism involves restaurants, small adventure tourism operators, and accommodations. Other actors in the adventure tourism network will also see an increase in profits and sales, namely: transportation, accommodation, souvenir shops, restaurants, and other supporting services. Many of the benefits of adventure tourism will be concentrated in rural areas. Developing adventure tourism stimulates cooperation between government, private enterprises, and associations, and the tourism industry – restaurants, hotel, guesthouses, small adventure tourism operators etc.

## INDUSTRY LEADERSHIP

EPI will need to identify and work closely with the private sector leadership in order to promote the competitiveness of the Georgian adventure tourism sector. While there are a number of strong leaders in this subsector, they do not collaborate, and there is no vision for the future of the subsector. While associations do exist, they do not have the potential to lead the sector. There are a few Georgians interested in investing in the secondary adventure tourism options.

## CROSS-CUTTING THEMES

There is a great deal of enthusiasm surrounding ski/mountain tourism in Georgia. The GoG has made tourism one of the three priorities of its administration and has invested, and promoted investment in, tourism. The GoG has also invested in the two main ski resorts in Svaneti and Adjara, in addition to supporting Gudauri and Bakuriani. Donor efforts have also focused on tourism, and there will be opportunities to work with other donors and with the GoG on tourism efforts. Ski/mountain tourism is particularly appealing because it fits well with many other elements of the tourism and other value chains.

There are opportunities to work with other donors. Historically, a number of donors have been engaged in developing Bakuriani, Svaneti, and other adventure tourism regions in Georgia. These donors include the Swiss Agency for Development and Cooperation (SDC), the Friedrich-Ebert Foundation, Gesellschaft für Internationale Zusammenarbeit (GIZ), U.S. Agency for International Development (USAID), the World Bank, and the Polish Embassy. While most of these projects have ended, a few ongoing efforts provide an opportunity for collaboration. Existing projects that have some overlap are the United Nations Development Program – Economic Development in the Adjara Autonomous Republic; the GIZ – Private Sector Development Program for South Caucasian Countries; and the Swiss Development Tourism and Rural Development Project. Linking EPI's adventure tourism efforts with Elkana's existing program, "Visit Georgian Farmers" could benefit both projects. The rural tourism project has been working in eight regions and unites 90 rural guesthouse owners.

The GoG has been actively removing barriers to business and promoting investment in Georgia's tourism sector. Revenues from incoming tourists are VAT exempt. Visitors can apply for a visa at Georgian embassies abroad or at Tbilisi International airport. There are also open visa issue points at the Georgia - Azerbaijan border "Red Bridge;" the Georgia - Armenia border "Sadakhlo;" the Georgia-Turkey border points "Sarpi" and "ValePort;" and

the Port of Poti for ferry passengers. Sixty-seven countries have an agreement with Georgia and are allowed to enter visa-free for 360 days.

Adventure tourism has the potential to benefit both women and youth. The majority of people employed in the hospitality sector are women. In fact, about half of all employees in the tourism sector are women. While there is no data on the number of youth working in the adventure tourism value chain, tour operators describe employment in the service sector as including many young adults.

## STRATEGIC ENTRY POINTS AND RECOMMENDATIONS

The weaknesses in Georgia's adventure tourism value chain are similar to those in the wine tourism value chain, and include low quality of customer service, underdeveloped infrastructure, insufficient marketing, and lack of a long-term tourism development strategy. These weaknesses vary somewhat among segments (such as skiing, hiking, or biking). For example, The National Tourism Agency conducted interviews asking skiers who had spent time at Bakuriani and Gudauri for suggestions for improvement. The major complaints for both ski resorts were about service quality, internal roads, and waste management.<sup>75</sup>

Potential supply side interventions include: improving hospitality skills, encouraging hotels and bed and breakfasts to upgrade their accommodations, supporting adventure tour operators to better understand the adventure tourism market, and educating the hospitality sector. Potential demand-side interventions include: increasing marketing to target markets and conducting better marketing in country. Since the adventure tourism value chain lacks leadership and advocates, it is difficult for EPI to become heavily involved. However, there are a few important ways EPI can assist the subsector.

Quick wins may include:

1. Design and development of adventure promotional materials in coordination with private sector actors and tour operators.
2. Devotion by part of each tourist information center to adventure tourism information.
3. Development of an action plan to post appropriate signage for adventure tour destinations.
4. Linkage of primary adventure tourism options with secondary and tertiary options.

Longer-term recommendations include:

Increase Interest in Georgian Adventure Tourism (Demand Side):

1. Determine target markets and then develop a more aggressive marketing campaign to attract visitors. One way to determine markets is by starting with markets with populations that are interested in skiing, hiking, or trekking.

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<sup>75</sup> Georgian Winter Resorts Marketing Survey 2009-2010. Georgian National Tourism Agency, 2010

2. Develop a Georgian skiing and adventure brand that is promoted internationally. Work with National Tourism Agency and the private sector to establish ways to promote Georgian skiing and adventure tourism through websites, key messages, and images that would be used by the Georgian Government and the private sector.
3. Host other adventure writers whose influence could attract more tourists.

Improve Quality of Adventure Tourism (Supply Side):

1. Develop an action plan to link secondary and tertiary adventure activities with primary adventure activities.
2. Encourage adventure tourism companies to hire graduates of guide schools.
3. Provide training or establish a vocational school for guides in Svaneti.
4. Work with industry leaders to establish an association.
5. Assist tour companies in accessing credit

# CONTACT DETAILS FOR VALUE CHAIN ACTORS

Company / Organization	Name & Position	Address	Contact Telephone Number	Email Address
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# ANNEX 17: MICE<sup>76</sup> TOURISM VALUE CHAIN ASSESSMENT

## ABSTRACT

This report presents an assessment of the MICE tourism value chain in Georgia, including the characteristics of Georgia's MICE tourism sector, the country's competitiveness potential, potential impact of working with the sector, assessment of industry leadership, and potential strategic entry points. The assessment explores whether MICE tourism should be selected as a value chain with which the EPI project will work going forward.

## ABBREVIATIONS

AAR	Adjara Autonomous Republic
CFTC	Common Facility Training Center
GITOA	Georgian Incoming Tour Operators Association
GIZ	Gesellschaft für Internationale Zusammenarbeit
GNTA	Georgian National Tourism Agency
GTA	Georgian Tourism Association
MICE	Meetings, Incentives, Conferences, and Exhibitions
SME	Small and Medium Enterprises

## EXECUTIVE SUMMARY

Meetings, incentives, conferences, and exhibitions (MICE) tourism is a fast growing segment of the international tourism market. It loosely includes various types of business meetings, corporate incentive travel, international conferences, events, and exhibitions.

Georgia, particularly the Adjara and Tbilisi regions, has seen significant investment in its tourism facilities and infrastructure in recent years. Key components of the MICE tourism industry include:

- Facilities and capabilities of existing hotels, conference halls, stadiums, exhibition spaces, universities, boulevards and open air spaces, as well as planned investments in new infrastructure

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<sup>76</sup> Meetings, Incentives, Conferences, and Exhibitions

- Services supporting MICE tourism, such as event operators, tour operators, equipment providers, etc.
- Logistic services: air, train, sea, and land transport capacities - routes, load capacities, frequencies, growth trends, new routes and operators
- Information resources: information centers (physical and online); number of events in recent years, planned events in coming years (type, organizer, size, venue, length, number of visitors, etc)
- Event supporting services: food and other product supplies, translation services, logistics, etc.

MICE tourism in Adjara has the potential to integrate or link business, cultural, sporting event, wine, adventure, and cultural tourism. Georgian MICE tourism providers can enrich MICE tourism packages with additional products and services. Traditional Georgian hospitality, food, and attractions could encourage longer stays of MICE tourists, and therefore more expenditure in the MICE tourism centers and regions.

Tbilisi is already developing as a MICE tourism destination and has the best capacities and greatest number of related services. Tbilisi is known as the business city; tour operators are headquartered there, as are the biggest exhibition halls, and many brand hotel chains, international companies, and banks. Adjara has great potential to become an alliance destination for Tbilisi MICE tourists and vice versa, and a destination in its own right, particularly for smaller, niche activities.

The information gathered through face-to-face interviews and secondary sources presented below illustrates Adjara's MICE Tourism Value Chain/Cluster and compares it to similar value chains (VCs) in other regions in Georgia.

The impact potential of the MICE tourism sector is substantial and includes income generation, new investment, increased local government revenues, and employment creation. MICE tourism offers opportunities for higher per visitor revenues compared to other tourism sectors. Business visitors spend about 50 percent more on average than non-business tourists. Tourism, including MICE tourism, is widely supported among political authorities. It offers important opportunities to women and young people. There is also an opportunity through EPI to coordinate with several ongoing initiatives that impact the tourism sector, including projects by both USAID and Gesellschaft für Internationale Zusammenarbeit (GIZ).

To make the most of its enormous potential, however, Georgian firms in the MICE tourism sector must overcome two important obstacles: inadequate workforce capacity, particularly with regard to customer service, and insufficient industry cooperation.

Potential strategic entry points include:

1. Assistance in enhancing workforce skills, such as Common Facility Training Centers (CFTCs) to train workers on needed skills such as customer service.
2. Assistance to companies in the MICE tourism sector, particularly Small and Medium Enterprises (SMEs), in accessing finance.
3. Promote standards and certifications in the tourism industry to enhance the level of service quality.
4. Working with the Department of Tourism and Resorts of Adjara to conduct advertising campaigns, targeting markets in Armenia, Azerbaijan, Europe, and countries of the Former Soviet Union.

- Strengthen linkages to other tourism value chains, such as wine tourism and adventure tourism, to reinforce the MICE tourism offering.

Competitiveness Potential of Adjara	Impact Potential	Industry Leadership	Cross-Cutting Linkages	Overall Comments and recommendations
				<p>Average 2.75 Recommended for inclusion</p>

# INTRODUCTION

## Background

Georgia, particularly the Adjara region, has seen significant investment in its tourism facilities and infrastructure in recent years. The existing and planned hotel infrastructure; coastal location; attractions; potential growth of supporting entertainment, cultural, and sporting events; airport in Batumi; and planned railway construction connecting Georgia directly to Europe suggest that the Adjara region possesses high potential for MICE tourism. However, these factors are not sufficient for a MICE tourism industry to grow. This assessment examines the extent to which Batumi and the Adjara region possess the facilities, services, and skills necessary to hold the regional and international meetings and events (including business, cultural, and sporting events) necessary to sustain a dynamic MICE tourism subsector. Although the primary focus of this assessment will be on Adjara, the assessment also explores Tbilisi's potential for developing MICE tourism.

## Methodology

In conducting this assessment, the EPI team used a variety of sources, including national tourism agencies websites, investment agencies, state departments of tourism and statistics, and face-to-face and telephone interviews with many Adjara and Tbilisi MICE tourism value chain participants. The team conducted interviews with more than 50 individuals and organizations, including tourism associations, private tourism businesses (tour operators, hotels, and event planners), deputy ministers, deputy heads of state national agencies, governors, and deputy governors of municipalities.

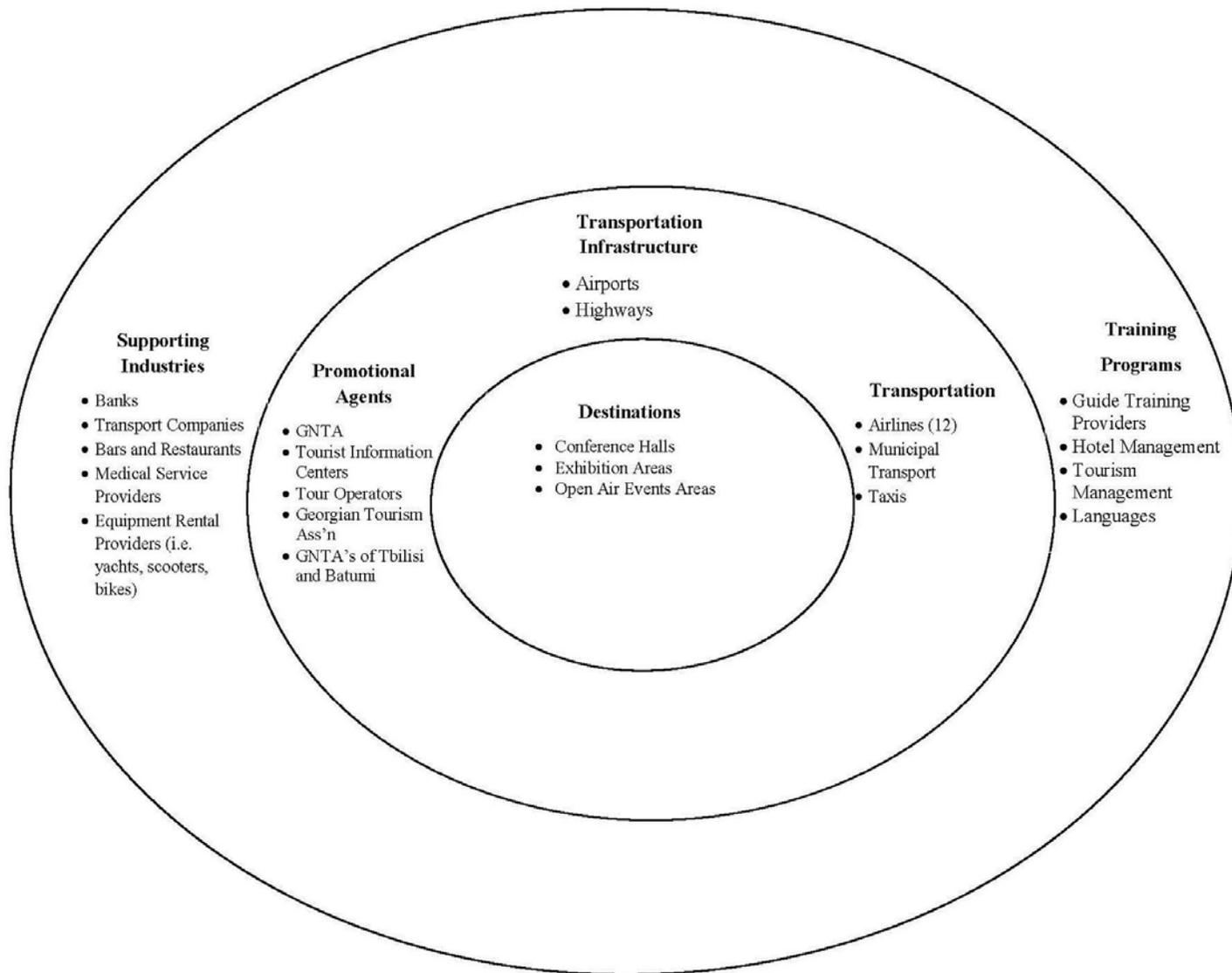
# OVERVIEW OF THE MICE TOURISM VALUE CHAIN

## Summary

Main Products/Services	MICE tourism including supporting services such as business, cultural and sports events, and other related tourism services
Key Markets Served	Georgia, Turkey (30%), Armenia (30%), Azerbaijan. Anticipated additional markets: Israel, Ukraine, Europe, Former Soviet Union
Tourist Arrivals	About 80,000 in 2010 <sup>77</sup>
Revenues	According to a Georgian National Tourism Agency (GNTA) Marketing Study, the average foreign tourist spends USD 1,800 on average. With an estimated number of 80,000 MICE tourists, this equates to USD 144 Million. Expected Annual Growth: 10%
Employment	Hotels, event companies, tour operators, transport hubs, construction companies building MICE destinations employ altogether more than 10,000 people in Adjara. Expected: 10% annual growth
Productivity	Spending per tourist is estimated at roughly USD 280/day
Positioning	Unique niche MICE destination enabling visitors to experience a range of exciting opportunities in relation to wine and adventure
Key Processes	Various

## MICE Tourism Value Chain Map

<sup>77</sup> Georgian National Tourism Agency



**Table 1: VC Participants in Adjara and Georgia**

Airline Companies	5 in Adjara and 26 in Georgia
Incoming Tour Operators	54 in Georgia, 3 in Batumi
Event Management Companies	2 in Adjara and 65 in Georgia including suppliers
Hotels	128 accommodation establishments in Batumi (for 6,000 persons)
Open-Air Event Areas	Piaca Square, Boulevard, Botanic Garden, 6 <sup>th</sup> May Park, Mtirala's National Park
Conference Halls, Including Hotel Conference Rooms	35 conference halls in Adjara
Exhibition Areas	ICE House and open air areas mentioned above
Construction Companies/Developers	19 companies
Transportation Companies	Railway, airport, sea transport, municipal transport
Banks and Financial Institutions	20 commercial banks and 27 microfinance institutions in Georgia, most of them having branches in Adjara
Bars and Restaurants	57 restaurants, 58 cafe-bars
Food and Beverage Suppliers	14 food and beverage supplier companies
Medical Service Providers	7 first-aid points near the sea shore, several hospitals and polyclinics in town
Guide Service Providers	Department of Tourism and Resorts – Audio Guide Service, tour-operators
Relevant State Agencies	3
Tourism Associations	2
Tourism Information Centers	4

*Accommodations, Exhibitions, Conferences, Meeting and Open Air Facilities*

Adjara offers about 6,000 beds in small- and medium-sized hotels. The three largest are the Sheraton, Georgian Palace, and Intourist. The number of available beds will increase by about 50 percent with the planned opening of a series of large, brand name hotels, including the Radisson, Hilton, Kempinski, Hyatt, and Belle Vue (in addition to 13 others). Planned apartments in newly built houses in the center of Batumi and Boulevard will offer another 10,000 beds, of which approximately 50 percent are anticipated to be rented to visitors.

Tbilisi has a number of high-end hotel chains, such as the Radisson, Marriott, Sheraton, Holiday Inn and Citadel, in addition to 20 others. Several of them boast conference facilities. With about 6,000 beds, Tbilisi had about a 60 percent occupancy rate in 2010. Tbilisi also offers 40 conference halls, of which 15 hold more than 50 people. In Batumi, the Piazza (located in Old Batumi) has a capacity of 2,000 people and has already hosted several high-profile events, including the Placido Domingo Opera and 2011 New Year's Eve Party. The center of Old Batumi is Europe Square, which has a capacity of 10,000 people and hosted the Batumi EXPO and Fashion Week in 2010.

### *Events*

The open-air Batumi EXPO is the biggest annual corporate event in Adjara. It brings together more than 100 participant companies from more than 10 countries and around 25,000 visitors. An estimated 1,000 corporate events are held annually in Batumi, including employee reward trips/events and meetings. The events are organized by business, NGOs, the public sector, donors, and other international organizations. More than 20 concerts, festivals, and public events took place in Batumi in 2010, with the same number of events planned in 2011 - including the MTV festival and annual International Jazz Festival.

Sports are also discussed in the section on adventure tourism. Those of note for MICE tourism include the chess championships; sand wrestling world championships; sand handball festival; sand rugby; bow-throwing, fencing and tennis tournaments; swimming championships; and other events in Adjara. Tbilisi will host the European Youth Olympic Festival in 2015. In Soviet times, Batumi was a favorite location for sporting events, including academic rowing, yachting, canoeing, water skiing, football, and basketball. However, infrastructure is now inadequate to support these activities.

A limited number of new sports infrastructure projects are planned in Adjara for the near future, including the Angisa Football Stadium, to be completed in 2012; a project for the Formula 3 race in the center of Batumi for 2015; and refurbishment of the stadium in Kobuleti. In addition, three ski resorts in the mountainous part of Adjara are currently being considered for investment by Austrian Company Klenhart and Partner Consulting: Goderdzi Pass, Mount Chanchakhi, and Zorti. Pre-feasibility studies of the resorts are being undertaken.

### *Transportation Infrastructure*

Tbilisi Airport is the largest airport in the country and is located 20 kilometers from the city center. Tbilisi International Airport can support up to 2.8 million passengers per year, or about 8,000 per day. It receives an average of 21 flights per day. Currently 26 international airlines fly to Tbilisi. Tbilisi International airport can handle many kinds of aircraft, but not the Airbus A380. The most frequent flights from Tbilisi are to Turkey, Ukraine, Germany, and Azerbaijan. The peak months are July, August, and September.

Batumi Airport serves 500,000 people annually, and can service 12-15 planes in a 24-hour period. The major airlines include Georgian Airways, Turkish Airways, Aero Svit, Belavia, and Air Batumi. Parking is the biggest issue in Batumi, particularly in Old Batumi. Plans for a parking garage are currently underway, but it is hoped that bicycles will become the main type of transport in Historic Batumi. In addition, Batumi Seaport plans to receive about 20 cruise ships in the next year.

### *Training and Workforce Development*

Despite a high demand for qualified workers, workforce quality remains a problem. There are several reasons for this: workers enjoy only limited access to quality training and hospitality management programs; young people are generally unwilling to enter service work, as most seek management positions, compounded by a general unwillingness of employers to hire workers over the age of 40.

Among the training providers available are management schools such as Batumi Business School, and professional training centers such as Kobuleti Professional Training Center, the Batumi Vocational and Educational Training Center, and several vocational/education programs in Tbilisi, including Spektri and Icarus, which offer courses in service industries positions such as hotel management, tour guides, barmen, waiters, etc.

Educational programs at vocational education centers are quite expensive. For the same price, young people prefer to receive education in other, more attractive sectors. The trend seems to be improving as a result of a new GoG - Ministry of Education and Science initiative which covers 80 percent of fees for vocational training courses in all VECs of Georgia.

**Table 2: Summary of MICE Destinations in Georgia**

Region	Number of beds at hotels	Conference capacities	Events in 2010	Upcoming events in 2011	Event management companies	Airport	Transport	Infrastructure
Adjara	About 6,000 beds, in 2011 more than 3,000 beds will be added to this amount <sup>78</sup>	Total: for about 2500 persons,	68 various kinds of events  8 events by Calypso <sup>79</sup>	14 international and 6 local events	2 main companies: Calypso and Georgian events	1, but limited	Poor	Good
Tbilisi	More than 6,000 beds, and about 200 will be added in the near future	Total: for more than 2,400 persons	11 large international exhibitions by Expo Georgia, 3 national festivals	3 events by Georgian events, 10 large international exhibitions by expo Georgia <sup>80</sup>	65 companies (including hotel event service and suppliers)	1	Good	Good
Bazaleti	350 beds	1 conference hall	More than 50 events	More than 50 events	-	No	Poor	Poor
Bakuriani	About 2100 beds	11 conference halls with average 70-80 seats	More than 50 events	More than 50	-	No	Limited (in winter only)	Good

<sup>78</sup> Department of Tourism and Resorts of Adjara Autonomous Republic

<sup>79</sup> <http://www.calypso.ge/en/>

<sup>80</sup> ExpoGeorgia

Signnaghi	13 hotels	3 main conference halls	More than 50 events	More than 50 events	-	No	Poor	Good
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# COMPETITIVENESS POTENTIAL

Tbilisi offers substantial opportunities to develop a competitive MICE tourism industry. The influx of foreign investment in hotels is a clear indicator that international investors share this perception. While the events that Georgia has hosted to date (in both Tbilisi and Adjara) have not received international recognition, the fact that Georgia has hosted them shows its industry's capabilities. There is currently a global trend toward seeking new destinations, and Georgia offers a new frontier for those seeking new places to hold their events.

To consolidate this potential, however, Georgia will need to upgrade its levels of customer service, increase the number of airlines flying into Batumi, increase levels of industry cooperation, and increase marketing and international awareness of Georgia as a MICE tourism destination.

# IMPACT POTENTIAL

The impact potential of the MICE tourism sector is substantial. EPI anticipates MICE tourism sector growth can positively impact income generation, investment rates, local government revenues, and employment creation. Business tourists spend about 50 percent more on average than non-business tourists. Information from the national tourism agency indicated that the average daily outlay of a business tourist is about USD 355, while non-business tourists spend only about USD 238 per day.

The MICE tourism sector's potential to generate income is seen by looking at examining recent investment in the sector. Additional construction on Batumi's new boulevard (a 20-story residential building with 47 apartments) will draw USD 6 million of investment. A Dia Holding (Azerbaijani) luxury hotel will require a USD 35 million investment. The Ritz-Carlton will construct a 5-star hotel in Old Batumi at a cost of USD 200 million. Hotel construction projects in 2010 also included the Cube Tower and Princess Hotels, worth USD 15 million and USD 30 million, respectively. Investment in Adjara rose by 5 percent in 2010 to USD 147 million. In Tbilisi, massive investments in new hotels have already been made by Marriott, Sheraton and Radisson SAS, Intercontinental, while Kempinski, Hyatt and Hilton are in the process of constructing their facilities.

Growth of the MICE tourism value chain will encourage new businesses formation and investment, including small and medium enterprises (SMEs). SMEs that currently benefit from MICE tourism include food and beverage producers, photographers, modeling agencies, printing houses, PR companies, media, caterers, designers, shopping centers, and many more. Investment and the accompanying business creation will result in a substantial number of new jobs and, in turn, produce tax revenues for the municipalities which will allow them to provide better services.

# INDUSTRY LEADERSHIP

The Georgian Hospitality Group is the leading tourism and event management unit in Georgia and comprises Georgia Events (which plans events, including the annual Tbilisi Fashion Week), Caucasus Travel, Carlton Wagonlit, IT Innovation, and Explore Georgia.

There are two primary tourism associations in Georgia assisting tour operators and event management companies in the development of MICE tourism: the Georgian Incoming Tour Operators Association (GITO) and the Georgian Tourism Association (GTA). The team did not observe many examples of inter-firm collaboration. One potential reason for the lack of collaboration is that in the past, when larger firms in the sector have partnered with SMEs to build capacity, the larger firms have often taken over the relevant activities upon developing expertise, making it difficult for SMEs to trust the larger firms.

## CROSS-CUTTING THEMES

Tourism, including MICE tourism, is widely supported by the national and local governments. To promote tourism, the Government of Georgia has lowered taxes, liberalized the economic environment, simplified licensing procedures, created industrial zones, and invested in infrastructure and new construction. Tourism is recognized by local and national government authorities as critical to decentralized economic development and job creation in rural areas. It is also seen as an issue of national image.

MICE tourism also features an important gender and youth component. More than half of the employees in the tourism industry are women. Women represent a particularly high share of the labor force in hotels. Most guest houses are managed by women and front-office staff are generally women. Young people are also in relatively high demand in the tourism industry, as they are more likely to have professional education. More work is needed, however, to make tourism an attractive opportunity for young people.

MICE tourism also offers linkages with other forms of tourism. MICE packages often include excursions and tours of various sorts, and MICE visitors will be encouraged to add days to their stay to experience other Georgian tourism experiences.

There is a high degree of complementarity between EPI and other donor projects in this area. GIZ works directly in tourism development at the governance level. Also, a number of Vocational Educational Centers have been supported by the USAID VET project, which has played an important role in increasing the number of trained professionals in Kobuleti. USAID SME Support Project GBDC Caucasus Batumi office also assisted in connecting more than 100 students with training and internship opportunities, including management positions at leading hotels in Batumi.

# STRATEGIC ENTRY POINTS AND RECOMMENDATIONS

1. Assistance in enhancing workforce skills, such as Common Facility Training Centers (CFTCs) to provide training in skills as customer service.
2. Assistance to companies in the MICE tourism sector, particularly SMEs, to access finance.
3. Promotion of standards and certifications in the tourism industry to enhance the level of service quality.
4. Conduct advertising campaigns, working with the Department of Tourism and Resorts of Adjara, targeting markets in Armenia, Azerbaijan, Europe and countries of the Former Soviet Union.
5. Strengthen linkages to other tourism value chains such as wine and adventure tourism, which will reinforce the MICE tourism offering.

# CONTACT DETAILS FOR VALUE CHAIN ACTORS

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	of the Historic Part of Batumi			
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# ANNEX 18: WINE TOURISM VALUE CHAIN ASSESSMENT

## ABSTRACT

Despite having the highest-quality wine in the region, as well as other advantages such as the historical and cultural monuments, Georgia's wine tourism industry has not lived up to its potential due to underdeveloped infrastructure, inadequate customer service, poor accommodations, and limited marketing.

This report is an assessment of the wine tourism value chain in Georgia, its characteristics, the country's competitiveness potential, potential impact of working within the sector, assessment of industry leadership, and potential strategic entry points.

## ABBREVIATIONS

EPI	Economic Prosperity Initiative
EUR	Euro
FDI	Foreign Direct Investment
GEL	Georgian Lari
GITOA	Georgian Incoming Tour Operators Association
GNTA	Georgian National Tourism Agency
GoG	Government of Georgia
GTA	Georgian Tourism Association
LEPL	Legal Entity of Public Law
MICE	Meetings, Incentives, Conferences, Exhibitions
MoA	Ministry of Agriculture of Georgia
NGO	Non-Governmental Organization
SME	Small and Medium Enterprise
TIC	Tourism Information Center
UNDP	United Nations Development Programme
UNESCO	United Nations Educational, Scientific and Cultural Organization

UNWTO	United Nations World Tourism Organization
USAID	U.S. Agency for International Development
USD	United States Dollar
WMA	Wine Makers Association

## EXECUTIVE SUMMARY

Despite having the highest-quality wine in the region, as well as other advantages such as significant historical and cultural monuments, Georgia's wine tourism industry has not lived up to its potential, due to underdeveloped infrastructure, inadequate customer service, poor accommodations, and limited marketing.

Wine tourism was identified as a high priority value chain during the sector selection because of its potential for increased competitiveness, its ability to generate rural employment and income, and its linkages to wine (a selected value chain under the agricultural component). Wine tourism is a rapidly developing business worldwide, but in Georgia it is a fairly new concept. Apparently, only four percent of tourists visit Georgia for the purpose of wine tourism; although, 37 percent end up partaking in wine tourism-related activities.

The main attractions for wine tourism are wineries (of which there are 36), vineyards, and historical and cultural destinations in the wine regions. Kakheti, which boasts two-thirds of the total vineyard area of Georgia and 32 of its 36 wine producers, is the region with the greatest potential to be a wine tourism destination. A recent survey of foreign visitors to Georgia reveals that about 12 percent visit wine cities and towns in and around the Kakheti region.

There are more than 50 tour operators in Georgia offering wine itineraries and services that relate to wine tours. However, the vast majority of international tourists circumvents tour operators and establishes direct contacts with hotels, guesthouses, and wineries, rather than using operators. Although tour operators, wine producers, and the Georgian National Tourism Agency (GNTA) have websites, they require upgrading to improve usability and to provide online reservation options. Encouragingly, the Kakheti regional government recently agreed on a set of priorities for tourism development, including upgrading tourism infrastructure, improving service quality, supporting professional education, ensuring access to financial services, and ensuring preservation and protection of cultural and historical monuments.

Hospitality services in Georgia are weak generally, particularly in wine tourism, although there are several supporting organizations. A Georgian Wine School was established in 2009 and has trained two groups of 15 students each in wine-tasting. There are also four established vocational tourism-training programs in Georgia, but they rarely train students from the wine regions, since many restaurants and hotels in Kakheti are family run and rarely send students to Tbilisi for training. There are two centers for wine research and development and four laboratories responsible for testing wine quality. The Agrarian

University houses a Scientific Research Institute of Horticulture, Viticulture, and Winemaking and is the leading scientific center focused on production of sustainable yields of grapes.

Wine tourism can be a high-end activity that attracts a premium price from international tourists. EPI believes Georgia can compete with other wine tourism destinations based on the quality of its food, wine, and historical/cultural/religious monuments. However, Georgia's current competitive position is high-cost while offering only moderate quality. An upgraded wine tourism value chain will generate an increase in the number of visitors coming to Georgia specifically for the wine tourism experience, an increase in earnings (particularly in rural areas), and substantial levels of foreign and domestic investment. It will also offer positive synergies with the broader tourism sector in Georgia, including Meetings, Incentives, Conferences, and Exhibitions (MICE) and adventure tourism. The growth in wine tourism will have a significant impact on Small and Medium Enterprise (SME) participation and growth because wine tourism requires a diverse offering of restaurants, wine producers, and accommodations due to the varied tastes of wine tourists. Other related businesses would also see an increase in sales and profits, such as transport, accommodation, souvenir shops, restaurants, and other supporting services.

The Wine Makers Association (WMA), and some of its members, believe that many of the leading wine producers are willing to invest time and resources in industry growth, employment, and competitiveness. The Association hopes to create a cohesive strategy and become a stronger institution in 2011. EPI plans to leverage funds raised by AmCham to send a delegation of wine producers and other stakeholders on a reverse trade mission to the New York Finger Lakes region and to Napa Valley, where Georgian producers can observe how other wine tourism regions have developed their strategies. Wine producers have also expressed an interest in SME participation in the wine route and wine tourism industry. There are individual leaders among the tour operators.

EPI's priorities will be to help stakeholders upgrade the Georgian wine tourism sector by addressing several key constraints and enabling greater tourist access and a more positive tourism experience. Some of the weaknesses in the system identified include the lack of a long term strategy, poor quality accommodations, low levels of customer service, lack of wine destination marketing, and poor tourism infrastructure (such as public toilets and information centers). These weaknesses will be prioritized for intervention. Some potential supply side interventions include improving hospitality skills; encouraging hotels and bed and breakfasts to upgrade their accommodations; helping wine producers better understand the wine tourism market and obtain feedback on Georgia's wine tourism experience; and educating the hospitality sector about wine etiquette, wine and food pairings, and other wine-related topics. Potential demand-side interventions include increasing marketing to key target markets and conducting better in-country marketing. The following represent specific recommendations based on preliminary interviews with sector stakeholders.

1. Design and develop wine routes and promotional materials in coordination with wine producers, WMA, monasteries in Kakheti, the cultural preservation agency, and tour operators.
2. Devote part of each of the tourist information centers to wine information and wine route information until a wine center can be established.
3. Post signage for historical and cultural monuments and along the wine route.
4. Upgrade the existing Georgian wine website and optimize it for search engines.

5. Work with AmCham Georgia to send a delegation of wine producers and wine tourism leaders on a reverse trade mission in order to learn about wine tourism in the New York Finger Lakes region and Napa Valley to attract the attention of key wine writers, media, and importers.

Longer-term recommendations include:

**Increase Interest in Georgian Wine Tourism (Demand Side):**

1. Determine target markets and then develop a more aggressive marketing campaign to attract visitors from EU, Asia, and/or Americas. One way to determine markets is by starting with markets that are familiar with Georgian wine. In the first half of 2010, Georgia exported 8,178 tons of wine, worth USD 17.6 million to 51 countries.
2. Further develop Georgian wine brands promoted internationally. Work with Georgian WMA to establish ways to promote Georgian wine through websites, key messages, and images that would be used by the Government of Georgia (GoG), WMA, and the private sector.
3. Host wine writers, chefs, and sommeliers whose influence could help sales abroad.

**Improve Quality of Wine Tourism (Supply Side):**

1. Help develop a plan and raise financing for a wine center at the entrance of Kakheti where information on the history of wine, wine routes, wine producers, and Georgian wine varieties, etc. can be distributed/provided.
2. Encourage wine producers and restaurants to hire graduates of wine-tasting and sommelier courses.
3. Increase marketing for wine-tasting and sommelier training. This may include technical assistance to the wine-tasting school.
4. Provide training or establish a vocational school for wine degustation, wine etiquette, gourmet cooking, and for employees of hotels and restaurants in Kakheti.
5. Establish a Qvevri-making school to educate the next generation of Qvevri makers, improve quality, and attract visitors. This would enable continuation of an old tradition of making qvevris that only a few master craftsmen know how to make.
6. Train tour operators and wineries to collaborate in hosting wine tourists.
7. Assist small wine producers and bed and breakfasts in accessing credit.
8. Train grape growers to ensure that quality varieties are planted and understand that grapes will have higher value if they are of high quality.
9. Promote wine tourism through wine festivals and events.
10. Increase linkages with other types of tourism.

Competitiveness Potential	Impact Potential	Industry Leadership	Cross-Cutting Linkages	Overall Comments and recommendations
				<p>Average 3.75. Recommended for inclusion</p>

# INTRODUCTION

## Background

Wine tourism was selected as a high priority value chain because of its potential for increased competitiveness, its ability to generate rural employment and income, and its linkages to wine (a selected value chain under the agricultural component of EPI). The quality of Georgian wine and food, its numerous historical and religious monuments, the recent government investment in the wine regions, and sound industry leadership make wine tourism an attractive sub-sector for EPI involvement. The wine sector was on the verge of launching prominent offerings for wine tourists when the August 2008 war broke out. Since then, wine tourism infrastructure has improved and the number of visitors is increasing, suggesting that wine tourism is already on businesses' agendas.

Wine tourism is a rapidly developing sector worldwide and is a fairly new concept in Georgia. Hall and Macionis define wine tourism: "*visitation to vineyards, wineries, wine festivals, and wine shows for which grape wine tasting and/or experiencing the attributes of a grape wine region are the prime motivating factors for visitors*"<sup>81</sup>. Wine tourism is expanding in most major wine growing regions, including France, Spain, Germany, Italy, the US, South Africa, Australia, New Zealand, Austria, and Chile. Worldwide wine production decreased between 2004 and 2008 by 2.8 percent<sup>82</sup>, but over the same period, Georgia's wine production increased by 15.8 percent, outperforming New Zealand and Switzerland (countries producing similar volumes of wine).<sup>83</sup>

According to Dr. Liz Thatch, an author of trends in wine tourism, the ten major reasons people decide to become involved with wine tourism activities are to: 1) taste wine, 2) gain wine knowledge, 3) experience the wine setting (e.g. meet the winemaker, tour cellars and vineyards), 4) be in a rural setting (e.g. experience the beauty of vineyards, learn about farming, and agro-tourism), 5) match food and wine-culinary tourism, 6) have fun (e.g. wine festivals and events), 7) enjoy wine culture (e.g. romance and elegance), 8) appreciate architecture and art, 9) learn about "green" aspects and eco-tourism, and 10) enjoy the health aspects of wine<sup>84</sup>.

The profile of international wine tourists differs from that of domestic wine tourists. When international tourists visit Georgia, wine tourism is one of many activities in which they participate. Wine tourism as a Georgian industry for international tourists has not yet been fully developed. However, domestic tourists will visit Kakheti for day or weekend trips for the sole purpose of wine tourism.

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<sup>81</sup>Trends in Wine Tourism, Dr. Liz Thatch, August 15, 2007

<sup>82</sup> Alan Saffery, Armenian tourism report.

<sup>83</sup> Ibid. This number has decreased since 2008 as a result of the war, but post 2008 data is not available.

<sup>84</sup> Trends in Wine Tourism, Dr. Liz Thatch, August 15, 2007

One way to subdivide wine tourists is by their interest in wine, for example:

- The accidental wine tourist: These tourists visit wineries but they might not have planned on doing so. They have very little or no knowledge of wines.
- The interested wine tourist: These tourists have basic knowledge of wine and might have previously heard about Georgian wine. Visiting a winery might not have been in their plans for Georgia.
- The dedicated wine tourist: These tourists seek to buy or taste the latest and rarest wines. They are specialists and seek to increase their knowledge of wines.<sup>85</sup>

The majority of tourists are either accidental or interested wine tourists. Only four percent of tourists visit Georgia for the main purpose of wine tourism; however, 37 percent end up participating in wine tourism-related activities. A recent survey of foreign visitors to Georgia reveals that about 12 percent of foreign visitors visit wine cities and towns in and around the Kakheti region, which include: Signaghi (eight percent), Telavi (three percent), and Kvareli (one percent).<sup>86</sup>

## Methodology

This report was developed in large part on the basis of information obtained from and ideas discussed with the GNTA, wine and tourism associations, winemakers and wine cellar owners, and tour operators across Georgia. Meetings were conducted with stakeholders to collect information about the strengths and weaknesses of Georgia's wine tourism.

The meetings included discussions with stakeholders to identify and prioritize key issues in wine tourism, as well as possible solutions.

Assessment steps:

- Reviewed and analyzed reports, conducted research, collected available data from GNTA, National Agency of Protected Areas, National Statistics Office, Investment Agency and the WMA;
- Conducted interviews with tour operators, wine makers, wine cellar owners, local experts and other tourism industry stakeholders (Georgian Incoming Tour Operators Association (GITO), Georgian Tourism Association (GTA), Georgian Guides Association, WMA, Georgian Mountain Guides Association, etc.);
- Conducted meetings with groups of wine makers, incoming tour operators, and wine producers to identify constraints of the wine tourism industry and opportunities for future development.

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<sup>85</sup> A profile of International Visitors to Australian Wineries, Tourism Research Report, Journal of the Bureau of Tourism Research, Lee Mei Foo, Vol 1 No 1 1999

<sup>86</sup> Georgian National Tourism Agency

# OVERVIEW OF THE WINE TOURISM VALUE CHAIN

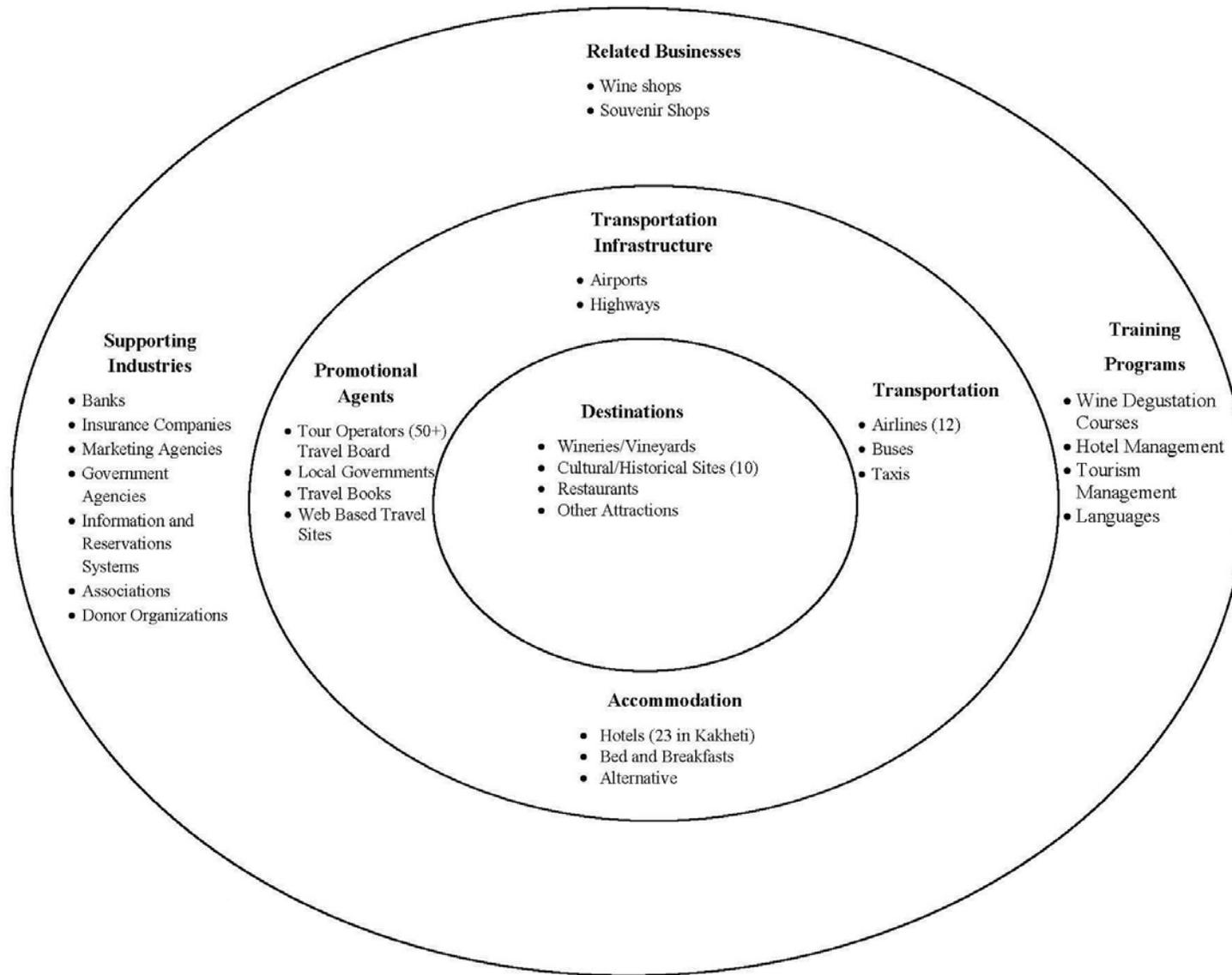
## Summary

Main Products/Services	Wine and the wine destination experience. The wine destination experience includes food, wine, accommodations, infrastructure, services, and historical and cultural monuments.
Key Markets Served	Unclear at present due to lack of data. Key markets for Georgian wine are Ukraine, Kazakhstan, Belarus, Moldova and Latvia.
Tourist Arrivals	The total number of visitors to Georgia was 1.05 million in 2007, according to the Travel and Tourism Competitiveness Index. This does not include domestic tourists. About 4% of these come specifically for wine tourism (although not necessarily only for that). However, an estimated 37% of tourists participate in at least some wine-related tourism activity.
Revenues	Data is unavailable for the wine tourism value chain. However, international tourists generated USD 384 million in 2007, according to the World Economic Forum.
Employment	Data for total employment in wine tourism is not available. Employment in the tourism sector generally was about 35,000 people in 2008.
Productivity	International tourism generated USD 365 per visitor in 2007 (total revenues /total visitors).
Positioning	Georgia could provide a wine tourism experience in the “emerging wines” segment. However, the wine tourism experience is currently overpriced in Georgia.
Key Processes	Key elements specific to the wine tourism sector include wineries, vineyards, wine producers, and wine festivals. However, elements specific to wine tourism are only part of a larger, more complex web of players that affect the wine tourism experience, including hotels, restaurants, tour operators, travel agents, etc.

## Wine Tourism Value Chain Map

There are numerous actors in Georgia’s wine tourism value chain. We have chosen to depict the value chain as a web, or network, of actors rather than using the linear representation

depicted by the value chain construct. We believe this representation is a more precise depiction of the way that the value chain actors interact.



The wine tourism network is represented by three rings. The central ring, the “destination,” is the main focus of wine tourism and includes wineries, vineyards, and wine producers, as well as highly related elements such as cultural and historical sites, farms, and restaurants. The second ring represents the businesses that directly support the destination. These include accommodations, promotion agents, and transportation. The outer ring represents the businesses that support the second ring. These supporting businesses include training programs, and related and supporting businesses (wine stores, souvenir shops, financial services, accounting, etc.)

### ***Wine Tourism Value Chain Actors***

#### ***Destinations***

The main attractions for wine tourism are wine producers (36 wineries), vineyards, and historical and cultural destinations in the wine regions. With two-thirds of the total vineyard area of Georgia, Kakheti is the region with the most potential to be a wine tourism destination. It will be the primary focus of this report. However some wine tourists also visit Racha and Mtskheta-Mtianeti.

In Kakheti, there are hundreds of historical/religious/cultural monuments and 32 (out of the 36) wine producers. One of the advantages to Kakheti is that there are numerous entertainment options in addition to wine tasting, including seven museums and four well-known handicraft stores, horseback riding options, and farm-based “rural” winery options. There are six significant historical destinations and two main cities in the region, Signaghi and Telavi.

Mtskheta-Mtianeti is close to Tbilisi and is another potential wine touring area. Chateau Mukhrani is in Mtskheta-Mtianeti and is one of the largest wine producers in Georgia. Racha, another city, features as many as 60 local species of grapes. The most popular wine from Racha is the Khvanchkara wine and the grapes can only be grown in the Khvanchkara village. In Racha, wine tourism could be combined with adventure tourism which includes bird watching, rafting, and horse riding options. There are also three museums and three main cultural and historical destinations.

#### ***Tour Operators***

There are more than 50 tour operators in Georgia offering products including wine tours. There are two tour operator associations: GTA and GITOA. GTA is mainly comprised of outbound tour operators (but does include some inbound tour operators) whereas GITOA is mainly comprised of inbound operators. Members of these associations have been actively involved in wine tourism development. However the majority of international tourists (91 percent) prefer to use guidebooks and circumvent tour operators, establishing direct contact with hotels, guesthouses, and wine producers.<sup>87</sup>

Tour operators and wineries offer a number of wine tourism products and wine-related tours between one and 10 days in duration. These include Caucasus Travel, Concord Travel

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<sup>87</sup> According to the Georgian National Tourism Agency.

Georgia, Exo Tour, Georgian Discovery Tours, Georgica Travel, Omnes Tour, Visit Georgia, CGTT Voyages, Explore Georgia, Fresh Travel, Intertour, and Vanilla Sky. The tour price for longer tours varies from EUR 350 (for five-day tours) to EUR 600 (for nine to ten day tours) for international visitors. A number of wine producers also provide wine tours, including Badagoni, Teliani Valley, Shuchman, Khareba Vinery, Kindzmarauli, Pheasant's Tears, Gurjaani Wine House, and Chateau Mukhrani.

The wineries and inbound tour operators generally provide tours that include visits to the following wine attractions:

- Traditional wine producers: these producers make traditional wines using an 8,000- year-old method. This traditional wine is made in qvevris; clay pots in which wine is fermented. Some of these producers offer wine tasting facilities;
- "European" style wine producers: these producers offer tasting facilities, restaurants, and accommodations;
- Monastery wine cellars: a tourist can tour the monastery, drink monastery wine, and buy wines, honey, and souvenirs. There are a number of monasteries with wine cellars such as Alaverdi, Ikalto, Nekresi, Martvili;
- Museum wine cellars: these wine cellars are privately owned. Visitors can taste rare Georgian wines and obtain information about wine history and wine making in Georgia.

#### *National Tourism Agency and Tourism Information Center*

The Government of Kakheti recognizes that tourism brings numerous economic benefits and can have a significant impact on local residents and communities. Local government plays an important role in promoting sustainable tourism development in the region. In November 2010, a local Tourism Information Center was opened in Kvareli. There are two additional Tourism Information Centers in the Kakheti region, one in Telavi (opened in 2006, it is currently non-operational, but will be reopened in 2011) and one in Signaghi (opened in 2007). Also, the administration of the Governor of Kakheti developed the Kakheti Regional Development Strategy in close cooperation with the United Nations Development Programme (UNDP). The Regional Development Committee agreed on the following priorities for tourism development in Kakheti:

1. Improving the tourism infrastructure: signage, sanitary points, and local roads.
2. Improving the quality of tourist services: popularizing the region, setting up tourism information centers, and developing tourist maps.
3. Supporting professional education: training of guides and other specialized personnel in the tourism industry.
4. Ensuring access to financial resources on affordable terms (subsidized loans, grants) for start-ups in the tourism business (guesthouses, tour operators).
5. Ensuring preservation and protection of cultural and historical monuments.<sup>88</sup>

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<sup>88</sup> Administration of the Governor in Kakheti Region and Kakheti Regional Development Agency, Kakheti Regional Development Strategy, 2010.

### *Promotional Websites*

Each of the incoming tour operators has a website, as do many of the wineries. The GNTA has developed a website to promote wine tourism in Georgia: <http://winetours.ge/>. This provides detailed information on the various types of Georgian wine and is linked to the websites of wine producers (both large and small) and incoming tour operators that provide wine tours. It is a comprehensive website with links to a wine blog and all government agencies involved with wine tourism. However, the website needs to be updated and upgraded, to be faster and offer more professional content; many wine producers would like to be able to suggest content changes. The Tourism Agency should invest in search engine optimization, as currently the website cannot be found through an organic Google search. The GNTA is also planning to develop a nationwide online reservation service.

### *Tour Books*

The main tour books that highlight Georgian wine are Lonely Planet Guidebook: Georgia, Armenia, Azerbaijan, 2008 (3<sup>rd</sup> edition) and The Bradt Travel Guide (3<sup>rd</sup> edition), 2008. EPI should contact the tour book companies to update them on any wine tourism improvements.

### *Accommodation*

As of 2009, there were 386 hotels in Georgia, of which 23 were in Kakheti.<sup>89</sup> The number of hotels in Kakheti nearly doubled from 2008 to 2009,<sup>90</sup> while the number of hotel rooms nearly quadrupled.<sup>91</sup> In 2008, there were 179 rooms and in 2009 that number jumped to 435.<sup>92</sup>

### *Training Programs and R&D Centers*

The wine tourism service industry depends on the service abilities of its employees. Hospitality services in Georgia are weak in general, and there are few people trained specifically in the wine tourism sector. For example, there is a notable absence of sommeliers working at restaurants in Kakheti. However, the Georgian Wine School was established in 2009, and in 2010, two groups of 15 students were trained in wine degustation. Sommelier courses are also offered, although no students have enrolled.

There are also four established vocational tourism-training programs in Georgia. They rarely train students from the wine regions. Each of the managers of the vocational schools mentioned that since many restaurants and hotels in Kakheti are family run, they rarely send students to Tbilisi for training. These vocational schools include Ikarus, which trains housekeepers, receptionists, chefs, barmen, and servers; KMS Georgia, which trains servers, barmen, chefs, and housekeepers, and offers English language training courses; and Kakheti Vocational Education and Training Center, which offers short courses in agro-

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<sup>89</sup> Statistical Yearbook, National Statistics Office of Georgia, December 2009

<sup>90</sup> Ibid

<sup>91</sup> Ibid

<sup>92</sup> Ibid

tourism and wine tasting. The graduates of this course frequently go on to work with large wine producers.

There are also two existing centers for research and development for wine and four laboratories responsible for testing wine quality. The Agrarian University houses a Scientific Research Institute of Horticulture, Viticulture, and Winemaking and is a leading scientific center aimed at ensuring sustainable grape yields. The institute has regional testing and extension centers in Kakheti. Over the years, the researchers have bred 20 varieties of grapes and more than 30 highly productive clones were created. The institute has a wine museum and wine tasting facility, not used for tourism purposes. The National Center for Grapevine and Fruit Tree Planting Material Propagation was established in 2007. The Center was created to set up a specialized nursery for grapevine and fruit tree base material. The staff consists of scientists and foreign consultants who conduct training regarding cultural practices, vine and fruit-tree rootstock, and variety selection in orchards and vineyards.

### *Transportation Infrastructure*

International tourists arrive in Georgia by plane, bus, train, or car. There are four operating international airports in Georgia - Tbilisi (TBS), Batumi (BUS), located in Adjara region, Kopitnari (KUT), located near Kutaisi in Western Georgia, and Mestia airport. Twelve airlines serve Tbilisi and seven flights arrive in Tbilisi daily. Tourists also come to Tbilisi daily by train from Baku and Yerevan, and by bus from any city in Armenia, Azerbaijan, or Turkey.

New airlines are also entering the Georgian market. Recently, a number of international passenger airlines, such as Air Baltic, Pegasus, LOT Polish Airlines, and Ukraine Airlines International (some of which are low cost), have entered the Georgian market. Furthermore, Georgia negotiated Free Air Traffic agreements with many European and Central Asian countries: the UK (November 2010), the Czech Republic (November 2010), the United States (July 2007), Ukraine (partially in November 2010), Switzerland (July 2008), and the UAE (November 2007).<sup>93</sup> The increasing number of airlines and the decreasing number of airline restrictions offer growing opportunities for the tourism industry.

For domestic tourists, there are eight bus stations in Tbilisi and numerous bus stops throughout the country. Some tour operators have their own transportation service and others rent minivans and buses. Road travel by car is a popular way to get to Kakheti. The main road system to Kakheti and Racha is easy to navigate. However, in Racha the smaller roads are in need of repair.

### *Related Businesses*

There are 16 wine shops in Tbilisi.<sup>94</sup> Wines in Kakheti are available in wine cellars and grocery shops. At present, there are no wine shops in the wine regions, although wine producers sell wine on site.

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<sup>93</sup> Financial and Commercial Newspapers

<sup>94</sup> Based on interviews with wine producers.

The main areas for souvenir shops are Signaghi, Tbilisi, and Mtskheta. However, there are very few souvenir shops outside of these cities. The souvenirs sold in these shops are typically Georgian pottery, handicrafts, swords, clothes, dolls, artwork, embroideries, enamel, music, and carpets, etc.

### *Supporting Industries*

The wine tourism network depends on supporting industries. These include financial services, business development services, information technology, marketing and advertising, and audit and accounting. While all of these supporting industries need to be strengthened, marketing and finance were identified by most sector stakeholders as the key constraints to expanding the Georgian tourism sector.

There are also numerous other supporting organizations, including associations and government agencies. The Georgian WMA is the main wine tourism-related association. The main government agency is Samtresti, which regulates the wine industry. However, the GNTA is also involved in wine tourism planning and investment attraction. The potential partners section discusses these supporting organizations in more detail.

## **COMPETITIVENESS POTENTIAL**

Georgia is in close proximity to European wine tourist markets. With an 8,000 year old wine making tradition, Georgia has the potential to become an “emerging” wine destination with “old world wines.” Georgia, like Italy, combines wine tourism with nature and historical monuments which include pre-Christian cave paintings and 4<sup>th</sup> century churches. Developing Georgia as a wine tourism destination can build the country’s image and, over time, help it become a higher-priced tourism destination. Due to lack of data on worldwide wine tourism, it is difficult to compare Georgia to other wine tourism destinations. It is only after the Russian ban on Georgian wines in 2006 that Georgia began to focus on producing quality wine. Prior to the ban, Georgian wine producers focused on producing large quantities of wine to serve the large Russian market, and were not focused on quality. This new countrywide emphasis on quality has created opportunities for wine tourism.

Wine tourism can be a high-end activity that attracts a premium price from international tourists. For example, international visitors to the wine region of New South Wales in Australia spent an average of USD 8,044 (including air fare) per visitor.<sup>95</sup> However, Tina Kezeli, the head of the WMA, believes that Georgia is not currently a price-competitive destination because the wine destination experience is not worth the current cost.

Opportunity also exists for local wine tourism. Georgian consumption of bottled (as opposed to home-made) wine has nearly doubled since 2004. The purchasing power of Georgians has increased in recent years. The fact that Georgians are now more willing to drink wine produced outside of their homes suggests that more Georgians might be willing to participate in wine tourism.

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<sup>95</sup> It is difficult to find similar data for comparator countries.

EPI believes that Georgia can compete with other wine tourism destinations based on the quality of its food, wine, and historical/cultural/religious monuments. Wine is the critical component for successful wine tourism. Georgian wine is competitive on the world market. There are over 500 different varieties of grapes in Georgia and it exports its wine to 51 countries. Georgia's cuisine is also well liked by foreign tourists. This is complemented by the country's rich history and culture. There are hundreds of monuments such as churches, monasteries, forts, and pre-Christian cave paintings. In addition to historical monuments, Georgia has an 8,000 year-old tradition of wine making, and a history of being part of the Silk Road and at the crossroads of numerous empires and invasions.

Georgia's current competitive position is high-cost while offering only moderate quality. An upgraded wine tourism sub-sector will increase the number of visitors coming specifically for the wine tourism experience, earnings (particularly in rural areas), and levels of foreign and domestic investment, while also offering positive spillovers to the broader tourism sector in Georgia.

## **IMPACT POTENTIAL**

Wine tourism has the potential to significantly impact employment, income, and asset development, while spurring both foreign and domestic investment, particularly in rural areas.

While Georgia may be viewed as a cheaper wine tourism destination, as the country improves its wine tourism product over time, Georgia will strengthen its national image and brand as a higher-end destination with strong cultural/historical/religious linkages. Since wine tourism is a luxury product, revenues will also increase as Georgia improves the quality of its product. But the immediate objective should be to advance quality to the appropriate level given the cost of the experience. Attracting more tourists to Georgia can increase the number of tourists who become involved in other types of tourism as well (such as rural, medical, adventure, spa, cultural/historical, and ecotourism.), and in other sectors of the economy. Furthermore, there will be increased opportunities for higher paying jobs. As wine producers and restaurant owners begin to understand the value of sommeliers and other wine-related service jobs, the number of these higher paid positions will increase.

Growth in wine tourism will have a significant impact on SME participation and growth, because the subsector requires the participation of a diverse offering of restaurants, wine producers, accommodations, and other services. If Georgia can attract tourists based on its wine history and culture, adventure, MICE tourism, and other forms of tourism would also benefit. Other actors in areas such as transportation, accommodation, souvenir shops, restaurants, and other supporting services would also see an increase in profits and sale.

Wine tourism can bring many economic benefits to rural regions. Developing wine tourism and wine routes stimulates cooperation among government, private enterprises and associations, and the tourism industry. Linking wine to tourism opens the doors to new tourism regions, culture and gastronomy, and the promotion of rural areas and their traditions. There are natural linkages between wine tourism and other types of tourism that make them mutually reinforcing.

# INDUSTRY LEADERSHIP

The Georgian WMA and some of its members believe that many of the lead wine producers are willing to invest time and resources in industry growth, employment, and competitiveness. EPI will need to work closely with the private sector through the GWA. The project will also need to interact with government actors such as Samteresti and the GNTA. The GWA hopes to create a cohesive strategy and become a stronger institution in 2011. Many of the lead producers and other stakeholders will go on a reverse trade mission to the New York Finger Lakes region and Napa Valley, where producers can observe how other wine tourism regions have developed their wine tourism strategy. Wine producers have also expressed an interest in SME participation in wine routes and in the wine tourism industry. There are also individual leaders among the tour operators.

# CROSS-CUTTING THEMES

Wine tourism has the potential to benefit both women and youth. The majority of people employed in the hospitality sector are women. According to the National Statistics Agency of Georgia, nearly 60 percent of hotel employees are women. While there is no data on the number of youth involved in the wine tourism sub-sector, the majority of tour operators have described those employed on the service sector to be young adults. Wine tourism also has a disproportionately high impact in rural areas.

# STRATEGIC ENTRY POINTS AND RECOMMENDATIONS

EPI's priorities will be to help stakeholders upgrade the Georgian wine tourism industry by addressing several key constraints and enabling greater tourist access and a more positive tourism experience. Some of the weaknesses EPI identified in the system include the lack of a long term action plan for the sector, poor quality accommodation, low levels of customer service, lack of wine destination marketing, and poor tourism infrastructure (such as public toilets and information centers). These weaknesses will be prioritized for intervention. Potential supply side interventions include improving hospitality skills, encouraging hotels and bed and breakfasts to upgrade their accommodation, supporting wine producers to better understand the wine tourism market and obtain feedback on Georgia's wine tourism experience, and educating the hospitality sector about wine etiquette, wine and food pairings, and other wine-related information. Some potential demand-side interventions include increasing marketing to key target markets and conducting better in-country marketing. The following represent specific recommendations based on preliminary interviews with sector stakeholders.

1. Design and develop wine routes and promotional materials in coordination with wine producers, WMA, monasteries in Kakheti, the cultural preservation agency, and tour operators.
2. Devote part of each of the tourist information centers to wine information and wine route information until a wine center can be established.
3. Post signage for historical and cultural monuments and along the wine route.

4. Upgrade the existing Georgian wine website and optimize it for search engines.
5. Send a delegation of wine producers and wine tourism leaders on a reverse trade mission in order to learn about wine tourism in the New York Finger Lakes region and Napa Valley to court key wine writers, media, and importers attention.

Longer-term recommendations include:

#### **Increase Interest in Georgian Wine Tourism (Demand Side):**

1. Determine target markets and then develop a more aggressive marketing campaign to attract visitors from EU, Asia, and/or Americas. One way to determine markets is by starting with markets that are familiar with Georgian wine. In the first half of 2010, Georgia exported 8,178 tons of wine, worth USD 17.6 million to 51 countries. source
2. Further develop Georgian wine brands that promoted internationally. Work with Georgian WMA to establish ways to promote Georgian wine through websites, key messages, and images that would be used by the GoG, WMA, and the private sector.
3. Host wine writers, chefs, and sommeliers whose influence could help sales abroad.

#### **Improve Quality of Wine Tourism (Supply Side):**

1. Help develop a plan and raise financing for a wine center at the entrance of Kakheti where information on the history of wine, wine routes, wine producers, and Georgian wine varieties, etc. can be distributed/provided.
2. Encourage wine producers and restaurants to hire graduates of wine-tasting and sommelier courses.
3. Increase marketing for wine-tasting and sommelier training. This may include technical assistance to the wine-tasting school.
4. Provide training or establish a vocational school for wine degustation, wine etiquette, gourmet cooking, and for employees of hotels and restaurants in Kakheti.
5. Establish a Qvevri-making school to educate the next generation of Qvevri makers, improve quality, and attract visitors. This would enable continuation of an old tradition of making qvevris that only a few master craftsmen know how to make.
6. Train tour operators and wineries to collaborate in hosting wine tourists.
7. Assist small wine producers and bed and breakfasts in accessing credit.
8. Train grape growers to ensure that quality varieties are planted and understand that grapes will have higher value if they are of high quality.
9. Promote wine tourism through wine festivals and events.
10. Increase linkages with other types of tourism.

# CONTACT DETAILS FOR VALUE CHAIN ACTORS

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# ANNEX 19: ICT SECTOR ASSESSMENT

## ABSTRACT

This assessment examines the capacity of Georgia’s ICT industry and its ability to increase the competitiveness of Georgia’s economy.

In today’s globalized and increasingly technology-focused world, the accelerating pace of change constantly transforms society and the economy. ICT plays a pervasive and growing role in this process, affecting all sectors, including education, science, healthcare, agriculture, tourism, manufacturing, and transport and logistics.

Georgia has made great economic progress over the last several years and the outlook for the future growth is positive. ICT has proven to be a key driver of economic growth, and business and government are paying close attention to how ICT affects the quality and efficiency of that growth, and the country’s overall global competitiveness.

Greater understanding of the impact of ICT and its value chains on the economy is needed. This document is a major step to identify priorities for strengthening the ICT sector. Future research will examine the skills, training and certification gaps in the ICT sector and prioritize activities and strategies to address those gaps. They will also identify priority ICT applications for other EPI value chains.

## ABBREVIATIONS

CDMA	Code Division Multiple Access
CRM	Customer Relationship Management
DSL	Digital Subscriber Line
EBRD	European Bank for Reconstruction and Development
ERM	Enterprise Resource Management
EVDO	Evolution-Data Optimized
FO	Fiber Optics
FTTx	The common abbreviation for FiberOptics access technologies (FTTH - Fiber To The Home, FTTB – Fiber To The Building, etc.)
GDP	Gross Domestic Product
GoG	Government of Georgia

GSM	Global System for Mobile
GeoStat	National Statistics Office of Georgia
GNCC	Georgian National Communications Commission
ICT	Information and Communications Technologies
ISP	Internet Service Provider
NGO	Non-Governmental Organization
WiMAX	Worldwide Interoperability for Microwave Access

# EXECUTIVE SUMMARY

Information and communications technology (ICT) refers to technology used in collecting, storing, processing and transmitting information. Today ICT refers primarily to how computers conduct these actions through technology such as satellite, telephone lines, and cable. ICT includes telecommunications equipment, computing hardware and software, office machinery, electronic goods and components used to store, process, and communicate information.

ICT plays a significant role in the Georgian economy. Since 2000, the share of telecommunications services in the Gross Domestic Product (GDP) has increased steadily, reaching 7.5 percent in 2006 and maintaining a high contribution of seven percent in 2009. The total revenue from telecommunications products and services reached GEL 1.3 billion in 2009.

Despite its importance, statistics on the production and consumption of ICT products and services are often difficult to find and are typically of questionable quality. This is partly because GeoStat (National Statistics Office of Georgia) aggregates ICT statistics with the transport and postal service sectors. At the time this assessment was written, no detailed information was available from any official sources about ICT products and services, their production or consumption volumes, or their revenues. GeoStat summarizes the values for the telecommunications, post and transport sectors, and does not have a breakdown for ICT sub-sectors (such as telecom, software development, ICT services, etc.).

The most complete information was found for the telecommunications sector (mostly from Georgian National Communications Commission (GNCC), but also from the World Bank Indicators databank), while there was almost no information about software developer or system integration/professional services companies.

On the whole, the growth of Georgia's ICT sector is constrained by its small market size and weak demand (which in turn depends on economic and social development), although the ICT subsectors exhibit varying levels of development. The telecommunications (internet and telephony) subsector is the most advanced. Telecom operators provide a variety of modern telecom services to subscribers in Tbilisi and other regions of Georgia. Currently, there are 113 internet Service Provider (ISP) license holders in Georgia, but only a few of them are actually providing services to customers.

The other ICT sectors in Georgia include: computer hardware (about 200 companies in Tbilisi), software development (66 companies registered in Tbilisi), and ICT solutions and professional services (exact data unavailable). Information about companies operating in the regions of Georgia was unavailable.

## *Access, Price, and Quality*

The price and quality of products and services determine demand. Since communications infrastructure is unevenly developed and distributed in Georgia, the level of access to technologies varies by geographic location, causing geographic variation in prices. In Tbilisi,

all existing internet access technologies are available to customers, including broadband services<sup>96</sup> and prices are low relative to other regions with lower levels of access. The least expensive internet subscription package in Tbilisi costs about USD 10 for a 1Mbps connection, while in other regions, the price for a 1Mbps landline cable connection (where available) is USD 20-30.

Internet access for the rural population has been somewhat improved with the recent launch of CDMA/EVDO service by Magticom and the availability of high-speed HSDPA 3G cellular data services with over 90 percent geographical coverage. The monthly price for 1-1.5Mbps CDMA/EVDO service with limited (1GByte) traffic is GEL 15 (about USD 8-9).

The number of personal computers in 2008 was about 1.2 million. Various financing options offered by computer retailers, Georgian banks, and governmental projects stimulated this sector. Currently, almost all retail companies offer financing plans in partnership with Georgian banks.

In 2010, the Ministry of Economy and Sustainable Development announced an agreement with Intel Corporation to offer citizens installment plans of GEL 1, 2, or 3 per day to purchase computers. As part of the agreement, Alta and Algorithm (local Intel distributors) provided locally-assembled computers of various levels of complexity, while TaoPrivat bank provided the financial services. The project significantly increased computer sales (exact data unavailable).

Through another government-Intel partnership project, netbooks were provided to first grade students. In 2010, the project only covered schools in Tbilisi, but it is planned to expand to the regions.

The Georgian Governmental Network project provides internet access to all government and public offices in the country. Magticom won the tender and has already provided connectivity to the locations requested, using either WiFi or CDMA/EVDO technology.

Deer Leap is another current project, implemented in partnership with the Government of Estonia. Deer Leap will provide computer equipment and internet connections to all schools in Georgia. According to Magticom, the company that provides internet connections to the schools that are part of the project, they have connected 80 percent (1,761) of schools. Initially, the project was to end in 2009, but due to the 2008 war and economic crisis, along with technical difficulties providing connectivity to distant mountain villages, the project was extended to 2011.

The price for locally assembled desktop computers (excluding monitor and peripheral equipment) starts at GEL 350 in Tbilisi and GEL 400 in the regions.

### *Competitiveness Potential of ICT as an Export Sector*

The Government of Georgia (GoG) aspires to secure Georgia as a regional political and cultural center, a key transport hub, and the regional and global expansion of ICT is likely to play an important role in realizing that goal. Opportunities may exist to develop Georgia's

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<sup>96</sup> Including FiberOptics, ADSL, Cable Internet, WiFi, WiMAX, CDMA/EVDO, HSDPA

ICT into a strong export sector. With improving economic conditions in the country and a favorable business environment, the domestic ICT market is constantly growing. Although it demands significant resources for new players to enter subsectors like telecom, entry into subsectors such as professional services (IT outsourcing, offshore services, IT audit, and consultancy) is less costly. Another opportunity is to open offshore service businesses (software development, call centers, etc.), that will allow a company to expand beyond regional markets and create a truly global presence.

The pervasiveness and global reach of the internet allows wholesaler ISPs to export their internet services to neighboring countries willing to have backup communication lines. The GoG is negotiating with global market leaders (HP and Intel) to build computer R&D and manufacturing plants in Georgia, which would create new opportunities for regional exports.

### *Impact Potential and Cross-Cutting Linkages*

ICT's growth potential stems from its position as a cross-cutting support sector with applications for all other sectors. In Georgia, ICT supports many sectors with which EPI will be working, including tourism, agriculture, apparel, and construction materials. ICT's effect on other sectors of the economy has not been well-studied, but it is clear that many general business needs can be satisfied by ICT in Georgia. Georgian firms perform financial and accounting operations electronically. The GoG encourages companies to use e-government services rather than physically going to government offices. Companies with large customer bases and inventories use specialized information management systems, such as Customer Relationship Management (CRM) or Enterprise Resource Planning (ERP). Leading Georgian universities such as the Free University, Caucasus University, Ilia State University, and Black Sea University frequently integrate computers and electronic materials into their courses. The use of ICT is relatively advanced in education, tourism, and trade, but weak in areas such as agriculture and construction materials.

### *Industry Leadership*

Although the ICT sector lacks a specific organization or individual industry leader to guide the players, there are several leading companies in each ICT segment that tend to invest first in innovations and contemporary technologies. These include internet service providers such as Caucasus Online and Silknet; cellular operators such as Magticom and Geocell; computer hardware resellers such as Alta and Algorithm; systems integrators and professional services companies such as UGT, DeltaCom, Greenet, and Orient Logic; and software developers such as Alta Software and Azry.

### *Recommended Actions*

The following recommendations to EPI have been developed based on the gaps identified,

- Support of ICT Education
  - Prepare qualified ICT trainers who can transfer knowledge to students (in schools, universities, and training centers)
  - Promote cooperation between universities and ICT companies to help ICT students gain experience through internships, and providing ICT companies the opportunity to identify qualified prospective employees.

- Support local ICT SMEs in identifying regional expansion opportunities
- Conduct further analysis once remaining value chains have been identified, to determine how they can integrate ICT into their operations to enhance productivity, profitability, and competitiveness.

It will also be important to work closely with GoG to ensure interventions are aligned with their priorities and plans.

Competitiveness Potential	Impact Potential	Industry Leadership	Cross-Cutting Linkages	Overall Comments and recommendations
				<p>3.0. Average Score – Recommended for project inclusion as a supporting sector</p>

# INTRODUCTION

## Background

This report identifies trends and opportunities in the Georgian ICT market and presents the ICT value chain map to assist EPI in planning ICT involvement in future projects.

A value chain is the sequence of all value adding activities undergone to produce an end product; the chain of activities required to bring a product from conception to consumption.

Value chains may be national, international, or global, depending on the geographic location of the processes involved. This geographic dimension is important to developing countries because it tells them which links of the chain exist within their borders, how profitable these links are, and the potential for adding new links.

## Methodology

The goal of this assessment is to map out the Georgia ICT value chain and assess the opportunities and constraints of the ICT sector in Georgia.

Qualitative and quantitative data was collected from various sources, including Geostat, World Bank, European Bank of Reconstruction and Development (EBRD), GNCC, and various interviewees. When available, quantitative data was analyzed. In other cases, analysis was based on qualitative data collected through interviews of key stakeholders from private companies, Governmental, and non-governmental organizations (NGOs). A list of the people interviewed is provided at the end of this document.

# OVERVIEW OF THE ICT SECTOR

## Summary

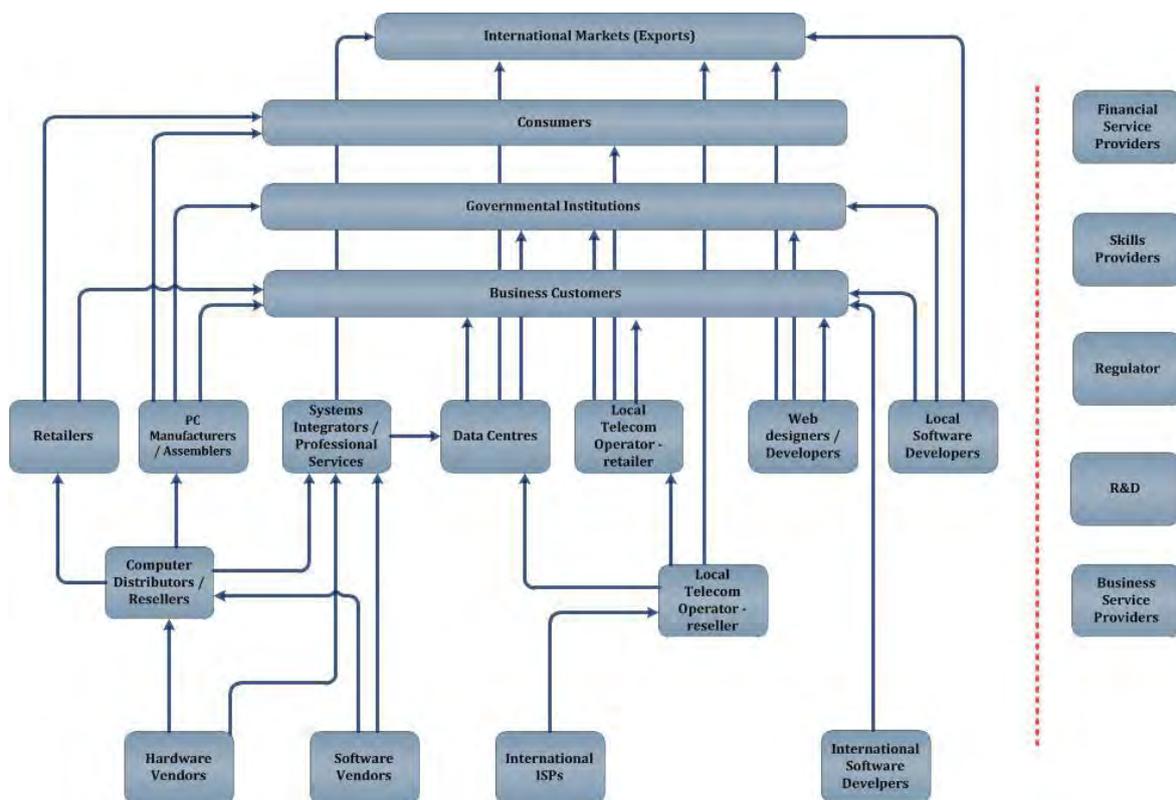
Main Products/Services	Standard Software, Custom Software, Web-design, Web-content, Data-Center Services, internet services, Telephony, ICT Infrastructure Solutions and Professional Managed Services
Key Markets Served	Georgia, Armenia, Azerbaijan, other CIS countries, EU, USA
Production	N/A
Consumption	N/A
Exports	ICT Goods Exports (% of total goods exports): 0.4 ICT Service Exports (% of total service exports): 2.2 ICT Service Exports: USD 27,122,495.5 (WB)
Imports	ICT Goods Imports (% of total goods imports): 7.8

	ICT Goods Imports: USD 488,373,973.78 (WB)
Revenues	Telecom Revenue: GEL1.3 billion (2009, GeoStat) Telecom Revenue (% of GDP): 7
Employment	N/A
Productivity	N/A
Positioning	ICT is not a current export sector. It should play an important role in supporting the growth and competitiveness of a variety of sectors and value chains, and Georgia's economy in general.

## ICT Sector Map

The following sector map was developed to present the sector actors and overview of the constituent value chains to visualize the current structure of the Georgian ICT market.

**Figure 1: Georgian ICT Value Chain Map**

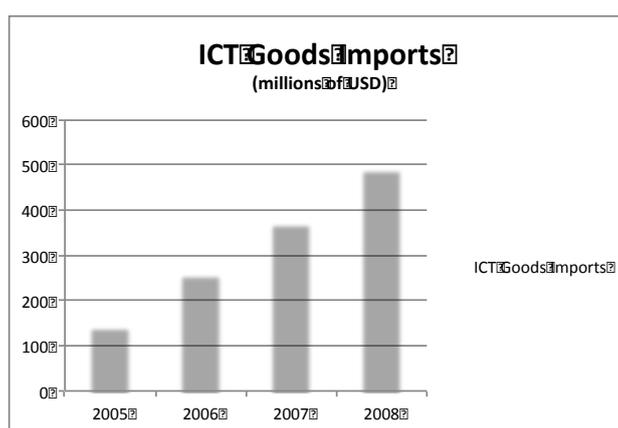


## ***ICT Value Chain Actors***

### ***Suppliers***

All equipment and materials used by local ICT companies are imported. Sources of imports vary by sector. Computer and telecom hardware is provided by multinational hardware vendors (HP, Cisco, Oracle, and IBM) through their regional partners and distributors/resellers. Other ICT materials (cables, etc.) are often imported directly by business customers or purchased from local resellers.

**Figure 2: ICT goods imports**



### ***Manufacturers/Processors***

The only ICT goods produced in Georgia are personal computers, assembled from imported parts. Most computers assembled locally do not bear the company's logo or brand name, and are sold to retail customers. Recently, Algorithm Ltd. has begun local assembly of laptop computers using imported parts. The goods produced in Georgia are primarily sold to the domestic market.

### ***Wholesalers/Retailers***

ICT goods wholesalers in Georgia usually also sell at the retail level. Computer parts are imported by four companies (Alta, Algorithm, Orion Technology, and Orient Logic) and then sold to retailer companies and computer assemblers at a price discount. These four companies also have retail shops and assemble their own computers for retail sale (Orient Logic tends to focus primarily on business and government customers).

There are also internet wholesalers (Egrisi/Foptnet, Caucasus Online, Railway Telecom<sup>97</sup>, Silknet/Wanex) that, along with retail internet services, provide operator-grade internet connection to other internet service providers.

The main ICT hardware and software wholesalers/resellers are:

- Alta (HP, Fujitsu, Samsung, Canon, ViewSonic, APC, Asus, Dell, D-Link, Intel, Microsoft, Sony, Toshiba)
- Algorithm (LG, Gigabyte, Toshiba, Asus, TP-Link, HP)
- Orion Technology (Asus, Samsung)
- Orient Logic (HP, Cisco, APC, Dell, Oracle/Sun, Epson, Novell, Barracuda, VMware, Microsoft, Mikrotik, Symantec)
- UGT (Microsoft, HP, IBM, Oracle/Sun, Symantec, Cisco, Avaya, TrippLite, APC, Polycom, VMware)
- DeltaCom (IBM, Cisco, CheckPoint, Juniper, VMware)
- Greenet (Cisco, HP, Oracle/Sun, Apple, Axis)

In the telecommunications market the major players are:

- Magticom – GSM operator, ISP
- Geocell – GSM operator
- Mobitel (Beeline) – GSM operator
- Silknet – Telecom operator / ISP
- Caucasus Online – Telecom operator / ISP
- Akhali Kselebi / Akhteli / Egrisi / Foptnet – group of the companies with common owners. Telecom operator, ISP (retail and wholesale)
- VTel Georgia (Maximal) – Wimax network operator
- Georgian Railway Telecom – ISP (wholesale), recently acquired by Novastar Commerce, supposedly with the same owners as Caucasus Online)

There are a total of 113 internet service provider license holder companies, but only few of them are actually providing services (authorization for internet services does not oblige the company to commence activities).

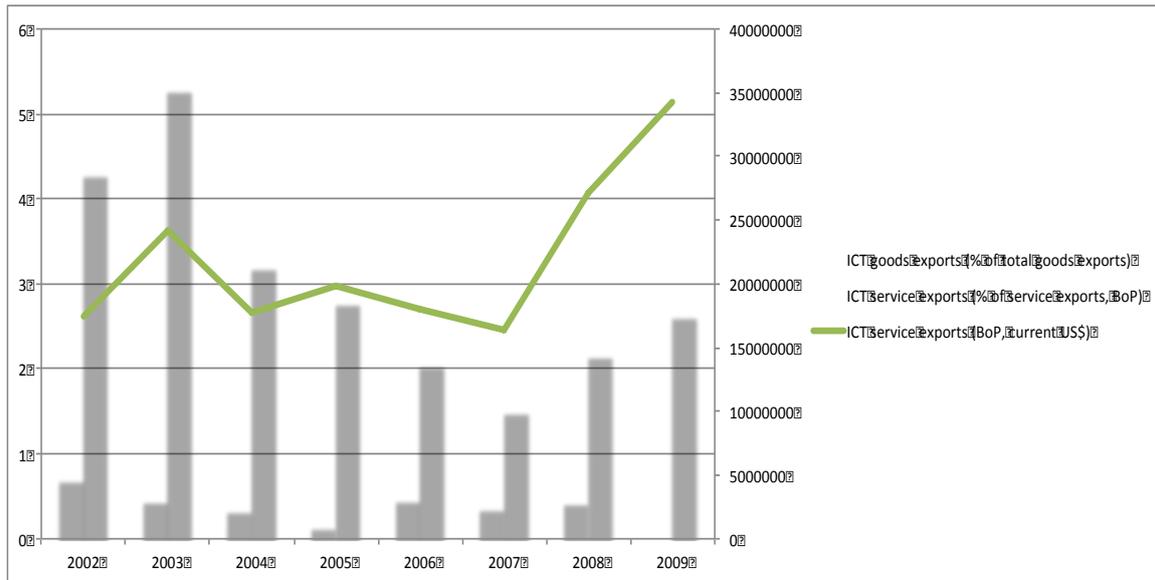
### *Exporters*

Georgian ICT exports are mostly telecom services (internet and telephony) provided to neighboring countries (Armenia and Azerbaijan). There are also re-exports of ICT equipment and materials. Total revenue from ICT goods exports was USD 6.4 million, and USD 27.1 million from services exports.

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<sup>97</sup> Purchased by NovastarCommerce – supposedly by Caucasus Online

**Figure 3: Exports of ICT Goods and Services**



### Buyers

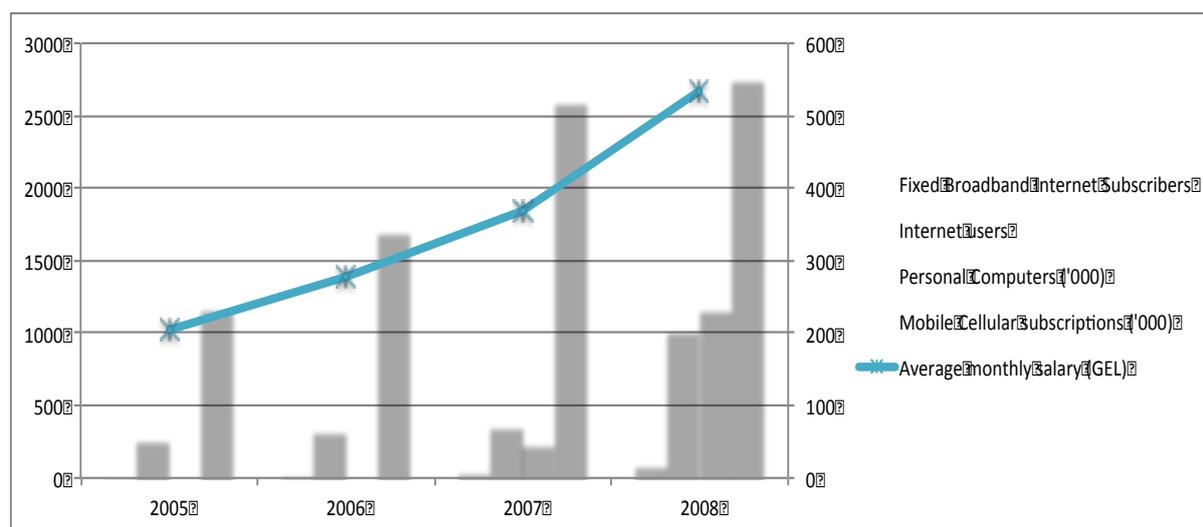
The main buyers of ICT goods and services can be divided to three categories:

- Retail consumers
- Businesses
- Governmental institutions

There is also small segment that consists of NGOs and international organizations that is not considered in this study.

The ICT retail segment in Georgia is growing. Although data is only available through 2008 (see graph below), the last two years have seen a significant increase in many ICT retail indicators, such as the number of personal computers, number of internet users, and number of fixed broadband internet users.

**Figure 4: Consumption of ICT Products and Services**



The increase in the number of personal computers is confirmed unofficially by computer retailer companies, and may be caused by moderate increases in household income. Two leading importers (Alta and Algorithm) along with TaoPrivat Bank and Intel Corporation participated in a government project that provided consumers the option to finance the purchase of personal computers by paying in daily installments of GEL 1, 2, and 3. Data on results are not yet available.

ISPs are expanding their internet infrastructure and the number of internet users is growing. According to World Bank data, by the end of 2009 there were about 1.3 million internet subscribers. Since more than 80 percent of internet users are located in Tbilisi, and almost all subscribers in Tbilisi use broadband technology to connect to internet (DSL, FTTx, DOCSIS), the total number of subscribers with fixed broadband access may have reached one million by the end of 2010.

**Business Customers:** The largest business users of ICT goods and services are financial institutions and ICT companies themselves (cellular operators, ISPs). The highest revenue grossing ICT products (as identified by system integrators/computer hardware retailers) are:

- Personal computers and office equipment
- Network equipment
- Telephony equipment
- Software

**Governmental Organizations:** The GoG identified the integration of ICT into government operations as a high priority, and the government's ICT budget has increased accordingly over time. A large share of the ICT budget is spent on e-government projects and infrastructure to support e-services. The GoG's leading ICT organizations are:

- Public Registry
- Civil Registry
- Revenue Service of Ministry of Finance

- Service Agency of Ministry of Finance
- Ministry of Healthcare
- State Procurement Agency
- Service Agency of Ministry of Internal Affairs

#### *Other Sectors and Value Chain Actors*

*Financial Services:* Since the ICT market is well developed, the local, established ICT companies do not usually have problems obtaining financing for infrastructure projects or even inventory purchases. Large hardware vendors (Cisco, HP, and IBM) have financing plans, and their local partners enjoy substantial credit lines.

*Regulator/Policy Maker:* The GNCC, as per their annual report, “regulates use of the radio frequency spectrum and/or numbering resource, including adoption of normative and individual legal acts, monitoring and control of their fulfillment, imposition of the sanctions for identified violations provided by the abovementioned law and Administrative Code of Georgia, within its authorities as defined by the law,”.

*Support Services:* Local medium and large businesses usually have IT staff to manage day-to-day IT activities. For more complex tasks they have service contracts with professional services system integrator companies. System integrator companies provide support services such as network operations centers, next business day hardware replacement, 24/7 telephone support, etc. Since diversification of services is important at the competitive market, there are no significant ‘pure’ ICT companies (i.e. offering only professional services: IT support, outsourcing, audit and consulting).

## **COMPETITIVENESS POTENTIAL**

One major challenge identified by local ICT companies is the lack of qualified personnel. Most, if not all, IT professionals have high-paying jobs already, making them less inclined to move. Furthermore, small ICT companies lack the necessary financial resources to pay competitive wages, so top professionals usually work for large companies, leaving smaller companies able to hire only university students and graduates without experience, making them less competitive. Larger companies also provide more career growth opportunities for young professionals than smaller businesses.

Since demand for experienced ICT professionals is much higher than supply in the current market environment, companies must invest resources in training young people. To secure a return on the investment, companies can oblige the personnel to sign long-term contracts with significant early-termination fines.

The market imbalance of supply and demand of ICT labor incentivizes university students to enroll in one of the many ICT programs offered in Georgian universities, but the quality of those programs is low. Georgian Technical University has the most ICT faculties (international telecommunications being one of the largest and most popular), and greatest number of students, but due to poor technical skills and a lack of qualified professors, graduates are unlikely to get high-paying jobs immediately after graduation. A similar situation exists at Tbilisi State University.

Several smaller universities, initially focused on other specializations, have launched ICT programs, including Caucasus University, International Black Sea University and Free University. They offer relatively high-quality ICT programs, but since their programs opened recently, and number of annual graduates is expected to be around only 30 per year, they do little at present to address the ICT labor deficit. There is a great opportunity to build internship programs through partnerships between universities and private sector actors. Such programs would be mutually beneficial to the two actors, providing students the opportunity to gain experience and practice, while offering ICT companies relatively cheap and qualified personnel.

While local universities remain unable to train competitive professionals, specialized IT training and certification programs are very popular. Every large international hardware or software vendor has its own certification and training program, the most demanded of which are the Microsoft and Cisco courses. Currently, several training centers (Delta Learning, IT Knowledge, GRENA, Greenet) provide Microsoft and Cisco courses to local students. Other training courses are unavailable in Georgia and must be attended in neighboring countries (mainly Ukraine and Turkey). Occasionally, multinational hardware and software vendors organize training for their current and prospective customers (usually from government institutions and large companies) through foreign trainers, but these courses are not available to the general public. Providing training for trainers could help address the deficit of qualified ICT trainers and the need to invite training providers from abroad, making training less expensive.

Although IT demands significant resources for new players to enter subsectors like telecom, entry into subsectors such as professional services (IT outsourcing, offshore services, IT audit, and consultancy) is less expensive. Another opportunity is offshore service businesses (software development, call centers, etc.), that will allow a company to expand beyond regional markets and create a truly global presence.

The pervasiveness and global reach of the internet allows wholesaler ISPs to export their internet services to neighboring countries willing to have backup communication lines (internet backbones). The GoG is negotiating with global market leaders (HP and Intel) to build computer R&D and manufacturing plants in Georgia, which would create new opportunities for regional exports.

### *ICT Infrastructure*

ICT infrastructure is unevenly distributed in Georgia. While it is very well developed in Tbilisi, and somewhat strong in other large towns, many rural areas have only fair access to ICTs. Telecom operators provide various internet access options to customers in Tbilisi, including broadband, cable, DSL, and FTTx. While the expansion of cable networks was somewhat limited in recent years due to Silknet's ownership of primary underground cable passages, another major internet service provider, Caucasus Online, has received a permit to build its own city-wide underground cable system. Finally, the Association of Cable TV companies has begun provision of cable internet services in Tbilisi.

Mobile cellular network coverage by GSM operators Magticom, Geocell and Mobitel is near perfect. Thus, this type of communication is common, and it is often the only available mode of telecommunication in the rural areas. Magticom and Silknet have built country-wide

CDMA telephone networks, through which Magticom provides high-speed EVDO internet services.

Two large governmental programs, the Georgian Governmental Network and DeerLeap, promoted the expansion of Magticom's regional infrastructure. Thanks to these programs, WiFi connectivity is now available in all district (rayon) centers of Georgia, serving governmental and educational institutions as well as local businesses.

The quality of ICT products and services varies by sector. Telecom-related services are usually relatively high quality. The technical quality of professional services provided by local systems integrators is generally high as well, because of local companies' technical expertise. However, local realities (such as lack of planning, low qualification of ICT managers, lack of internal ICT standards, and challenges understanding that the customer should pay for the service provided) make the management of ICT projects more problematic – a very limited number of ICT projects finish on time or within budget.

### *Market Segments and Major Players*

Georgian ICT companies do not provide only one product or service – they usually operate in several related segments.

There is a well-developed market in the computer hardware segment. It can be split into two sub-segments: brand computer importers and computer parts importers/assemblers. The sub-segment of brand computers includes the hardware from well-known international brands: HP, Dell, IBM, Acer, Samsung, and Apple, and there are partnerships established between vendors and local companies.

There are three main parts importers in the computer parts and locally assembled computers segment. They sell parts to each other and to smaller businesses for wholesale prices. Since these importers also play in the retail business, they have an advantage over smaller competitors. While small businesses and residential customers usually buy locally assembled computers, governmental organizations and medium- and large-scale businesses often buy brand equipment.

There is no potential for export of locally produced computers since there is no point of differentiation compared to the equipment produced in neighboring countries. However, GoG has plans to attract HP and Intel, the largest hardware manufacturers, which could make Georgia more competitive on export markets. Should these plans come to fruition, plants would be built in Georgia to manufacture and assemble parts and equipment, which would not only satisfy local demand, but also be exported to other countries in the region such as Armenia, Azerbaijan, Ukraine, and Belarus. Georgia's position as the transport hub for regional markets could contribute to the success of such projects.

### *Software Development*

Software development is the primary business segment of about 15 companies in Georgia. Most of these companies have products ready for sale, and offer customization or new software development services as well. Most local software development companies offer products for financial services (accounting, banking, etc.), business process, and information management (such as CRM, document flow systems, stock management, etc.).

The software developers include:

- Alta Software – specializing on financial and banking software.
- Azry – specializing on custom software development, working on complex solutions.
- Apex – Business and Personnel management systems. Distribution software, E-commerce portal
- IBS – Accounting, Personnel Management System, Supermarket sales and distribution software.
- ITNovations – Educational software (Electronic Scorecard / Journal for schools), Information Management Systems
- iTex International – custom software development.
- MySoft – Restaurant and Sales Management Systems
- GSS Software – Accounting and stock management systems; legislation reference system.
- ORIS – Accounting and stock management systems

### *Competition and Competitive factors*

The competitiveness potential of Georgian ICT companies is positively influenced by several factors, including:

- Increasing support from GoG
- Deep experience of local ICT companies
- Relatively low costs of imported hardware and materials

It is negatively influenced by several other factors, including:

- Lack of qualified ICT managers
- Deficit of skilled ICT professionals
- High costs for qualified labor

### *Export Potential*

Although Georgian ICT companies have the capacity and resources to export their products to foreign markets, there are many constraints, such as:

- *Language difficulties:* While potential customers gradually speak less Russian, the number of English speakers remains low, forcing Georgian ICT product exporters to learn the local language to avoid communication difficulties.
- *Knowledge of local business environment:* Governmental regulations and other aspects affect how to conduct business differ from country to country.
- *Local market regulations:* Governments may have ICT regulations that limit foreign companies' ability to operate.
- *Need for increased financial resources:* Local presence in the newly entered market requires significant financial resources.
- Differences in requirements (local laws and regulations, traditions, etc.)
- Competition with existing local companies

The significant resource requirements often preclude small businesses from expanding internationally. Georgian telecom operators have substantial resources, but their foreign expansion is limited by governmental regulations and restrictions. Georgian computer hardware companies cannot compete with foreign companies in their markets.

At the same time, the most significant ICT market is for wholesale internet service. Georgia has backbone connections to the internet through underwater Fiber Optic (FO) cables to Varna, Bulgaria and Novorossiisk, Russia, as well as landline FO cables to Turkey and Azerbaijan. This could enable wholesaler ISPs (Egrisi, Caucasus Online) to export their services to neighboring countries.

Another export opportunity is professional services (design and implementation of ICT solutions). Although the constraints listed above apply to professional services firms, the costs for delivering these services are low so several Georgian system integrator companies have already implemented projects abroad; some have even opened offices in Armenia and Azerbaijan, with plans for further expansion.

Since most software developers are small businesses with limited resources, they are faced with the investment constraints discussed above, making foreign market entry difficult. Furthermore, companies with similar products already exist in regional markets, so it is difficult for Georgian software developers to differentiate themselves.

## IMPACT POTENTIAL

In modern economies, fast information exchange and analysis is crucial, and ICT plays an important role. While detailed analysis of the potential impact of ICT on various sectors was not performed due to lack of statistical data, we have identified the following potential benefits:

- *Employment growth opportunity:* Basic understanding and use of ICT significantly increases people's prospects of being hired. It should be noted that online employment portals such as jobs.ge and hr.com.ge play a significant role in the Georgian job market.
- *Income increase:* Proper implementation of ICT services can help businesses plan and implement their operations more efficiently, reducing costs and increasing revenues. Increasing numbers of businesses recognize the importance of ICT (such as websites, online services, e-payment systems, etc.) and its potential to enhance their operations and spur increased sales.
- *Good Governance:* The GoG had made significant strides towards e-governance, which is an important factor in the ICT business enabling environment. The main online services for the customers — provided by the Civil Registry, Public Registry, Revenue Service of Ministry of Finance (MoF), Service Agencies of MoF, and MIA — are working well and, as the number of computer owners and internet users in Georgia increases, e-governance sites usage statistics will grow.
- *Nation Image/Brand:* ICT plays important role in creating a positive national image for potential investors and tourists. The "Invest in Georgia" portal of the Ministry of Economy and Sustainable Development targets potential investors and provides various tourist-oriented web-resources with detailed information about Georgia for people interested in visiting the country and doing business here.

# INDUSTRY LEADERSHIP

In each segment of the ICT sector, leading firms are constantly working to improve and expand their products and services. These players collectively provide industry leadership by setting an example for other firms. The major telecom operators (GSM and fixed landline) hold licenses for various types of telecom service provision and have launched the most contemporary services available in Georgia today (IP TV and Network Video Recorder services, 3<sup>rd</sup> generation data transfer networks – EVDO, HSDPA, WiMAX, fiber optic networks, etc.). They are investing substantial resources in obtaining new frequency licenses for future expansion. The leading telecom companies are among the largest tax-payers and employers in Georgia. Smaller businesses, especially in the software development market, have limited financial and human resources and are less likely to invest in growth. It seems that the management of small ICT companies does not realize the existing regional expansion opportunities and their importance.

# CROSS-CUTTING THEMES

Implementation of information systems projects help sectors such as tourism, agriculture, construction, and apparel manufacturing attract new customers and partners, find new markets for production, and gather new knowledge and experience. They also allow for increases in productivity. The GoG has also been encouraging increased engagement of the Georgian Diaspora in everyday social and economic life, in which ICT can play a contributing role. Furthermore, ICT is popular with young people, and even a basic knowledge of computer technology increases the chance for employment. Leading universities also use computers and online educational resources for teaching purposes.

# STRATEGIC ENTRY POINTS AND RECOMMENDATIONS

There are several potential entry points for EPI's work with the ICT sector.

- Training-of-trainer (or master trainer) sessions to increase the number of people qualified to deliver ICT training, enabling the country to better meet the wide demand for ICT skills.
- Integration of ICT into the value chains with which EPI will work. ICT interventions and applications will be identified at the strategy stage for each value chain.

# CONTACT DETAILS FOR VALUE CHAIN ACTORS

Company / Organization	Name & Position	Address	Contact Telephone Number	Email Address
Ministry of Economic Development	Irakli Kashibadze, Head of IT and Innovations Department	12 Chanturia str., Tbilisi	032 991115	<a href="mailto:ikashibadze@economy.ge">ikashibadze@economy.ge</a>
ICT Business Council	George Shubitidze		077 750115	<a href="mailto:info@ictbc.ge">info@ictbc.ge</a>
Information Technologies Development Center	George Garsevanishvili Director	46 Tabukashvili str., Tbilisi	032 490049	<a href="mailto:garse@itdc.ge">garse@itdc.ge</a>
UNDP Georgia	David Ioseliani	9 Eristavi str., Tbilisi	032 252601	<a href="mailto:david.ioseliani@undp.org">david.ioseliani@undp.org</a>

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- WB World Databank. <http://databank.worldbank.org/ddp/home.do>

# ANNEX 20: TRANSPORT AND LOGISTICS SECTOR ANALYSIS

## MID-TERM SUMMARY REPORT

### ABSTRACT

Georgia is strategically situated on the Silk Road. The GoG positioning, the country's oil and gas pipelines, its Black Sea ports, and railway system that links up with the countries that made up the former Soviet Union provides the foundations for Georgia being an integral player in global trade that transits in and out of its seaports, across its soil, and through its airspace.

This Mid-term Summary Report highlights initial findings from research undertaken focusing on Georgia's internal transportation and logistics sector. These findings will be combined with additional research, currently being undertaken on the regional transportation flows and routes, and a time/cost/motion study to create a detailed transport and logistics strategy.

### ABBREVIATIONS

EPI	Economic Prosperity Initiative
EPZ	Export Processing Zone
FIZ	Free Industrial Zone
FTZ	Free Trade Zone
GoG	Government of Georgia
IGM	Import General Manifest
TEU	Twenty-foot Equivalent Unit
TRACECA	Transport Corridor Europe, Caucasus, Central Asia
USAID	U.S. Agency for International Development
VAT	Value Added Tax

# INTRODUCTION

## Background

Georgia is strategically situated on the original and historic “Silk Road”, which was the shortest route from Europe to Asia. The Government of Georgia (GoG) positioning, the country’s oil and gas pipelines, its Black Sea ports, and railway system that links up with the countries that made up the former Soviet Union provides the foundations for Georgia being an integral player in global trade that transits in and out of its seaports, across its soil, and through its airspace.

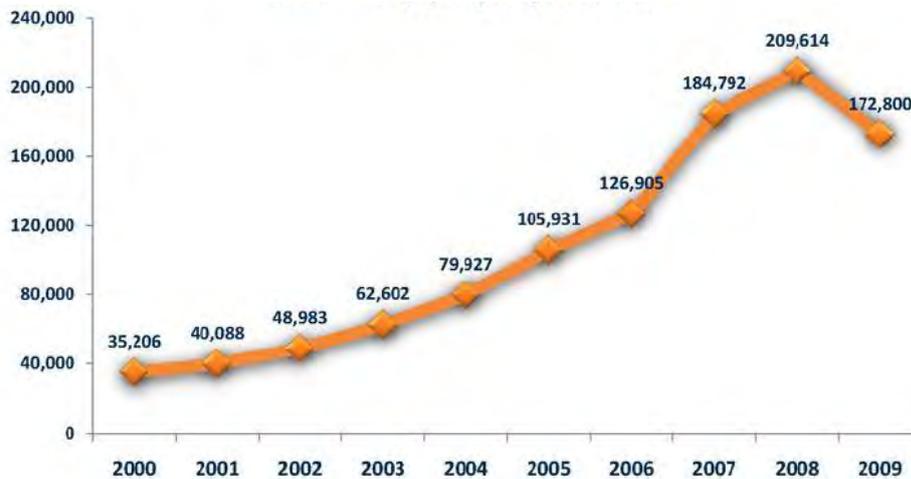
However, as the project team conducted interviews with GoG officials, stakeholders and members of the logistics community in Georgia, a number of trends and themes have been identified, some of which are positive and others require significantly more research and analysis. The following table lays out some initial observations that have emerged as key performance indicators which will have the potential to impact all value chains on which EPI plans to work.

Observation	Description	Potential Impact
<b>Infrastructure Projects</b>	Various Georgian Railway projects are in process including Rikoti Tunnel, Rail Lines expansion to Kars, as well as a number of road projects throughout the country	Capacity expansion and process optimization improvements can result in the influx of volume as product velocity is increased and ease of import/export begins to take place.
<b>Recent Legislation</b>	Effective 1 January 2011, various legislative acts have come to pass in the import/export industry as well as the tax authorities relating to VAT	There seems to be confusion and misinformation in the various laws and when/how they apply to individual freight providers.
<b>Azerbaijan</b>	<ul style="list-style-type: none"> <li>• Taxing imports/exports and customs clearance processes en route to Baku are difficult</li> <li>• There are a number of “unofficial” fees imposed that make transit costs unpredictable</li> </ul>	As volume increases, the Azerbaijan issue will become more of a bottleneck than it is today due to capacity and costs
<b>New Customs Clearance Facilities</b>	<ul style="list-style-type: none"> <li>• Development of new customs clearance facilities near the Tbilisi Airport, Poti Sea Port and the crossing at the Turkish border near Batumi</li> <li>• New clearance procedures are decreasing time of clearance but increasing costs and causing some confusion</li> </ul>	New, modern facilities are fully equipped to handle most customs clearances, lowering the time to clear most goods to a little more than one hour. Higher fees and new processes are causing confusion among importers and shipping lines.

In the past decade, Georgia’s transport and logistics industry has grown significantly and is poised for even greater gains as the country’s economic outlook shows upward trends. As the single enabler of goods moving in and out of Georgia, the collective transport and logistics capabilities of its private sector providers as well as GoG entities must keep pace with the value chain’s growth and scale. Transportation is one of the fastest growing industries in Georgia and offers significant opportunities for growth. In 2009 alone, 20.2 percent of all foreign investment going into Georgia was directed into transportation-related

industries, demonstrating the sector’s potential for expansion. Figure 1 below demonstrates this well by showing the growth in Twenty-foot Equivalent Unit (TEU) traffic at the Poti Port over the last decade. Even though 2009 was a down year due to the twin crises of the aftermath of the 2008 war with Russia and the global recession, by all accounts 2010 reversed this one-year trend and traffic will meet or exceed counts achieved for 2008.

**Figure 1: Total Throughput (TEU) at Poti Port, 2000-2009**



By exploring and implementing value-added services, supporting the enhancement of a transportation corridor, and expanding capacities at points along the corridor, Georgia can become the crossroads of Eastern Europe and Western Asia that it hopes to become. Georgia’s strategic location between the Black Sea and access to the Caspian Sea make it an ideal, direct route for traffic flow, forward inventory locations, and value-added services that can shorten key supply chains and bring product closer to ultimate customers on both sides of the Silk Road. However, there is plenty of work yet to do and the country will need to clearly layout and follow a strategy for achieving these goals.

Competitiveness Potential	Impact Potential	Industry Leadership	Cross-Cutting Linkages	Overall Comments and recommendations
				Average 3.5 – Recommended for inclusion.

## Methodology

Logistics in its purest definition is the movement of materials, money, and information up and down the value chains it supports. Performance of the logistics function is relative to its

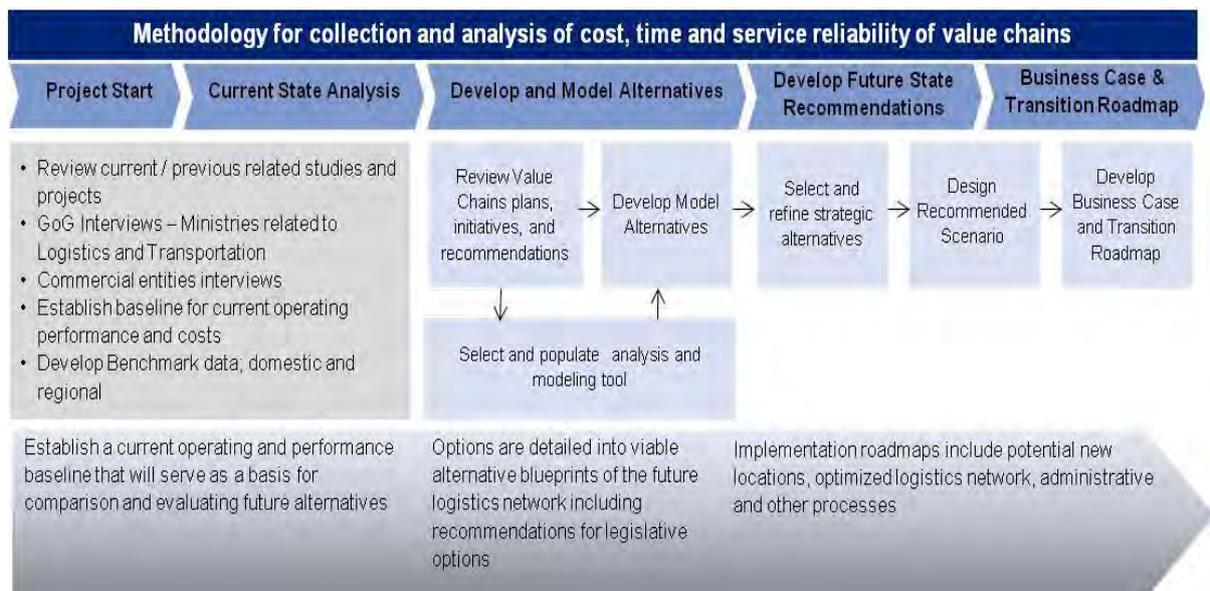
ability to deliver goods to its participants in a timely fashion and at reasonable costs, while maintaining a high level of visibility, security, and safety. This is accomplished around the world by Global Fortune 500 companies and sovereign countries following tried and true methods of improvement, best practices, and leveraging enabling technologies to support improved informational capabilities, product velocity, and accountability for inventories and transport performance.

The objective of the Deloitte Supply Chain Modeling methodology is to establish a framework that will support ongoing and future improvements in the transport and logistics industry as it pertains to the selected value chains. The framework must facilitate the development of performance baselines for the value chains it supports; i.e., agricultural and non-agricultural.

The Methodology for collection and analysis of cost, time, and service reliability of value chains involves the development of a model that will quantify cycle times, costs, and reliability at the present time and in the future. The ability to model future alternatives and scenarios will facilitate the decision making of investors and the GoG.

The figure below outlines at a high level the methodology and framework that has been established for the study. A modeling tool will be used to quickly assess a baseline of the current logistics environment for the various value chains. This baseline model will serve as a comparison basis for potential improvements, investments, and efforts to improve the performance of the value chains. The objective of the model is to aid in the decision making and establish an informed business case for each improvement option.

**Figure 1: Deloitte Supply Chain Modeling Methodology**



The Value Chain Transport and Logistics Analyses are being conducted following the framework prescribed in the modeling methodology. At the outset of the efforts the project team’s activities revolved around the collection of current information on the environment as well as specific current data gathered from supply chain actors in the market, statistical data

provided by GoG officials, and where available, open source information from international organizations and trusted sources on the internet.

# OVERVIEW OF GEORGIAN TRANSPORT AND LOGISTICS

## Summary

The development of an efficient transport corridor across Georgia for goods in transit to and from the Caucasus and Central Asia requires three basic elements.

- First, efficient connectivity to major markets, which in the case of Georgia refers to moving goods along the transit/trade corridor between Baku and Poti, and onward to regional, European and global markets.
- Second, placement of value added logistics/services at strategic points along the corridor such as repacking, kitting, labeling, invoicing, etc. which are expected to be important contributors to revenue from trade corridor activity in the future.
- Third, efficient and transparent border procedures that allow shipments of cargo destined for neighboring countries to move without delay not only across Georgia but also to intermediate points along the corridor where the goods can be stored, processed and then re-exported to neighboring countries.

Georgia can act as a logistics hub and gateway for both imports to and exports from neighboring countries. However, for exports, its primary role would be to provide an efficient transit route and seaport. Value-added in this case would primarily be storage and consolidation of the goods at the port. Figure 2 shows a high level view of the transit routes in and out of Georgia with its neighboring countries. The routes in and out of Russia, through Abkhazia and South Ossetia are currently blocked to Georgian goods and transport.

Figure 2: Trade Corridor, Poti to Baku<sup>98</sup>



## Value Chains Logistics Support – a customer’s perspective

The physical location of Georgia, on the most direct route between the Black Sea and Central Asia through the Caspian Sea, makes the country a key transport link and corridor for the movement of goods in the region, particularly for Azerbaijan and Armenia. This location on the historic ‘Silk Road’ has brought benefits to Georgia, but due to a number of factors, both exogenous and endogenous, the country has yet to take full advantage of this preferred geographic placement. In close cooperation with other countries along the ‘Silk Road’, Georgia has been seeking to recreate this corridor since 1993, under the umbrella of the Transport Corridor Europe, Caucasus, Central Asia (TRACECA) initiative. Georgia and its ports offer a significant access point for trade to and from the landlocked countries to the South and East. This role is strengthened, currently, by the unresolved conflict between Armenia and Azerbaijan over the Nagorno-Karabakh region and the resulting border closures between the two countries, as well as the long-running disputes and border closures between Armenia and Turkey<sup>99</sup>.

## Competitive Analysis

As part of an effort to understand the potential for Georgia to develop as a transit corridor and logistics hub, it is necessary to understand both the potential cargo flows that would use the corridor and the competitive position of alternative routes to service these flows. The potential flows are determined through an analysis of the trade of the six countries most likely to utilize the corridor- Azerbaijan, Armenia, Turkmenistan, Kazakhstan, and

<sup>98</sup> TRACECA

<sup>99</sup> TRACECA

Uzbekistan. This would be a sequential analysis of the value of imports and exports for each of these countries, the volume of the top 15 commodities groups and the values for exports by destination and imports by origin. This analysis is ongoing and will be used to inform the writing of the final report and action plan.

## Value Chain Transport and Logistics Performance

As a vital enabler of agricultural value chains, transport and logistics services expansion needs to keep pace with the value chain growth. For example, the market for domestically produced and consumed vegetables and fruit has generally strong and stable volumes and growth rates. A key logistics enabler for this value chain is the handful of cold storage facilities available in Georgia. Currently, however, only a small portion of the existing facilities is allocated to chilled products, whereas most of the cold storage space is allocated to meat products. The annual domestic consumption of vegetables and potatoes is 429,000 MT, equivalent to a monthly consumption of approximately 36,000 MT. Likewise, the annual consumption of meat products is 115,000 MT, equivalent to a monthly consumption of approximately 9,600 MT.<sup>100</sup>

The need for improved transportation and storage services extends to all of the value chains that EPI intends to become involved with. For example, there is plenty of room for expansion in the transportation services provided for the wine industry as well as the material handling and storage of construction materials and equipment.

## Policy, Regulatory, and Procedural Themes

### *Connectivity*

Efficient connectivity requires gateways with sufficient traffic volumes, capacity, and throughput to attract transport services that provide both frequency and economies of scale. In this regard, the major seaport for non-petroleum goods, Poti, is limited in both its draft and traffic volumes. The proposed investment in new facilities will increase capacity, draft and throughput thereby making the transit routes through the port more attractive. However, it will be at least a decade before the port has enough traffic to attract larger vessels in the range 5,000 TEU. In the interim, it is important to encourage scheduled feeder services through transshipment points such as Istanbul and Gioia Tauro. The growth in traffic will also depend on the willingness of the port to offer competitive rates so as to divert traffic from routes that use alternative gateways. This implies a pricing strategy that favors volume over profit in expectation of increasing long-term returns.

One of the major problems facing the port is that the private sector is required to finance the basic infrastructure surrounding the port including breakwaters. In order to earn an acceptable rate of return on these costly, but long-lived assets, they will be forced to charge higher rates than what would normally be required if this infrastructure was funded through public finance as is usually the case around the world.

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<sup>100</sup> The Cold Storage Industry in Georgia, Caltrider Advisors

The conversion of most of the world's medium to large public ports to private operation has been accomplished through by dividing the seaports into cargo terminals followed by the transfer of terminal operations to the private sector through concessions, leases or other contractual arrangements. The period of effectiveness of these agreements is usually between 10 and 50 years. There have been few outright sales of existing ports, e.g. Felixstowe, but these remain the exception and not the rule. More common has been the sale of special terminals developed by shippers or shipping lines for handling their own cargo.

### *Customs Clearance and Border Procedures*

The Customs Department in Georgia has made remarkable progress in reforming its procedures and facilitating trade. Not only has it been reorganized but also the structure of the tariffs has been simplified. Duties have been reduced to three bands (none, five percent, and 12 percent) and most commodities pay no duties - only VAT. Cargo clearance can be completed within one day in the ports and rarely requires more than two days. At the airport, cargo is cleared within hours. The introduction of new customs clearance facilities, the Gezi depots in Tbilisi, near the border with Turkey, and in the new terminal area in Poti have greatly simplified the process for filing declarations, assessing the documents and releasing goods. Tracking software is being introduced to speed certification by other government agencies.

Customs brokers are no longer used to file declarations. There was never a requirement to use them and there was no system for formal certification. Now shippers are actively encouraged to file their declarations at the customs facility. Gold List shippers are allowed to file declarations directly from their offices. Nevertheless, it is still possible to establish a customs brokering service by filing a request with the Ministry of Finance and providing a guarantee. It is expected that there will be growing demand for such services.

Despite all these advances, there are a number of areas in which Customs has not yet introduced change. For example, the import general manifest (IGM) is still filed manually. Although this does not appear to delay the clearance of cargo, it limits options for pre-arrival processing. The procedures for establishing a bonded customs warehouse remains cumbersome with excessive regulations and the process for temporary admissions remains difficult. Customs has introduced a large number of changes but has yet to develop a training program or effective means for informing stakeholders of the current procedures.

In addition, there are some areas in which reforms may have been overzealous. The practice of allowing several days for transit cargo to move across the country without supervision invites malfeasance. The process of allowing importers to clear cargo while giving them up to five days before they are required to pay their duties is likely to create problems in revenue collection. The process of issuing customs releases for automobiles before the shipping lines have issued a delivery order will discourage shipping lines from carrying this cargo. While Customs uses the Asycuda World's selectivity module for risk management and its Risk Management Department periodically reviews the risk parameters, there is no use of risk management software or business analytics. The Gold List system allows for automatic green channel clearance with a very small random inspection (one

percent), but so far this is been limited to 175 companies, which account for only about one third of the shipments.<sup>101</sup>

The introduction of a logistics hub that includes one or more free zones in which goods can be stored duty-free and receive value-added services will create a challenge for customs, as currently structured. In addition, there is a need to reduce the difficulties in establishing bonded storage in general. The EPI project already includes a component that will be examining customs procedures related to bonded storage and temporary admission. In addition, efforts should be made to identify changes in procedures needed for efficient operation of a free zone and for expansion of the activities permitted within that zone. Among these would be storage and trading of commodities, introduction of offshore banking, assembly and warranty repairs, machine, and equipment rehabilitation.

### *Clusters*

In order to compete in the provision of value-added services for goods en route between point of production and point-of-sale, it is necessary to have a location near a major trade route. It is also necessary to offer a range of transport and logistics services to meet the supply chain requirements of different goods moving along the trade route. A cluster of services is generally organized by establishing a zone e.g. Free Trade or Export Processing Zone (EPZ) that allows for goods to remain in transit even while receiving value added services. This zone should be located near a modal interchange, e.g. seaport, airport or border, or a major market. The competitiveness of the zones depends on several factors:

- Location relative to major transport/trade corridors,
- Availability and cost of resources including labor, utilities, and land,
- Ease of doing business, and
- Tax regime.

While the success rate for these zones is generally not high, it is improving. The Free Industrial Zone (FIZ) in Poti is a good example of a zone experiencing difficulties. It has had a slow takeoff due to external economic and political conditions, including: 1) its offerings in terms of tax exemption, land, and utility costs are relatively standard; 2) the port targeted industrial manufacturing but its connectivity to raw materials or final markets is limited; 3) it provides access to a pool of relatively low cost labor, but most of the manufacturing activities are capital intensive; and 4) the legislation under which it operates limits its ability to sell its output into the domestic market. As a result, the zone has developed relatively slowly over the last three years and most investors prefer to locate outside the zone.

Although there is some warehousing established in the FIZ, the zone is not well suited to becoming a center for logistics services. A logistics hub should expect to have high traffic volumes relative to those of industrial zones. An industrial zone has a relatively simple flow of raw materials and intermediate or finished products that is relatively easy to monitor from a customs perspective. On the other hand, a logistics hub usually has a large number of service providers offering a wide variety of processes including packaging, deconsolidation, assembly, and transformation. This makes it difficult to relate the inputs that enter the hub

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<sup>101</sup> Formally it was 210 but they recently removed 45 companies from the list.

with the goods exiting the hub. A greater degree of coordination between the service providers and customs is required to ensure that there is no leakage into the economy while avoiding delays or excessive documentation. At the same time it is important to allow locators within the hub to collect goods produced locally and to distribute goods to the domestic economy.

Where a logistics hub is located next to a gateway port, as is the case in Poti, it is necessary to have a seamless process for moving goods between the two in both directions. While the zone has been planned to have separate areas for manufacturing and warehousing, as currently planned, they would use the same traffic network and be subject to the same system of regulatory controls.

The current arrangement in Poti, in which inbound containerized goods move directly from the vessel to off-dock yards under the control of the shipping lines, make it difficult for effective interaction between the port and the FIZ. When the new terminal is constructed, it will be possible to simplify this flow since they will have a common border. However, the proposed transfer of the port to a new owner would place the zone and seaport under different management groups. As a result, there would be less incentive for the cooperation that is necessary to take advantage of this synergy between the two.

The project team is planning to review the contractual arrangement and regulatory environment under which the FIZ operates and assess its value proposition in order to determine how they can be modified to support the development of a logistics cluster. The options of dividing the existing FIZ into two separate entities, one designed as a Free Trade Zone (FTZ) and the other as an EPZ, would also be explored. The project team will also consider whether Poti is the best location for the various types of logistics services. In particular, it would examine the possibility of locating duty-free storage and distribution for fast-moving consumer goods, specially refrigerated products, nearer to Tbilisi and value-added processing for goods destined for neighboring countries nearer to the border with Azerbaijan. Also under consideration would be the introduction of customs procedures and systems that facilitate the movement of goods in and out of a logistics hub.

### *Corridor Management*

It is important to have efficient procedures at the border since this is where most of the delays occur, particularly unexpected delays. It is equally important for clearing cargo to ensure that the entire transport/trade corridor operates efficiently. There are a variety of actors in the public and private sector that determine this efficiency. The most obvious are Georgian Railways and the Department of Roads. Through their investments and maintenance activities, they determine the capacity and time for movement of goods along the corridor. The operating practices of the railways determine the actual throughput and cost. They also determine private sector involvement in organizing train movements and providing rolling stock. For road transport, throughput depends on the quality of the vehicles operating on the corridor, the effectiveness of traffic control provided by the police, and the ability of the truck transport companies to ensure safe operation and good utilization of their fleets.

Coordination becomes even more important for corridors that cross borders. In the case of Customs and other agencies regulating trade, this requires efforts to harmonize procedures and documentation, to share intelligence, and, where possible, to integrate clearance

procedures. For railways, this requires coordination in scheduling cross-border movements, monitoring rolling stock, maintaining track and agreeing on an equitable pricing scheme. For road transport, it requires not only mutual recognition of licenses, registration, certificates of road worthiness, insurance and transport documents but also harmonization of traffic regulations including load limits.<sup>102</sup> It is also important to facilitate financial transactions between parties on either side of the border and to allow for collaboration in the form of partnerships, joint ownership, etc.

Because of the dynamics of transport activities within a corridor, it is important to develop lines of communication and mechanisms for joint action to address bottlenecks when and where they occur and to ensure that policies and regulations are designed and implemented to serve common objectives. Development of strategies is important for improving this coordination by examining past experiences with corridor management, identifying stakeholders that should be involved, interacting with both government and the private sector to determine how to organize this public-private partnership. Finally alternative funding mechanisms need to be examined for a stand-alone corridor management organization that would function as an advocacy group for improving performance in the transport/trade corridor connecting Georgia's ports with Baku and Yerevan.

### *Integration of ICT*

As the Transport and Logistics industry grows in Georgia, along with the value chains it supports, the need for expanded technology and communications will also grow. The complexity of the distribution network, both domestic and international, will require new levels of information sharing, product visibility, and data velocity.

On the information sharing front, shippers and customers alike expect constant updates of the status, transit time, and expected pickup and delivery times of their orders. Currently, there are pockets of technology improvements and plans around the country. Mostly, these services provide inward facing information and reporting to the organizations, some even provide reporting to their customers on a static mode (i.e., events happening at a point in time). However, there's an absence of dynamic (i.e., on demand or close to real time) information being collected or shared.

Further, most of the mid-size and smaller actors in the Transport and Logistics value chains do not collect or transmit any information on the location, inventory, or delivery of products. Technologies such as EDI and XML transactions are the standard for transport and logistics information being exchanged with trading partners around the world. The infrastructure along with the technology systems required to implement these technologies will need to be introduced in the Georgia logistics providers' community. The key will be to establish a case for the adoption, investment, and value of having these capabilities.

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<sup>102</sup> Much of this has been accomplished through widespread adoption of EU regulations

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