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Acknowledgments

This publication was prepared by the Trade, Environment, Climate Change and Sustainable Development Branch of the Division of Trade in Goods and Services, and Commodities, UNCTAD. The principal authors were Maria V. Sokolova, Rodrigo Saavedra Zepeda, and Eugenia Nuñez, who also lead the team of authors under the direct guidance of Marisa Henderson and overall supervision of Lucas Assuncao.

This publication was peer-reviewed by the following persons from UNCTAD, according to their particular expertise: ____________.

Graphic design and layout was conducted by ________ and the publication was edited by ______________.

The information in this report has been gathered from various sources, mainly technical backgrounders prepared by national consultants Tomas Godinez and Hernan Sarmiento. A mission was carried out in Guatemala City, Guatemala, during 11 – 20 December 2017. Interviews were conducted with public and private stakeholders, including representatives from the Ministry of Economy, the National Agricultural Development Council, the Ministry of Environment and Natural Resources, the Presidential Secretariat for Planning and Programming, the Presidential Secretariat for Women, the National Statistics Office, the National Competitiveness Programme, farmers’ organizations, the private sector, international organizations and the donor community.

The study was financed by the tenth tranche of the United Nations Development Account under the overall theme “Supporting Member States in implementing the post-2015 development agenda: strengthening statistics and data, evidence-based policies and accountability”.
Executive Summary

The objective of this report is twofold. First, to generate knowledge and build a common understanding between various stakeholders on the formation and implementation of sustainable trade-led agriculture policies and their social and environmental impacts. Second, to increase the capacities of policy-makers and other stakeholders to integrate this knowledge and tools in trade policy planning and implementation, to harness trade for sustainable development in rural areas, considering that trade integration should not only foster economic growth but should also address socioeconomic concerns such as poverty reduction, food security, gender equality and environmental sustainability.

Guatemala has been on a relatively stable growth path and improved many aspects of its development, but still faces many challenges. Economic transformation happening in the country shapes most of its development trajectories. In the face of Sustainable Development Goals (SDGs) this economic transformation relates to conventional issues such as income generation, inequality and internal and external migration, but also food security, climate resilience and climate adaptation, preservation of biodiversity and responsible production and consumption. All things considered, having half of the country’s population living in rural areas (in 2016, 48 per cent according to the World Bank) and dependent on agriculture for subsistence or semi-subsistence (estimates vary from 50 to 70 per cent) brings rural agriculture into the spotlight of economic transformation.

In general, the rural economy of developing countries faces a fast transition due to a multitude of factors. These factors include the rise in population, internal and external migration, urbanization, higher demand for the more skilled labour, and a growing number of women in the workforce. While certain level of urbanization is inevitable for developing economies due to such processes as industrialization and skill-search, these flows have to be kept at a sustainable level. This implies active and developing rural economy that can curb internal migration shocks, and hence provides a more resilient development of the urban economy. Additionally, the urban economy depends directly on inputs from the rural economy: increase in the urban population signifies an increased food demand, and food production depends a lot on the rural areas. According to FAO, about 90 per cent of the world’s 570 million farms are small, owned and operated by families. Quite often they are poor, their economic choices are limited, they lack market or services access, but they farm their land, produce food for substantial proportion of the world population (this share is much higher in the developing countries) and have potential to improve their own livelihoods and support urban population.

The entering into force of the Sustainable Development Goals, our changing climate, the proliferation of global trade and value chains, while the overall global demand for food is growing both in developed and developing countries – are just some of the key reasons that justify the need for sustainable framework for individual country’s policies. This report builds this possible framework for trade-led agricultural policies taking into account food security and livelihoods of small-scale farmers in Guatemala. By assessing three sectors – potato, cardamom and cocoa – current agronomic and economic conditions of small-scale farmers operation and sectoral value chain maps are presented, drawing upon current economic trends, and taking stock of the current supply-side constraints of these sectors. In the end, it formulates some possible upgrading and diversification trajectories, and provides the sustainability assessment of such trajectories based upon the data collected.
While the sustainability analysis is common to all agricultural sectors; its implementation cannot be separated from country-sector specific analysis of the production and marketing links in a given sector. This study summarizes farming structures, marketing links and technical details on the production of cardamom, cocoa and potatoes in Guatemala, with the specific attention to the prioritized municipalities and the geographic agronomic conditions they are facing. Detailed assessments of Guatemala’s cardamom, cocoa and potato chains have been done elsewhere and are relied upon as the reference material for this study.

Performing this sustainability assessment is instrumental for creating a trade-led policy that will not increase the hazard for small, rural farmers. The reasoning for this rests on the understanding that trade in general favours efficiency considerations over sustainability and resilience, hence it puts at advantage production from large commercial land holdings and plantations. To use sustainability principles set in the SDGs is a way to include smallholders into upgrading and diversification strategies in the development of the agricultural sector that will provide them with better livelihood, improve their food security and be beneficial for the development of the country’s economy in general.

This report builds ground for quality upgrading of agricultural products while preserving unique diversity of Guatemalan climate, stresses out the importance of policy coherence between trade and agricultural policies to ensure the sustainability of industrial changes and improvement of the rural livelihood. It also provides sustainability analysis and formulate the outcomes for such diversification and upgrading trajectories as targeting market access to the niche/boutique marketing of single-origin single-flavour products – both as a higher value product or diversified primary product; developing local sustainable tourism as a mean of building internal production capacity without having to undergo the international requirements for exporting. The policy recommendations outlined in the conclusion of this report are fundamental to dynamizing rural economy and ensuring sustainable development of the economy.
Introduction

This study was conducted to generate knowledge, build awareness and understanding on the social effects of trade-led structural transformation in agriculture. It mainstreams social inclusiveness and sustainability concerns into agricultural trade policies, with the aim of assisting the government in developing sound and complementary trade and agricultural policies supportive of rural livelihoods, food security and social inclusiveness. The publication will be reviewed and validated by the Ministries concerned and is intended to provide sector-specific, evidence-based insights and policy guidance on the following issue areas:

- Costs and benefits for small-scale farmers from agricultural diversification and commercialization,
- Ways to counter abuse of market power and to “rebalance” supply chains in favour of small-scale farmers;
- Schemes and trade measures to “internalize” environmental costs and benefits of different farming systems, and ways to ensure complementarity with trade rules;
- Income and consumption effects on rural households of staple food liberalization, and whether the country enjoys sufficient leeway under current bilateral, regional and multilateral rules, for agricultural stabilization policies supportive of rural livelihoods and food security;
- Market access and market entry barriers in key export markets and how to tackle these obstacles through “structured” supply chain initiatives;
- Gender issues, and other social inclusiveness dimensions.

The study focuses on three sectors – potato, cardamom and cocoa – particularly in the municipalities that can mostly benefit from the new opportunities that diversification and upgrading can offer. The selected sectors were studied on three geographical areas with very distinctive conditions: Franja Transversal del Norte, covering the northern municipalities of the departments of Alta Verapaz, Quiché, Huehuetenango and Izabal; Boca Costa, a thin strip parallel to the southern coast which stretches from the department of San Marcos (bordering with Mexico), passing through Quetzaltenango, Retalhuleu, Suchitepéquez, Sacatepéquez and others all the way to Jutiapa (bordering with El Salvador); and, Altiplano Occidental, located in the north-western region and conforming by a number of municipalities from the departments of Quetzaltenango, San Marcos, Huehuetenango and Totonicapán, the latter not covered in this study.

The summary provided in this study on agronomic conditions, marketing links and processing techniques might serve as an important guide for stakeholders’ engagement in the agricultural product chain, and for strengthening institutions and achieving sustainable policy interventions in the studied agricultural sectors. For the analysis performed, the authors relied on publicly accessible data collected and provided by the national experts, international consultants, as well as findings during missions conducted by experts. An important challenge faced in the analysis relates to the substantial differences of the studied crops. While cocoa and potatoes are deeply rooted in the familial agriculture and consumption tradition and can be regarded as native plants to Guatemala and, cardamom is an introduced crop, that due to ideal climatic circumstances has become the top world exporter, without a proper domestic market. The sustainability impacts of upgrading and diversification options in these sectors are discussed in depth. This study, after providing the crop-specific characteristics concentrates on the common traits in all three sectors to provide a basis for sustainable policy interventions.

Providing sustainable framework for trade-led agricultural policies cannot be separated from a holistic analysis of the associated agronomic, socio-economic, environmental and other relevant research and investigation. This report reflects the broad scope of the underlying work in its structure. Chapter 1 provides a brief overview of Guatemalan economy and outlines key trends in the socio-economic development and their relation to environmental and climatic concerns. Chapters 2, 3 and 4 summarize the agronomic, processing and marketing (both domestic and international) states of the studied sectors – potatoes, cocoa and cardamom respectively. Chapter 5 builds on the preceding analysis and outlines the upgrading and
diversification options for the sectors. Chapter 6 bridges the analysis directly to SDGs and focuses on providing the sustainability outcomes of efforts to upgrade, expand and diversify the studied sectors. In the end, the report extends from sector-bound analysis and concludes with summarizing the key policy recommendations that carry the potential to enable the sustainable trade-led policies in Guatemala.
Chapter 1 Country Overview and Development Background

Guatemala is located in Central America, bordering both Pacific and Atlantic oceans between the Equator and the Tropic of Cancer. It shares borders with Mexico, Belize, El Salvador and Honduras, occupying the overall area of 108,889 square kilometres. With population of 17 million people it is highly dense in the cities (in Guatemala City the population density is over 4000 inhabitants per square kilometre) and very sparse population density in the rural areas at 130 inhabitants per square kilometre on average (Banguat 2017). Administratively, the country consists of 22 departments that have 340 municipalities. The Guatemalan territory is mountainous, with coastal plains in the south, central highlands, and northern lowlands. Its geographic location and complex topography provide diverse climatic conditions and vegetation. The range of climatic zones stems rich biodiversity and potential for agriculture, forestry, and hydropower generation. The country is highly vulnerable to earthquakes and volcano eruptions as it is situated in a high seismic zone on a conjunction of three tectonic plates: The North American plate, the Caribbean plate, and the Cocos plate. Guatemala is also vulnerable to extreme events such as hurricanes, floods and landslides.

This chapter provides a brief overview of the country and outlines key trends in the socio-economic development and their relation to environmental concerns.

Economy

Guatemala’s economy is highly prone to the shocks coming from natural events. It is estimated that between 1991 and 2010 just the most prominent storms and droughts lead to the economic impact of an average reduction of 0.51% of GDP per year (WBG 2012). This led the country to strengthen risk identification and monitoring systems by adopting methodologies to analyse and evaluate hazards and vulnerabilities. This implies that Guatemala has started transition from the dependency on the ex-post budget allocations for reconstruction and disaster response caused by natural events to more preventive mechanisms. These mechanisms are included into a development agenda and planning and are the result of coordination between the National Institute of Seismology, Volcanology, Meteorology and Hydrology (INSIVUMEH), the Presidential Secretariat for Planning and Programming (SEGEPLAN), the Ministry of Agriculture, Livestock and Foods (MAGA) and the National Coordinator for Disaster Reduction (CONRED). Despite this progress, Guatemala has to incorporate the principles of risk reduction into the broader scope of economic system, including an investment program.

With the overall Gross National Income of US$135,262 million (at PPP) in 2017 and GNI per capita of US$8000 (at PPP), Guatemala is Central America’s largest economy and composes a quarter of Central American Common Market (CACM). It has been endorsed to have a firm macroeconomic fiscal and monetary stability over the several past years, which resulted in GDP growth of 3.2 per cent in 2017 and is forecasted to grow 3.4 per cent in 2018 and 3.6 in 2019 (IMF 2018). As illustrated in Figure 1, share of value added generated in agriculture is falling down. This has partially contributed to the structural changes in the economy, but – given the rising population and higher concern about the changes in the climate – must be done in a sustainable way.

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1 Other members are Costa Rica, El Salvador, Honduras, and Nicaragua.
Despite the recent improvements in corruption reduction, Guatemalan economy still faces higher corruption rates and higher informality share than other Latin American and Caribbean countries (WBG 2017). Such practices discourage the formalization of the business initiatives and result in missed tax revenues, which is supported by the fact that in 2017 only 81.4% of the fiscal target was met. Since 2012, Guatemala has introduced modifications in the tax system, which has evidenced considerable improvements in tax administration, but more structural reforms are needed in order to decrease informality and expand the tax base. Notably, about a quarter (24%) of fiscal revenue comes from VAT on imports.

Guatemala has been less affected by the international price of oil volatility compared to many other Latin American and Caribbean countries, and the local currency, Guatemalan Quetzal, has been facing a relative appreciation since 2014 (about 10% appreciation), which made exports relatively more expensive and imports cheaper. As illustrated in Figure 2, this did not affect the relative side of trade balance – which is at about 20% deficit in 2017, but it has widened the trade deficit (which is around US$6.1 billion for 2017, 12% higher than in 2016). The rising GDP per capita while the trade share in GDP is decreasing implies that Guatemalan economy started developing domestic market and has potential to improve internal consumption capacity.
The United States of America (USA) is the country’s largest goods trading partner accounting for 36.2% of exports and 38.8% of imports. Central America (El Salvador, Honduras, Nicaragua and Costa Rica) represent the second most important trading partner, followed by Mexico, the European Union and Canada. Four out of the five main export products by value are agricultural products: clothing and apparel US$581.9 million (12.4%); sugar US$383.4 million (8.2%); coffee US$379.9 million (8.1%); banana US$318.1 million (6.8%) and cardamom US$203.4 million (4.3%) (Banguat 2018b). The trade deficit is largely financed by remittances from workers abroad (mostly in Mexico and USA). Remittance inflows have nearly doubled from 2010 to 2017, amounting to US$8.2 million (Banguat 2018a).

Over the past couple of decades trade policy was leading to liberalization of the financial, energy, and telecommunication sectors. The country lags significantly in energy production and is categorized as a net importer of energy. According to the Ministry of Energy and Mining (MEM), out of the total energy consumption for 2017, 56% corresponds to firewood, followed by petroleum derivatives accounting for 36%, and the remaining 8% corresponding to electricity. This low electrification and high dependency on wood for residential demand highlights not only the energy risks but also the lenience of deforestation in the rural parts of the country. About one third of the country’s area is covered with forests; estimates indicate that the country is facing deforestation of 38,597 ha. a year (Regalado et al. 2012).

Guatemala is a member to the WTO since 1995, and since 1985 there is a constitutional duty to promote domestic and foreign investment. National legislation prohibits discrimination and guarantees national treatment for foreign investors, regardless of their nationality. With few exceptions, the country’s investment regime guarantees free exercise of economic activities. This has created favourable investment climate and the country is a net recipient of foreign direct investment – particularly from Colombia (US$160.2 million), Mexico (US$204.1 million), United States of America (US$208.5 million), Peru (US$81.6 million), Spain (US$57.0 million) and Luxembourg (US$55.7 million) as in 2017 (Banguat 2017). However, insecurity remains the main concern of foreign investors. In the past two decades the country has been in a relatively stable position despite low implementation capacity in public institutions and fiscal deficit.
Despite the overall decrease in the primary sector employment from 18% in 2000 to 12% in 2006, agriculture, forestry, and fishing remain the most important rural activities. Agriculture is elemental for rural economy and its development and creates synergies with other sectors and improves their growth. According to FAO, about 70 per cent of Guatemalan land area is dedicated to agricultural and forestry activities (FAO 2014b). However, there are disparities in access to assets. An estimated 8 per cent of producers account for 92 per cent of the productive land (Sánchez, Scott, and López 2016), whereas the remaining holdings are on average less than 0.7 ha in size and mostly directed to subsistence agriculture.

There is a need for structural transformation in Guatemalan agriculture, as there is a certain mismatch in the way it contributes to the country’s development: while about three quarters of exports are agriculture-related, Guatemala remains being a net food importer, with several nutrition-related issues present in the country. The transformation can be propelled by creating an enabling environment for both improvement of the subsistence agriculture and inclusion of small-scale farmers in agriculture production chains, accompanied by sustainable targeting of value-upgrading strategies in agricultural sectors.

Table 1: Agriculture plot characteristics, selected sectors

<table>
<thead>
<tr>
<th></th>
<th>Overall</th>
<th>Potato</th>
<th>Cardamom</th>
<th>Cocoa</th>
</tr>
</thead>
<tbody>
<tr>
<td>Average plot size (ha.)</td>
<td>0.7</td>
<td>0.22</td>
<td>0.25</td>
<td>0.42</td>
</tr>
<tr>
<td>Estimated production area (ha.)</td>
<td>3,855,222.63</td>
<td>15,599</td>
<td>97,390</td>
<td>2,500</td>
</tr>
</tbody>
</table>

Source: UNCTAD Secretariat based on collected data.

Social development

Guatemalan population growth rate has remained relatively stable at about 2.1 per cent since 1990, which is one of the highest in Latin America. Population is relatively young and has a low dependency ratio of 65 per cent - one third of Guatemalans are aged between 10 and 24 years, whereas only 5 per cent is aged 65 or older. The country is ethnically diverse: in 2014, 60.9 per cent of the population identified themselves as Ladino (mixed ancestry), while 38.5 per cent identified as indigenous, numbers that have not changed dramatically since 2000. It is important to highlight that the country is multi-ethnic, and the indigenous population is not homogenous. Most indigenous people are of Mayan descent, out of which K’iche’ represent 11.2% of the overall population, Q’eqchi’ 9.2%, Kaqchikel 7%, Mam 6.1%, and other Mayan 5%. There are important variations between groups.

The World Bank data indicates that there is a fast urbanization process in the country – the share of population living in the urban areas has increased from 40% in 1990 to about 52% in 2017. This rapid urbanization has implications on development and economy – such as increased rural poverty and pollution, demand for higher food supply to urban areas, pressure on infrastructure and inequality. However, according to the 2014 Guatemala Living Standards Measurement Survey (ENCOVI) the registered internal migration is relatively low - less than 3 per cent of the population. This may underestimate the cumulative values, seasonal work migration and unregistered workers. Approximately 8 per cent of Guatemalans live outside the country, most of them in the United States of America or Mexico and send remittances back home.

Guatemala has one of the highest poverty rates in Latin America, with around 60 per cent of its population living below the national poverty line, and with some 23 per cent in extreme poverty. It ranks among the poorest economies by GDP per capita in Latin America ($4,471.0 USD) and faces major obstacles in reducing poverty, one of which is contributed to the increased climate variability. Overall, according to the US$4 per
day poverty line, the poverty rate increased from 55 per cent in 2000 to 60 per cent in 2014, which implies that almost 10 million Guatemalans lived in poverty. This is a striking trend compared to the rest of Latin America where there has been a significant reduction of poverty levels.

According to the World Bank, there is no rural to urban poverty migration, but both areas are suffering from the worsening of the livelihood overtime and therefore face the increase of the poverty rates. However, rural poverty is more prominent among indigenous people, with about 80% of them living below the poverty line, and about half of them in extremely poor conditions. Indigenous population is an overwhelming majority in three departments: Sololá (96.8%), Totonicapán (93.6%) and Alta Verapaz (93.5%) and the percentage of poor people in the three surpasses 70 per cent.

Income inequality is not the sole measure of inequality, as issues related to other basic capabilities such as food security, access to health, education and the overall standard of living should be considered. Guatemala has the second lowest proportion of middle class population in Latin America, only surpassed by Haiti. Between 1995 and 2015, the wages of workers have steadily increased at a rate of 2.4 per cent, while the profit of enterprises has been growing at the speed twice as high at 4.3 per cent. This lack of pass-through into the wages can be representative of the complex non-transparent ownership structures that potentially can enhance inequality, as the level of private investment into research and development (R&D) has contracted from 6 to 4% of the GDP. Guatemala is still striking with malnutrition, as household surveys (2010 and 2014) have showed that 53 per cent of Guatemalans were not able to afford the basic food basket and up to three quarters could not acquire a basket of basic goods and services for their household.

Increase in public expenditure on education has contributed to the accomplishment of almost universal (at 87% in 2016) primary school enrolment of both male and female, though the universal secondary education remains a challenge at just about 50% of children of the according age group getting enrolled into the secondary school. Overall, men are more educated than women (2% more men complete lower secondary education than women), which is partially related to the overall socio-cultural norms in the society, where the unpaid housework and care work are traditionally done by women.

Health infrastructure services are quite limited, concentrated in the rural centres that are not easily accessible for all inhabitants. Guatemalans have to finance their health services themselves – 65% of costs are born privately, with most of it being out-of-pocket expenses. This reflects low government spending on health care – less than 2% of GDP.

As many of the Latin American countries, Guatemala has high level of disparity between the development in the urban and rural areas that embraces infrastructure and services access. These conditions and constrains the livelihood of rural population and their economic conditions. According to UNDP, between 2000 and 2014 there has been a decrease in the percentage of both rural and urban qualifying as either poor or vulnerable households. Though 91% and 65% of population in rural and urban areas respectively still qualify into these two groups. Gender development index indicates that there are persisting social norms and biases towards women. They tend to be less educated, have lower access to services or financial freedom than men, more so in the rural areas, and especially in the northern areas of the country.

Sustainable policies in agriculture bring in higher diversity of economic activities in rural areas, building resilience of livelihoods. This includes the improvement of the buffering capacities (adaptive capacities) to external (national or international) against shocks. Higher diversity of economic activities also improves territorial conditions that increase competitiveness and reveal regional comparative advantage built on regional strengths. In the case of Guatemala, sustainable agricultural trade policies can improve the internal capacities and boost the rural economy and make this progress resistant to climatic changes that have been a major impediment for the country’s growth.
Selected sectors and their role in the economy

This study investigates three sectors of the Guatemalan rural agricultural economy – potatoes, cardamom and cocoa. An important challenge faced in the analysis relates to the substantially different market conditions faced in Guatemala by the studied sectors. While cocoa and potatoes can be defined as native crops to Guatemala and are deeply rooted in the familial agriculture and consumption tradition, cardamom is an “imported” plant, that due to ideal climatic circumstances brought Guatemala to become the top world exporter, without finding domestic market (99 per cent of cardamom produced is exported). Nevertheless, this study after providing the crop-specific characteristics concentrates on the common traits in all three sectors to provide a basis for sustainable policy interventions.

The three sectors studied have limited multiple cropping or intercropping possibilities among themselves but can be intercropped with similar other crops (e.g. timber). They also have a different cultivation calendar – as illustrated in Table 2. In areas where two of the three crops studied are grown, the small-scale farmers traditionally plant them at the different parts of their plot, practicing *companion planting* technics.

Table 2: Cultivation calendar of cocoa, cardamom and potatoes in Guatemala

<table>
<thead>
<tr>
<th></th>
<th>Jan</th>
<th>Feb</th>
<th>Mar</th>
<th>Apr</th>
<th>May</th>
<th>Jun</th>
<th>Jul</th>
<th>Ago</th>
<th>Sep</th>
<th>Oct</th>
<th>Nov</th>
<th>Dec</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Cardamom</strong>*</td>
<td></td>
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<tr>
<td><strong>Cocoa</strong>*</td>
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<tr>
<td><strong>Cocoa</strong></td>
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<tr>
<td><strong>Potatoes (irrigated)</strong></td>
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<td></td>
</tr>
<tr>
<td><strong>Potatoes (no irrigation)</strong></td>
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<td></td>
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<td></td>
<td></td>
<td></td>
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<td></td>
</tr>
</tbody>
</table>

Sowing/Planting    *     * Franja Transversal del Norte
Blooming           **    ** Boca Costa
Harvesting
Mid-season

Source: UNCTAD Secretariat, based on consultant work and field mission.

Trade in all three sectors has been growing internationally (as measured by export flows in Figure 3), with cocoa sector being the most internationally traded of the three, with exports at US$40 billion. At the same
time, according to FAOstat globally potato production and area planted are much higher than those of cocoa – 476 million tons (25 million ha.) to 4.5 million tons (10 million ha.) in 2016 respectively. Apart from being partially driven by the difference in the physical characteristics of the products, this highlights the expanding international demand for cocoa and cocoa-derived products. While potato is heavier and much more used locally – factors that contribute to the lower international trade of it while having much higher production – its exports have tripled since 2000. International trade in potatoes and cocoa sectors have been growing both extensively and intensively in recent years\(^2\), while the growth of the relatively smaller cardamom sector has been concentrated in the core consumption markets, despite the variety of the spice. The unique climatic conditions where cardamom can be grown, and the rise of international demand provide a stable environment for trade-led agriculture strategies.

![Figure 3: World sector-specific trends](image)


According to UN COMTRADE data (Figure 4), cardamom is the biggest in value of exports of the three studied sectors, which is in line with Guatemala being the global leader in cardamom exports. Creating environment that bolsters both sustainable support and development of the production chain of cardamom can uphold Guatemala at this position. At the same time, Guatemalan exports of potatoes are lagging compared to the world average – the world trade has grown since 2000 by about 100%, while Guatemalan exports grew by about 20%, highlighting missed trade opportunities for Guatemalan potato producers. Cocoa sector seemingly exhibits a contrasting trend with Guatemalan exports growth by 600% since 2000, whereas the world average growth was 420%. However, the export levels were extremely low in 2000 and, as discussed further, Guatemala mostly exports the low value-added cocoa products which limit the ability of extracting gain from cocoa production by the volume produced.

\(^{2}\) This relates to more countries entering both exporting and processing market in cocoa and potatoes, and new products that are traded in each sector.
The agricultural sector has traditionally been one of the “primary” – low processed, extractive and quite often low value-added – sectors, while in recent years the view has been adopted of seeing agricultural sector conjointly with the food manufacturing sector. This study follows this approach by adopting a treatment of products produced from agricultural inputs as having different value-added level. Table 3 depicts the value breakdown of the key products in the studied sectors, along with the corresponding Harmonized System (HS) 6-digit codes. It should be noted that this breakdown is based on the considerations for this study and international trade, and final market information – the actual added value in certain cases may vary due to pricing or quality.3

<table>
<thead>
<tr>
<th>Raw / Semi-processed</th>
<th>Potatoes</th>
<th>Cacao</th>
<th>Cardamom</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tubers dormant (060110); tubers in growth or in flower (060120); seed potatoes, fresh or chilled (070110); other potatoes (070190); potatoes uncooked or cooked, frozen (071010)</td>
<td>Cocoa beans (180100); cocoa shells, husks, skins (180200)</td>
<td>Cardamom flower (090831)</td>
<td></td>
</tr>
<tr>
<td>Potato flour meal and powder (110510); potato flakes, granules and pellets (110520); potato starch (110813)</td>
<td>Cocoa paste not defatted (180310); cocoa paste defatted (180320); cocoa butter, fat and oil (180400)</td>
<td>Cardamom powder (090832)</td>
<td></td>
</tr>
<tr>
<td>Potatoes prepared or preserved otherwise than by vinegar – e.g. potato chips (200410; 200520)</td>
<td>Cocoa powder not sweetened (180500); cocoa powder sweetened (180610); chocolate (180631; 180632); white chocolate (170490); other cocoa food preparations (180690)</td>
<td>Sugar confectionery (170490); tea and coffee (210120); essential oils (330129); chemicals (291219)</td>
<td></td>
</tr>
</tbody>
</table>

3 Or, for example, in case of Voluntary Sustainability Standards (VSS) due to the final consumer’s perception of the social value of the product – explained further in Box 3.
Gender Issues

Labour segregation between women’s and men’s work in agriculture tends to be based on traditional social and cultural norms. Indeed, as in most of rural Latin America, women have a predominant role in rural Guatemala, both in the household and as a part of the subsistence farming unit. Women tend to be in charge of domestic work, children, small animals, small tasks related to plant cultivation; while men are more often the ones working in fields, making production-related decisions and going to associated meetings. While financial decisions are traditionally in the hands of men as heads of the household, the provision of off-farm related activities, such as selling the product in the market, is nevertheless considered to be a women’s task. Additionally, many of small cultivation supporting activities are delegated to women. All of this makes the role of women in Guatemalan agriculture more important than what it could appear at first glance.

The culturally constructed role of women in the household not only undervalues women in income generation, but also limits the household possibilities for income diversification. The well-known labour segregation between staple and cash crops, as being former “female” crops while latter being “male” crops (FAO 2011b), highlights the exclusion of female from being assigned the role as a primary income earner. While this division is artificially and socially constructed, it is also not economically viable, and creates within household opportunities for income generation and diversification. Commercialization of subsistence farming that is done in a gender-sensitive way can improve and diversify the livelihood of the rural households and provide higher food security for the farming families.

Labour segregation in the small-scale farmers’ households and the low level of historical detailed data on it, sets forth an unclear current situation for women in rural agriculture in Guatemala. Regarding the sector-specific information required, the gender labour segregation in Guatemala possesses several distinctive characteristics that are discussed as a part of marketing structures in the corresponding chapters.

The absence of the conspicuous gender-specific breakdown in functional tasks has a twofold implication. It can indicate the “unaccountancy” for women labour in the household as there is no clear “task” that is assigned to women, and it points out that policy interventions targeted at any given production step in the sectors have potential to improve women’s position in the household.

The role of women in agriculture is not static and holds potential for providing better and more sustainable livelihood of the household. Subject to a more detailed discussion in Chapter 6, policies emphasising on downstream value addition and product differentiation can yield gender redistributive outcomes. However, it should be noted that in recent years, especially with the help of United Nations Entity for Gender Equality and the Empowerment of Women, World Food Program, Food and Agriculture Organization, International Union for Conservation of Nature and Helvetas, there is evidence of some farmers’ organizations that are mainly composed of women in Guatemala.

This chapter has provided a brief overview of Guatemala and outlines key trends in the socio-economic development and their relation to environmental and climatic concerns. Chapters 2, 3 and 4 summarize the agronomic, processing and marketing (both domestic and international) states of the studied sectors – potatoes, cocoa and cardamom respectively.
Chapter 2 Potato Sector

Potato is native to Guatemala, and it is estimated that over 36 varieties are being grown in the country. The high-altitude range for potato farming (1500 to 3600 meters above the sea level) and fast cultivation cycle (90-150 days depending on the altitude) engender the potato production to be widely spread throughout the whole country and be the fifth most important temporary/annual crop by the size of planted area—surpassed by white maize, beans, yellow maize and sesame (INE 2004). Based on the information collected for this report, three quarters of national production is concentrated in Quetzaltenango, San Marcos and Huehuetenango, providing permanent or semi-permanent employment activity to at least 70,897 families of which two thirds belong to indigenous ethnic groups. Nationally, about 88% of rural families cultivate potatoes at least on the level of a backyard crop, where every farmer decides on his own time for planting and harvesting. The overall prevalent crop cultivation calendar for small scale farming of potatoes by the broad geographic region category is presented in Table 2.

Currently there is a bi-modal trend of the types of potatoes cultivated in the country: the native creole varieties that are produced mostly for domestic local consumption, and varieties introduced from Peru and Mexico that are used for commercial production of higher value-added products. While the former varieties possess unique taste and consistency characteristics, they usually do not meet certain industrial standards and come in very diverse sizes and qualities, producing about twice lower harvest than the imported varieties. Additionally, it is estimated that only about 5% of the area planted with potatoes uses certified seeds. These two facts bound the use of unique indigenous potato varieties to serving mostly the subsistence needs of the population, while using imported (certified, semi-certified or non-certified) varieties for production of the higher value-added products.

Overall, the Guatemalan potato yield is relatively low at about 25 tons per hectare in a year, with a high risk of a further decrease in productivity; whereas the world average of 35 tons per hectare and productivity going up to 80 tons in Europe and North America. There are various factors that contribute to the current situation, including emergence and/or persistence of diseases and pests, unavailability of irrigation, growing climatic vulnerability and loss of biodiversity. One of the key factors that has persevered the low yield is the use of uncertified seed tubers. The cost of requiring certified seed use, increases the cost of agricultural inputs by about Q30,000 per hectare without the decrease of the manual labour costs (in money equivalent) per hectare but improves the potato yield by about 40% (about 35 tons per hectare) and decreases the risk of pests and diseases in the harvest.

Potatoes are a root vegetable that can potentially endanger biodiversity if not cultivated sustainably, as not only it is in general a monoculture that cannot be easily intercropped, but also drains minerals and elements from the soil at a fast pace. Crop rotation is hence important to achieve consistent or higher potato yields, and this is why it is part of the world Global Good Agriculture Practices (Global GAP) for the sector. In Guatemala, potatoes are commonly rotated with maize at lower altitudes. There is no information available on the magnitude of application of organic and non-organic fertilizers for potatoes in the country.\(^4\)

\(^4\) All fertilizers are registered at the Department of Registration of Agricultural inputs following the Government Decree 5-2010 “Law of Registration of Agrochemicals”, but there is no regulation of the limits/uses of them.
Uses and Processing

The relatively short cultivation cycle and high climatic niche for potato cropping allows potatoes to be cultivated on the plateaus and highlands of the country throughout the whole year, providing the fresh potatoes for subsistence consumption almost half of the year.

Low level of technological equipment available to the farmers increases the weight of the manual labour in potato production. The weight of manual labour is much lower in the farms that have irrigation systems, but it is available only for about a quarter of the farms. Due to the low level of presence of irrigation (less than 10% of potato fields are irrigated), potato farmers depend a lot on the rainy season and depending on the altitude they get two-to-three harvests per year.

After being harvested, potatoes are sorted into: seed tubers, potatoes for own consumption, and potatoes to be sold. For families in the studied regions, the breakdown is roughly 20-10-70 per cent respectively. This sorting is done ad hoc, usually with no rules, and most frequently at the family home. Interestingly, it is often done by women.

Annex I depicts the product chain for potato available worldwide, while in Guatemala small-scale farmers are only engaged into the fresh potato production. Rising population and internal migration in Guatemala contribute to the rising internal demand for both fresh potatoes and more processed potato products. To serve the internal market for higher value-added products, the large enterprises work with imported potato varieties of their own (e.g. Frito-Lay) or in leased plantations.

Even while the potato sector offers product diversification opportunities, production and exportation of fresh potatoes in Guatemala is deadlocked. This results from the existing long-standing low-value product market links, rising population in export markets at the end of these links, high cost of processing equipment and heterogeneous quality and characteristics of initial agricultural inputs (fresh potatoes) that cannot meet industrial demands. Due to the presence of different varieties and absence of a common standard of agricultural practices and product standards, there are not enough agriculture inputs available for processing into more value-added potato products.

Nationwide, only about 5% of the potato harvest is being processed. That share constitutes the inputs to produce artisanal potato chips by Alimentos C&P, Industrias Rick’s, S.A. operating through supply agreements with several farmers’ groups in the Western Altiplano, and Frito Lay operating nation-wide through contract farming with several large-scale producers. These contracts set very specific standards for the supplied products that they have developed for their own purposes.

As illustrated in Annex II, the potato sector has a variety of uses at secondary processing (primary processing being fresh potatoes). Fresh potato tubers can be frozen, transported to other areas or preserved for a later time. Or they can be processed for production of potato flour and used in the production of various foods and drinks. Potato flour is gluten-free and rich in protein, and in recent years has been a trend in developed countries. It has also been used as an addition to protein mixes in some countries to help solve malnutrition.
MAGA is responsible for potato seed certification, mainly as a quality control mechanism to verify that all seed potatoes comply with the prescribed genetic, physical, physiological and sanitary characteristics. However, there is a widespread practice of using non-certified potato seeds which undermines quality and productivity. Despite the challenges posed by such practice, there are ongoing efforts in the country that concentrate on the possibilities of homogenizing the potatoes cultivated in Guatemala.

MAGA operates as the Guatemalan seed authority through the administration of the National Seed Certification Service. The latter was instituted in 1961 by means of Governmental Decree. The specific mandate of MAGA involves regulation for seed production, certification, commercialization, supervision and coordination of efforts with other entities for the conservation of plant genetic resources. Its functions comprise the organization of a production system for private entities, promotion of quality seed use, processing and production control, quality analysis, seed trade audits, registry of varieties, and seed import control. The process of seed certification for potatoes is based on the general “Seed certification procedure manual”. Every seed variety released for agricultural use by a research centre (public or private) must be previously tested for purity, vigour and germination.

Independent from MAGA, the Science and Technology National Institute (ICTA) has contributed to the national agricultural development through generation and promotion of technology since 1973. Regarding potato seeds, ICTA has developed a three-stage methodology for the production of improved seed varieties. The techniques introduced have allowed for the elimination of viruses, conservation of potato varieties and exchange of germplasm. The technical expertise has been disseminated through technical leaflets such as leaflet No. 26 on “Storage of seed potatoes”.

In order to strengthen institutional capacities related to agricultural research in Guatemala, a harmonization initiated is under way funded by the US government. The program is titled Regional Consortiums for Agricultural Research (CRIA). The program is executed by the Inter-American Institute for Cooperation on Agriculture (IICA) along with MAGA. The main objective is to integrate the actions undertaken separately by MAGA, ICTA, and regional university research centres, to shape them into effective leaders in national economic development and reliable partners for international cooperation.

Additionally, there have been remarkable efforts conducted in the private sector by producers’ organizations such as the National Federation of the Potato (FENAPAPA). This association is conducting field research on the adaptation of new potato varieties to agroclimatic conditions in Altiplano Occidental region. Based on market requirements expressed by the United States Potato Board, FENAPAPA is evaluating potato varieties to develop local industries for potato processing aimed at export markets namely in the US. The organization has also established an agreement with the French company GERMICOPA for the introduction and evaluation of modern materials under conditions of the western highlands.
Marketing Structure

Native to Guatemala, potato production is deeply rooted into the peasant culture of the country. Being a traditional staple food, potatoes are grown in one way or another by almost 90% of Guatemalan rural or semi-urban farmers. It is a common backyard activity, while a great share of families have separate plots for potato planting. These plots of 0.16 to 0.25 hectares on average are often conjoint with each other and form a joint, bigger field. Most of the potato farmers live walking distance from the potato field, they also in general have only basic education that allows them to read and write, making them in general quite unlikely to move to urban areas.

Potato farming in rural Guatemala is higher in places with higher level of poverty, capturing the world trend of high reliance on this vegetable in the communities where it is grown. There is a number of farmers’ associations, but even in the prioritized departments they amount to less than 10% of potato farming families. Hired labour is not common among the potato-growing families, and they overwhelmingly use family approach to agriculture, using the labour of all household members at different stages of production.

Potato farmers in general plant other vegetables on other sides of their plot – most commonly broccoli, Brussels sprouts, French bean, sweet peas or Chinese peas. Some evidence exists that in recent years the market for these vegetables, despite being relatively small, highly fragmented and dispersed, have successful experiences of sub-contracting small-scale farmers for their surplus harvest. In these cases – apart from price and volume – these contracts regulate the seasonality of the harvest (specifying dates for planting and harvesting), the varieties planted, and practices followed. There is limited evidence on the presence and success of such schemes for the potato sector.

Overall, there are a number of farmers’ associations and NGOs that concentrate on providing technological and management assistance to farmers. So far, these activities hold strictly a private character. Whereas, MAGA is currently working on strengthening the extension services system and promoting its plan Family Agriculture Programme to Strengthen Rural Economy (PAFFEC) which promotes integral and sustainable rural development. At the moment, there are centralized multi-stakeholder efforts in Huehuetenango coordinated by Asociación de Organizaciones de Los Cuchumatanes (ASOCUCH) on value chain actor integration that are aimed at value-upgrading in local potato sector.

Potato farmers sell their product to local intermediaries who either sell it at the municipal level to retail chains or collect potatoes and transport them to bigger regional intermediaries who then ship it to El Salvador. Absence of a proper infrastructure system in most of the rural area limits the ability of farmers to reach intermediaries.

Turning to the role of women in the potato cultivation process, Guatemala provides an exception to the widespread idea of potatoes being principally a “male” crop. Among the surveyed households in the priority municipalities about half of the producers were women, and some of them were officially registered participants of the farmers’ groups and cooperatives. Aside from this notable exception from the widespread world idea of gendered potato cultivation, it was noted that women overall are more common to be put in charge of pre- and post-harvest supporting activities such as: seed tuber cutting and preparation (for sowing), ridging soil, harvest sorting for seed tubers, tubers to be consumed in the household and to be sold. The

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5 Notably, there about one third (38.3%) of registered potato producers in the departments of interest are women. There is anecdotal evidence of women potato farmers groups, but that is yet an exception. As potato farming is a traditionally male activity, in such men-dominated culture is most likely to indicate high dependency on potato farming among female-headed households.
absence of specifically female-led activities may be the virtue of the long-standing tradition of potato farming in Guatemalan small-scale farmer’s nuclei.

**Market Access in Global and Regional Trade**

The potato production is highly affected by the world trends in population growth and urbanization and tends to be country and region-specific. While domestic factors can indicate bottlenecks in production or marketing, the latter relates to the international trade conditions and trends – both at the regional and international level that can produce market opportunities for local products.

The growing world potato trade is explained mainly by two factors – a rising share of the urban population that demands more potato products and an overall increasing demand for different high value-added potato sector products, both for consumption and industrial purposes (FAO 2008). While potato cultivation is traditionally viewed as a developing country activity, developed countries are persistently importing more potatoes, consuming about one third of the world potato imports – as illustrated in Figure 5. Some developed countries\(^6\) have managed to achieve four times higher harvest per hectare than the average world productivity. Concerning the low-value added potato products – potatoes fresh and frozen – most of the world imports are directed also to the developing countries (70% in 2015).

![Figure 5: World imports of potatoes](image)


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\(^6\) For example, Netherlands, Germany.
Guatemalan potatoes are destined for internal and regional consumption only, in part due to the bulkiness of the low value-added product, and absence of proper documentation to export to other more regulated markets such as USA or Canada. Currently, from the highland small-scale farms it makes its way to domestic or – mostly – Salvadorian markets. The sector is generally producing fresh potatoes for consumption, which represents the low value-added, almost unprocessed product of the sector. The lack of homogeneity in domestically produced products is an impediment to the domestic production of the higher value-added potato products, which increases the imports into the country.

Guatemalan potato sector is not satisfying the absolute demand within the country – both for the fresh or frozen potatoes and higher value-added products. Potatoes and potato products are actively imported into Guatemala, and as shown in Figure 7, while the volume of exports is persistently higher than imports, the value is negative and decreasing. This implies that the unit-value per kilogram of exports is dropping relative to exports and indicates the decrease in the ability of Guatemalan potato sector to serve the rising internal demand.
Figure 7: Guatemalan exports of potato sector, by destination

Figure 8 and Figure 9 present correspondingly the breakdown by destination of potato export values and relative price. The potato sector exports are highly concentrated on El Salvadorian market, while achieving the lowest price per kilogram of export. This implies that the potato sector exporters sell products at their raw or near-raw state, and, with near low level of accompanying certifications (implying the general requirements on tracing and tests), to mostly El Salvadorian market; the products that have higher relative price – and higher level of certification – are being exported to other destinations, but in much lower quantities/values. This highlights the fact that Guatemalan potato sector would benefit from the introduction of a national certification standard.

Figure 8: Guatemalan imports of potato sector

Figure 9: Export unit value of Guatemalan potato exports, by destination


Market access for Guatemalan potato products benefits from a number of Regional Trade Agreements (RTAs) that Guatemala is a part of, and from benefits from the General System of Preferences from specific countries. Following the breakdown by-value for this study, Table 4 shows the duties applied to potato products from Guatemala before the tariff reduction in various trade agreements that are in force between Guatemala and some of the main trading partners. Except for the Free Trade Agreement signed with Mexico, these agreements have included progressive elimination of duties (base rate, %) for medium value-added agricultural products. As illustrated in Table 4 for most of the countries ad-valorem duty free is already in force, and from 2021, following progressive reduction of tariffs on exports to the Republic of China (Taiwan), will be ad-valorem duty free under all RTAs Guatemala is a party to.

Notably, a process of tariff escalation in potato sector is observed in the countries that produce and process potatoes themselves, even among the RTA partners. In that regard, Colombia, Mexico and Chile are examples of countries that have large producing capacity in potato sector, large internal market for high value-added potato products. In each of the countries the tariffs for higher value-added potato products are higher than for the lower and medium value products. This can be illustrated with the examples of Canada and Mexico (Applied ad valorem (%) or specific tariff) – the effective rates applied to imports of Guatemalan potatoes are relatively higher for the non-low value-added products.
Table 4: Tariff structure for Guatemalan potato sector exports

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<tr>
<td></td>
<td></td>
<td>Base rate (%)</td>
<td>Ad valorem duty-free from</td>
<td>Base rate (%)</td>
<td>Ad valorem duty-free from</td>
<td>Base rate (%)</td>
<td>Ad valorem duty-free from</td>
<td>Base rate (%)</td>
<td>Ad valorem duty-free from</td>
<td>Base rate (%)</td>
</tr>
<tr>
<td>Low value-added</td>
<td>060110</td>
<td>5.1</td>
<td>0.12.13</td>
<td>MFN</td>
<td>Exempt</td>
<td>0</td>
<td>13.11.09</td>
<td>Free</td>
<td>0.07.06</td>
<td>3.5</td>
</tr>
<tr>
<td></td>
<td>060120</td>
<td>6.4</td>
<td>0.12.13</td>
<td>MFN</td>
<td>10</td>
<td>0</td>
<td>13.11.09</td>
<td>Free</td>
<td>0.07.06</td>
<td>1.4</td>
</tr>
<tr>
<td></td>
<td>070110</td>
<td>4.5</td>
<td>0.12.13</td>
<td>MFN</td>
<td>Exempt</td>
<td>0</td>
<td>13.11.09</td>
<td>Free</td>
<td>0.07.06</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>070190</td>
<td>-</td>
<td>-</td>
<td>MFN</td>
<td>75</td>
<td>Exempt</td>
<td>20</td>
<td>Exempt</td>
<td>0</td>
<td>0.07.06</td>
</tr>
<tr>
<td></td>
<td>071010</td>
<td>14.4</td>
<td>0.12.13</td>
<td>MFN</td>
<td>15</td>
<td>15</td>
<td>0.01.19</td>
<td>15</td>
<td>0.01.21</td>
<td>14</td>
</tr>
<tr>
<td>Medium value-</td>
<td>110510</td>
<td>12.2</td>
<td>0.12.13</td>
<td>MFN</td>
<td>10</td>
<td>20</td>
<td>13.11.09</td>
<td>10</td>
<td>0.01.16</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>110520</td>
<td>12.2</td>
<td>0.12.13</td>
<td>MFN</td>
<td>10</td>
<td>20</td>
<td>13.11.09</td>
<td>10</td>
<td>0.01.16</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>110813</td>
<td>-</td>
<td>-</td>
<td>MFN</td>
<td>10</td>
<td>20</td>
<td>0.01.15</td>
<td>10</td>
<td>0.01.16</td>
<td>0</td>
</tr>
<tr>
<td>High value-</td>
<td>200410</td>
<td>14.4; 7.6; 17.6</td>
<td>0.12.13</td>
<td>MFN</td>
<td>20</td>
<td>Exempt</td>
<td>12.5; 18</td>
<td>0.01.21</td>
<td>6.4; 8</td>
<td>0.07.06</td>
</tr>
<tr>
<td></td>
<td>200520</td>
<td>8.8; 14.1</td>
<td>0.12.13</td>
<td>MFN</td>
<td>20</td>
<td>Exempt</td>
<td>12.5; 15; 18</td>
<td>0.01.16; 0.01.21</td>
<td>6.4</td>
<td>0.07.06</td>
</tr>
</tbody>
</table>

Source: UNCTAD Secretariat, based on the information from Foreign Trade Information System (FITS) of the Organization of American States, (*) Mexico tariff lines on potato-products are not specifically mentioned in the FTA, and can be included in further rounds of negotiations.
Agriculture exports tend to face also several non-tariff measures that impede trade flows from developing countries. Guatemalan potato exports face technical regulations, and sanitary and phytosanitary measures that relate to certain non-price characteristics of potato product. The specific requirements for potato imports are set mainly in domestic regulations or international standards and vary by destination. International standards are quite commonly “looser” than national-specific – “tighter” – regulations. Both the Agreement on the Application of Sanitary and Phytosanitary Measures (SPS) and the Agreement on Technical Barriers to Trade (TBT) provide the basic rules for state intervention when relates to international trade in goods.

The SPS Agreement addresses the appropriate application of food safety, animal health and plant protection measures – issues directly related to international agricultural trade and compliance with it is a fundamental requirement to export agricultural produce. The agreement promotes harmonization of both sanitary and phytosanitary measures when these measures are aligned to international standards, guidelines and recommendations formulated by relevant international organizations, such as Codex Alimentarius Commission, International Standardization Organization (ISO) and other organizations operating within the framework of the International Plant Protection Convention (IPPC). However, each country has a right to decide unilaterally its appropriate level of protection. In doing so, they are obliged to adopt only measures that are necessary to achieve specified objectives, are consistent, and apply in a non-discriminatory manner, minimizing negative trade effects.

<table>
<thead>
<tr>
<th></th>
<th>WTO</th>
<th>Codex</th>
<th>ISO</th>
<th>IPPC</th>
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<tbody>
<tr>
<td>Guatemala</td>
<td>Member</td>
<td>Member</td>
<td>Correspondent member(^7)</td>
<td>Member</td>
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</table>

The TBT Agreement sets the framework for the preparation, adoption and application of unilateral measures which amount to technical regulations, standards or conformity standards. It requests that state interventions that are not based on international standards to be necessary. Their implementation should be non-discriminatory, least trade restrictive and based on the available science, whenever effective and appropriate. The aim of the agreement can be understood as avoiding state interventions to impose disproportionate costs on international trade.

For example, all fresh potatoes imported into Canada, Mexico and US must undergo customs and phytosanitary inspections and be certified to meet certain requirements, which are nation-specific, and are illustrated in. The potatoes shall go through an inspection procedure in accordance with the applicable general tolerances set out. Notably, NAFTA countries have been implementing measures to reduce phytosanitary risk associated with the movement of potatoes into their common territories by implementing a Resource System Planning Model. This model gave rise to a regional (as NAFTA region) standard titled “Movement of potatoes into a NAPPO member country” with the IPPC standard ISPM 33 “Pest free potato (Solanum spp.) micro propagative material and mini tubers for international trade. While this is an on-going process, this trend indicates that issues related to certification and certification compliance – to either international, regional or national systems – for potato products is one of the key elements in successful potato exporting.

Compliance with the previously described NTMs implies costly processes that should be undertaken by public institutions and other stakeholders of the potato value chain. There has been a number of initiatives that have a similar approach - creation of a Regional Sanitary and Phytosanitary International Organization (OIRSA), adopted Sanitary and Phytosanitary legislation, created a Potato Value Chain Committee to tackle

\(^7\) Correspondent members observe the development of ISO standards and strategy by attending ISO technical and policy meetings as observers. They can sell and adopt ISO International Standards nationally.
seed quality deficiencies and promote the production, storage and use of certified potato seeds, developed and is implementing a system of agricultural extension services, and implemented a National Quality System and corresponding Guatemalan Standardization Commission. However, the food control system must be assessed in terms of infrastructure, equipment, systems development, personnel recruitment and training, technical assistance capacities, coordination systems and inspection capacity.

The following table summarizes the most crucial measures adopted by Canada, US and Mexico on the import of potatoes. In a separate box, the compliance costs of certification for potato producers and traders are explained.
Table 5: Key TBT and SPS applicable to potato sector in NAFTA countries

<table>
<thead>
<tr>
<th>Technical regulations</th>
<th>Canada</th>
<th>United States</th>
<th>Mexico</th>
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<tbody>
<tr>
<td>Fresh Fruit and Vegetable Regulations comprises the mandatory rules that every product, either imported or produced locally, supplied fresh to the consumer or for food processing shall observe. Consumer Packaging and Labelling Act establishes the requirements for the standardization of containers, the rules on packaging, the allowed and prohibited representations, declarations and advertisements; all matters relating to price marking, date and storage marking and the size and shape of containers for pre-packaged products.</td>
<td>Food and Drug Administration regulates the safety of substances added to food, as well as processing, packaging and labelling of all foods. Food Contact Substances details food packaging and food additives. All fresh articles must be packed in insect-proof packaging that has been preapproved by APHIS.</td>
<td>Official rule NOM-050-SCFI-2004 comprises a set of rules on the labelling of products destined for consumers in Mexico, regardless of their origin. NOM-008-SCFI-2002 defines the symbols and rules of writing for measure units which must be used by all industries. The agreement establishing risk mitigation measures for the importation of potato tubers into Mexico comprises requirements of weight and labelling for fresh potato imports for consumption.</td>
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| Sanitary and phytosanitary requirements | The Plant Protection Act comprises regulations for the control of pests, including restriction on importation of anything that is or could be infested with a pest or that could constitute a biological obstacle to the control of a pest. It also sets the guidelines to be observed by the Canadian Food Inspection Agency when conducting inspections on imports. Plant Protection Regulations establish the importation requirements for eradicating and preventing the spread of pests, including that the phytosanitary status of imports must be certified by the government of the country of origin of the | Code of Federal Regulations comprises all regulations of federal agencies, including phytosanitary treatments, plant health inspections, foreign quarantine notices, importation of seeds, and others. USDA APHIS website displays Fruits and Vegetables Import Requirements for all products from all origins allowed into the US. The US classifies potatoes as Not Authorized Pending Pest Risk Analysis (NAPPRA). Importers who wish to import must submit a request in accordance with the Code of Federal | Plan Health Federal Law provides the legal framework for the application, implementation and certification of risk reduction systems regarding the physical, chemical and microbiological contamination in the primary production of vegetables. The “Agreement to establish the phytosanitary requirements module for the importation of regulated products to the national territory by the Secretariat of Agriculture, Livestock, Rural Development, Fish and Food, regarding Plant Health” set an online transparency mechanism called |
product through a foreign Phytosanitary Certificate based on IPPC’s model phytosanitary certificate approved by FAO (IPPC 1997).

Various Policy directives:
- D-97-04 guides importers on how to apply for the required Permit to Import for regulated commodities, including potatoes;
- D-98-01 governs importation of field-grown seed potatoes, true seed, and potato plant parts for propagation into Canada;
- D-99-06 comprises the procedure for the issuance of phytosanitary certificates;
- D-12-02 sets the plant protection import requirements for potentially injurious organisms from all origins which may be harmful to plants.

Regulations. APHIS will develop a Pest Risk Analysis to determine whether importation should be allowed or not. The procedure may take several years. Potato tubers for example, may be imported into the US only from Australia, Canada, Dominican Republic, Japan, Republic of Korea, Liberia, Mexico, New Zealand, Philippines and Sierra Leone.

“Phytosanitary Requirements for Imports Consultation Module”. This database provides information on all phytosanitary measures implemented to reduce the risks associated with the importation of plants and agricultural commodities.

The “Agreement establishing risk mitigation measures for the importation of potato tubers into Mexico” introduced a series of specific phytosanitary measures for the potato sector including the use of certified seeds, the application of germination inhibitor, and inspection proceedings.

Source: UNCTAD Secretariat, based on information Animal and Plant Health Inspection Service, United States Department of Agriculture (United States of America), Canada Justice Laws Website (Canada), Unidad General de Asuntos Jurídicos, Secretaría de Gobernación (Mexico), accessed in July 2018.
It is impossible to cover all possible voluntary sustainability standard systems applicable to potato producers, traders, and producer organizations due to the complexity of the voluntary codes of practice. The costs of certification may vary depending on plot-size, number of crops, crop yield and other considerations. The following table lists key voluntary sustainability standards applicable to potato agricultural value chain and the monetary costs related to the certification process. Fees were calculated based on either a small plantation owned by a single farmer or a producer organization of maximum 25 members covering up to 1 hectare of land per producer.

<table>
<thead>
<tr>
<th>Organization</th>
<th>Standards</th>
<th>Description</th>
<th>Applicable to</th>
<th>Certification cost</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Application fee and first year</td>
</tr>
<tr>
<td>Fairtrade Certification</td>
<td>Fairtrade Standard for Vegetables</td>
<td>This standard applies to all Fairtrade vegetable producers and all companies that buy and sell Fairtrade vegetables</td>
<td>Producer Organizations Traders</td>
<td>€2,100</td>
</tr>
<tr>
<td></td>
<td>Fairtrade Standard for Small Producer Organizations</td>
<td>The requirements in this Standard apply to small producers that are part of organizations with formalized structures of management. The requirements acknowledge these internal structures and expect you to find the best means to guarantee your members’ continuous compliance.</td>
<td>Producer Organizations</td>
<td>€2,100</td>
</tr>
<tr>
<td></td>
<td>Fairtrade Trader Standard</td>
<td>The main goal is to allow traders to commit to supporting Fairtrade to benefit disadvantaged small producers and workers and increasing their access to markets.</td>
<td>Traders</td>
<td>€3,300</td>
</tr>
<tr>
<td>International Federation of Organic Agricultural Movements (IFOAM)</td>
<td>IFOAM Standard for Organic Production and Processing</td>
<td>Covers the areas of general organic management, crop production (including plant breeding), animal production (including beekeeping), aquaculture, wild collection, processing and handling, labelling, and social justice.</td>
<td>Producers and processors organizations of less than 1,000 farmers</td>
<td>€2,500</td>
</tr>
<tr>
<td>Global G.A.P.</td>
<td>Integrated Farm Assurance (IFA) and Approved Modified Checklists (AMCs)</td>
<td>Covers Good Agricultural Practices for agriculture, aquaculture, livestock and horticulture production. It also covers additional aspects of the food production and supply chain such as Chain of Custody and Compound Feed Manufacturing.</td>
<td>Single producer</td>
<td>€35.60</td>
</tr>
<tr>
<td></td>
<td>Producer Organizations (+ €1 per producer member)</td>
<td></td>
<td></td>
<td>€140.60</td>
</tr>
<tr>
<td>Harmonized Produce Safety Standard (HPSS)</td>
<td>Serves the needs of the United States fruit and vegetable producers, and those selling into the United States market.</td>
<td>Single producer</td>
<td>€35.60</td>
<td>€35.60</td>
</tr>
<tr>
<td></td>
<td>Producer Organizations (+ €1 per producer member)</td>
<td></td>
<td></td>
<td>€140.60</td>
</tr>
<tr>
<td>Crops for Processing</td>
<td>Covers crops that are slated to be frozen, juiced, used to make pre-cooked meals, and used for animal feed, among other types of processing.</td>
<td>Single producer</td>
<td>€46.20</td>
<td>€46.20</td>
</tr>
<tr>
<td></td>
<td>Producer Organizations (+ €1 per producer member)</td>
<td></td>
<td></td>
<td>€151.20</td>
</tr>
<tr>
<td>Rainforest Alliance</td>
<td>Sustainable Agriculture Certification</td>
<td>This standard is used to certify farms and producer groups involved in crop production.</td>
<td>Producers Organizations</td>
<td>Fees depend on the certification body</td>
</tr>
</tbody>
</table>
Chapter 3 Cocoa Sector

Cocoa grows between 200 and 900 meters above sea level, in soft humid climates (1500-3000mm per year) with temperatures between 21 and 26 degrees Celsius. It is shaded by other – taller – trees, to limit the damage the cocoa tree gets from the direct sunrays. Cocoa trees can grow not only on flat lands, but also on moderate slopes – up to the inclination of 16 degrees, making it spread throughout most of Guatemala. Depending on the type of tree nursery used, cocoa trees bear cocoa pods 2-3 years after being planted and produce cocoa for up to 15 years.

Guatemala is a secondary origin country for cocoa, where it has been grown for thousands of years. This has created a diverse genetic pool of local native varieties with its own unique taste and flavours that vary by region, altitude and climatic conditions. There is no official comprehensive organoleptic map available, which hinders collection of precise data, but it is estimated that the potential area that can be used for cocoa cultivation is 159419.08 hectares (5% of forest-covered Guatemala), but this study’s estimates show that as low as 3% was cultivated in 2015 – the figure that may highly underrate the actual cultivation area due to the presence of high level of subsistence backyard farming.

Cocoa trees can grow without high maintenance, with almost absent application of weeding and pruning – this makes the cocoa trees even more spread out throughout Guatemala, becoming a common “backyard” tree. However, this practice decreases the yield and the quality of the seeds produced; for consistent commercially acceptable cocoa at least minimal selection and consistent rules of harvest management and post-harvest management are needed. Among vast local genetic material, three varieties are most common – Creole, Stranger and Trinitarian – with no national statistics yet available on the actual distribution of cocoa planted for subsistence or commercialization among these groups.

Due to the improved global cocoa market situation and increasing demand for original cocoa flavours, in recent years a number of efforts have been undertaken. While historically there were experimental agricultural stations Los Brillantes (Santa Cruz Mulua, Retalhuleu) and Navajoa (Morales, Izabal) that were working on local varieties, they have been closed since 90s. The improved global situation and high agronomic potential of Guatemalan cocoa have pushed for the creation of “Grupo de Trabajo de la Agrocadena del Cacao” in MAGA, that has formed a multi-stakeholder “Strategic Plan for the Agrocadena del Cacao de Guatemala 2016-2025”.

The Plan is structured on four axes: improvement of productivity, strengthening value added generation procedures, organizational development for competitiveness, and market access. In terms of productivity, quality is set as a priority to increase the capacity and gradually meet demands of both national and international markets. Increasing productivity will allow to reduce cocoa imports for domestic processing industries. Improving the value chain directly involves strengthening agroindustry in the primary and secondary transformation and implementing a traceability system. Promoting organizational development involves capacity building, public-private partnerships, access to credit, as well as promoting inclusion in all corporate governance structures associated with the “Agrocadena del Cacao”. As implementation progresses, the plan aims at increasing Guatemala’s share in the international market, while it develops sustainable agroforestry systems which reduce its carbon footprint.

The cocoa working group of “Agrocadena del Cacao” has been forming the code of agriculture practices based on local experience and assistance from various international actors, enhancing the cooperation

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8 ANAKAKAW (Asociación Nacional del Kakaw) is an association of small scale farmers that operates on the marketing the different taste of the same cocoa type (see Box 9).
between small-scale farmers’ groups and private sector. Their work had a positive effect on the quality and quantity of the product, the decrease of the spread of cocoa diseases and reduction of harmful practices.

Regarding cocoa tree certification, there is currently no national certification scheme for cocoa, and several local initiatives among local farmers’ groups and associations emerged aimed at local plant selection and cultivation for commercial purposes. There are 12 nurseries identified in the prioritized municipalities that are created and used by the small-scale farmers’ organizations. This internal process of cocoa selection highlights the need for higher clarity in what types of cocoa are commercially demanded.

Cocoa trees can grow on their own, but the use of fertilizers can increase the number of cocoa pods per tree by up to 100%, leading to an incentive to use fertilization. While there are some private sectors’ practices on certifying the used fertilizers as “organic”, there are no common guidelines on the types and technics on the use of fertilizers, and farmers follow their own practices. Apart from possibility of leading overtime to soil degradation, use of different fertilizers can lead to different flavours of the cocoa bean.

In the studied municipalities it was found that the yield per ha. is almost half (156 kg/ha.) of the national average of 276 kg/ha. This coincides with the fact that the smaller the cocoa producer’s cocoa plot, the lower the level of technology used, the lower attention the plant receives resulting in decreases in yield. Lack of care of cocoa trees among small farmers is a major obstacle for increasing both quality and quantity of cocoa produced. Since the commencement of the cocoa working groups there have been programs implemented that are aimed at improving the attention to cocoa trees. A common and successful technic in improving cocoa harvest is intercropping it with other cash crops or using trees that can be commercialized (such as timber or fruit trees for example) as cocoa shade. While commercializing trees such as timber requires a long-term investment, this can potentially increase the attention that cocoa trees get, improve the amount of harvested cocoa, diversify the income of farming households and hence improve their livelihood.

**Uses and processing**

Not being a part of a basic human diet, cocoa is deeply engrained into Guatemalan food culture. It is hard to estimate the volume of cocoa that is produced at the backyard and consumed through domestic preparation of the cocoa drink, but such subsistence cocoa farming illustrates the deeply-rooted traditions of cocoa farming and high abundance of the production base and varieties of cocoa in rural parts of the country. In Agricultural Census 2014 it was estimated that in the prioritized departments about 1096 hectares are being cultivated with cocoa with a resulting harvest of 2408 tons from 14301 trees produced annually. It should be noted that this number could be biased due to proliferation of the backyard-farmed cocoa.

Cocoa beans, after being collected, should be fermented – a process that can be done by smallholder farmers – before being dried. Both processes – fermentation and drying – can affect the flavour that the bean acquires, therefore to acquire similar taste, all farmers should follow similar procedures.

As discussed further, the Guatemalan economy currently exports cocoa beans and cocoa butter, while importing high-value added products. Annex 1 provides a detailed possible product chain map of cocoa sector with its production stages. Now, the highest commercially sound product of the cocoa sector in Guatemala are cocoa nibs\(^9\). The production of higher value-added cocoa products is limited to the several artisanal local stores and chocolate boutiques in the large cities of Guatemala and Guatemala Antigua, where the highest share of tourists is concentrated. To upgrade cocoa sector products produced by the small-scale

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\(^9\) ANAKAKAW products are not certified to be organic or other type of VSS (see Box 3) while they follow a number of know-how acquired from different sustainable production technics.
farmers beyond this couple of stores, selection of certain types of cocoa and procedures for fermenting and drying should be envisaged and cultivated in the appropriate volumes for processing.

On one hand, the diversity of cocoa varieties complicates the commercialization of cocoa. For commercialization, and especially for higher value-added production, sufficient dried cocoa beans of similar taste and flavour are needed. On the other hand, this high diversity of tastes can be a plus for “niche” market players, such as boutique chocolatiers and luxury chocolate brands. These cocoa market players do not look for bulk volumes of cocoa, but rather for limited amounts of unique cocoa with unique flavours. For example, Cacao Verapaz links smallholder farmer associations of fine cocoa in Guatemala with specialty chocolate makers in the US such as Lake Champlain Chocolates, focusing on exporting the best cocoa beans produced by Maya farmers (Cacao Verapaz 2018). Nevertheless, even these high-end market players require certain amounts of homogenous cocoa beans.

The cocoa producing capacities of small-scale farmers are also being diminished by the competition from other agriculture products – such as sugar cane, rubber, coffee, African palm, mango – that creates further scattering and dispersion of the cocoa production, and from a certain “locking out” process of the production chains and processes developed among the medium and large cocoa farms, although several of them are integrated into the Association of Exporters from Guatemala (AGEXPORT), aiming at reaching the global markets with their products.
Box 3: Cocoa Certification

Cocoa trade, as any other food or food-related trade, is a subject to a variety of government measures – tariffs, regulatory requirements, or sanitary and phytosanitary measures aimed at the protection of human, animal or plant life or health from certain specified risks. The latter is given special attention in food or food-related trade at national and international level because of food-borne risks, pests and diseases. However, none of those measures are specifically directed to prevent biodiversity loses due to pollution, soil degradation or land conversion.

Voluntary sustainability standard system (VSS) provides a contrasting approach. In general, all VSS systems (as there are different types) are based on a similar approach - a non-governmental innovative approach to promoting sustainable production and business practices, driven by the appeal to final consumers. These initiatives are created to differentiate and drive up drive sustainable production and consumption by increasing market demand for sustainable products. The core of any sustainability standard system is a standard that defines “good” – or specific – social and environmental practices or performance in an industry of product. However, a standard itself is insufficient to drive change. Thus, each system is integrated by five fundamental components: standards, assurance, labels and claims, traceability, and capacity building.

- **Standards** specify requirements about a product or a process that producers, traders or retailers need to meet in relation to sustainability indicators;
- The Producers intending to meet a standard are assessed to determine whether they comply. Generally, **compliance** is measured through independent, third-party audits leading to certification;
- Most standard setting firm provides a **label or claim** on product packaging which is appealing to buyers and consumers. For example, UTZ cocoa or Fairtrade-certified chocolate;
- **Traceability** systems trace products from where they were produced, through the whole supply chain and through the final product to provide proof of origin;
- **Capacity building** is not always provided directly by standard setting organizations. Some provide capacity building services though partner firms to help producers, operators, or enterprises come into compliance with their standards.

Although, VSSs can deliver positive economic, social and environmental impact for small-scale farmers, the high costs of certification and compliance may easily result in increases in a prohibitive increase in production costs. As the observance of VSS has taken popularity in international trade, particularly in “niche”/boutique markets, there is a concern that these tools will end up functioning as disguised protectionist barriers. However, no agreement has been reached at the World Trade Organization (WTO) to regulate their use. All in all, certification demands of the markets should be considered as what they were developed to be: as non-governmental tools for achieving social and environmental change. There exist a variety of success stories on the demand of single-origin products.

- **Cacao Verapaz** sources the best fermented and dried cocoa beans from indigenous Maya and other cocoa producers in the lush tropical hills of Guatemala. All cocoa is centrally fermented and dried, carefully selected, and packed in high-quality jute sacks lined with Grain-Pro before export to fine chocolate makers. The small-scale producers who grow and later sell them the cocoa are in the process of certification, although most of them have never applied a chemical to their cocoa trees;
- **Lachuá Foundation (FUNDALACHUA) and the International Union for Conservation of Nature (IUCN)** have been working alongside in projects to tackle deforestation through capacity building to reduce poverty levels by developing alternative income generation activities, sustainable forest management, control and vigilance, and ecotourism. In 2013, FUNDALACHUA signed its first commercial agreement with Lake Champlain Chocolate, a US company committed to achieve increased transparency and traceability along the supply chain. Similarly, yet separately, UNDP has been supporting women cocoa producers in improving profitability of artisanal chocolate by promoting the recovery of cocoa plantations and implementing good agricultural practices in order to mitigate the effects of climate change.
Marketing Structure

Cocoa cultivation is a traditional agronomic activity, and most of the rural households in Guatemala have access to cocoa trees. Among these cocoa growing families, the surplus cocoa sale is common: cocoa is grown for their own needs along with other crops, and they sell the surplus produced. This leads to an overall association of cocoa sales among low-income households (on average less than Q1000.00 in the prioritized municipalities) and disassociation of it as an income source. The small size of the plot (in the prioritized municipalities the average size of the cocoa plot is 0.42 ha) and this disassociation leads to a very low number of farmers growing cocoa with an intentional surplus to be sold.

As explained earlier, fermenting and drying is crucial for preserving the consistent flavour and aroma of cocoa bean. In Franja Transversal del Norte, the fresh cocoa bean is collected from the small-scale farmers in several collection plots to enhance the homogeneity of the resulting product. Such organizations like IUCN, Fundasistemas Foundation, Heifer Project, ProPeten Foundation, FEDECOVERA and ANAKAKAW have taken the region-specific approach on reactivating and introducing technology the cultivation and primary processing among small-scale farmers of their respective regions.

The domestic demand for cocoa products outpaces the growth of the domestic cocoa bean sector, and the increasing volume of cocoa beans and higher value-added cocoa products is being imported from Honduras and Nicaragua through the international trading hubs of Coban, Santa Maria Cohabon and Guatemala City. Cobán and Santa Maria Cohabón municipalities in Alta Verapaz also act as the main export hubs for cocoa sector, with cooperative of the small-scale farmers of FEDECOVERA being the key player. In Quiche department, in the municipality of Ixcan, the key player is Fundalachua Foundation. In all other studied departments, cocoa beans collected are being used locally or regionally, which usually follows an ad hoc system of judgment of beans’ quality (i.e., they do not pay specific attention to the quality).

Being a secondary origin of cocoa, in some areas there is high tradition of consuming cocoa as a drink. This has ignited the creation of over 180 microenterprises in the region that produce the chocolate bars that are used for the production of the drink. With the underdeveloped local cocoa production base, the traditional use of cocoa for a drink also decreases the national supply of cocoa beans for higher value-added product segments. The local medium- and high-value added cocoa products use imported dried cocoa beans for processing as they are more homogenous and of consistent quality, taste and shape (as illustrated in Annex 1).

Data gathered for this report showed that there is no specific gender-division in cocoa growing in Guatemala. While worldwide women are involved in activities such as planting seedlings, collecting cocoa pods, transporting, fermenting and drying cocoa beans, in Guatemala there is no clear-cut task separation. The absence of specifically female-led activities may be the virtue of the long-standing tradition of backyard cocoa farming in Guatemalan small-scale farmer’s nuclei. Alternatively, it can be an indication of the unrecognized role of women as they balance backyard cocoa farming with household work and unequal access to training, inputs and education.

Cocoa farming is barely commercialized in Guatemala at the moment, and this can contribute to the absence of gendered separation in tasks and activities. Making the policy that improves cocoa commercialization possibilities gender friendly implies ensuring that half of the working age rural population – women – are able to participate in agriculture production chain and is not locked out from the opportunities and benefits of agriculture upgrading.
Market Access in Global and Regional Trade

The international cocoa market is the largest among the studied sectors and is the fastest growing internationally. Cocoa value chain is highly developed and fragmented globally, with exports concentrated in a handful of countries, and processing and consumption spread across the globe.

The cocoa value chain is globally very unequal – both in terms of bargaining power and distribution of revenues. It is highly fragmented at the primary processing (fermenting and drying) (‘Cocoa Value Chain | World Cocoa Foundation’ 2018), and highly concentrated at all other stages - secondary processing, exporting and marketing-enforced manufacturing. Such structure over the years has led to a diminishing share of cocoa revenue to small-scale farmers growing and doing primary cocoa processing. According to Ecobank estimates, the expansion of the global market and accompanying rising concentration in the cocoa value chains drove the share in final sale revenue of an average cocoa farmer from 16 per cent in 1980 to just 6 per cent in 2012. Similar (or greater) share is assigned to intermediaries between cocoa farmers and cocoa and chocolate companies. These chocolate companies (Mars, Mondelez International, Nestlé represent over two thirds of world chocolate trade) get the “biggest piece of the pie” with about 2/3 of the final cocoa product sale value.

In recent years, the market has been transforming towards a new, more inclusive supply chain that redistributes the revenues more in favour of the cocoa bean producers and therefore is fairer and more socially inclusive. The final consumption, especially in the developed countries, has turned from traditional bulk cocoa products to the boutique/niche cocoa products – this relates mostly to unique flavour single-origin chocolate products or products having voluntary sustainable certification (VSS certification). The market of cocoa products that qualify as “niche” or “boutique” is approximated to have grown steadily for the past couple of decades at a close to 10 per cent, overtaking the average growth rate of the cocoa market at 6-7% a year. The estimates on “niche” and “boutique” sales of chocolate differ, but while about 20% of cocoa-planted area is certified under one of the four most common standards (Fairtrade International, Organic, RA/SAN and UTZ) (ITC 2017), the final market share has not yet matched the existent upstream potential – US$886 million of the overall US$100 billion market. The presence of a multitude of VSS (they pick up different aspects of production) and existence of overlapping certifications makes precise estimates hard to acquire. Nevertheless, the rising number of smallholder cocoa associations that certify under some form of VSS or enter “boutique” cocoa value chain is a robust indication of the rising trend. Among final consumers (it is estimated that in developed countries about 85 per cent of final consumers buy chocolate) the recognition has risen too with about every third consumer buying at least occasionally unique flavour single-origin – commonly referred as “craft” – chocolate.

While on the cocoa market in Latin America there are such historically important players such as Ecuador and Brazil, special attention should be paid to Mexico – one of the major world exporters of the high value-added cocoa product – chocolate. Most of its production is linked to the major bulk traders, but in recent years Mexican products have been entering the international niche/boutique markets with 15,300 hectares certified for organic cocoa production.

Figure 10 confirms the fast-pacing growth of cocoa sector globally, and highlights that this growth occurs majorly in the high value-added part of the sector (e.g. final market of chocolate and chocolate-based products). Indeed, while the international trade of the bulkier and less processed product as dried cocoa beans has seen overall the rise (Figure 10), the volumes of this product traded internationally have been going down (Figure 11) – highlighting the new trends in traditional international supply chains of cocoa.
While historically growing many local cocoa varieties throughout the whole country, the sector falls short by far meeting the local processed cocoa product demands and does not have strong exporting presence. This highlights the missing opportunities for the Guatemalan economy on benefitting from the expanding international demand of cocoa products – being one of the secondary origin countries for cocoa and growing – overall growth of Guatemala cocoa export sector is about 350% (see Figure 12), close to the world average of 420% since 2000.

Cocoa exports of Guatemala, while seemingly enjoying growth, have been lagging the international market developments. Figures below show that while the value of Guatemalan cacao-related exports (apart from
the global trade slowdown post-effect) has grown since 2000 over 5 times of its initial value, the corresponding volume of sales has remained almost unchanged.\footnote{The year 2007 can be partially explained by the faulty reporting (or misinvoicing) that was ignited by the financial crisis and pluming dollar that is used for the commodity transactions.}

**Figure 12: Guatemalan cocoa-related exports by destination**

![Bar chart showing Guatemalan cocoa-related exports by destination from 2000 to 2016, with data for El Salvador, Nicaragua, Dominican Republic, Costa Rica, EU, Honduras, and USA.]


**Figure 13: Volume of cocoa-exports by destination**

![Bar chart showing volume of cocoa-exports by destination from 2000 to 2016, with data for El Salvador, Nicaragua, Dominican Republic, Costa Rica, EU, Honduras, and USA.]


In addition to the fact that relative price of the cocoa exports has been highly volatile (Figure 14) and high share of the almost raw products in the exports, it highlights the exclusion of Guatemalan cocoa exporters from the established global cocoa links and supply channels.
Following the value breakdown adopted in this study, Table 6 provides the tariff information on the RTA and non-RTA concessions to the main (or main potential) trading partners. Alike to potato sector, Guatemala is facing tariff escalation for the higher value-added products, as can be seen from the applied tariff rates to Canada and Mexico. Chocolate blocks, slabs or bars and other food preparations are taxed at 20% ad valorem tariff in Mexico; whereas imports of certain food preparations in Canada are taxed up to a maximum of 265%. A similar pattern is observed among other countries too with low and medium value-added products being a subject to lower tariffs than the high value-added products.

Table 6: Tariff structure for Guatemalan cocoa sector exports

<table>
<thead>
<tr>
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<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Base rate (%)</td>
<td>Ad valorem duty-free from</td>
<td>Base rate (%)</td>
<td>Ad valorem duty-free from</td>
<td>Base rate (%)</td>
<td>Ad valorem duty-free from</td>
<td>Base rate (%)</td>
<td>Ad valorem duty-free from</td>
<td>Base rate (%)</td>
</tr>
<tr>
<td>Low Value-Added</td>
<td>180100</td>
<td>Exempt</td>
<td>10; 15</td>
<td>01.01.14</td>
<td>Free</td>
<td>01.07.06</td>
<td>Free</td>
<td>Free</td>
<td>01.01.13</td>
<td>6</td>
</tr>
<tr>
<td></td>
<td>180200</td>
<td>Exempt</td>
<td>01.12.13</td>
<td>MFN</td>
<td>Exempt</td>
<td>10</td>
<td>01.01.14</td>
<td>Free</td>
<td>01.07.06</td>
<td>Free</td>
</tr>
<tr>
<td>Medium Value-Added</td>
<td>180310</td>
<td>9.6</td>
<td>01.12.13</td>
<td>MFN</td>
<td>Exempt</td>
<td>15</td>
<td>01.01.14</td>
<td>Free</td>
<td>01.07.06</td>
<td>Free</td>
</tr>
<tr>
<td></td>
<td>180320</td>
<td>9.6</td>
<td>01.12.13</td>
<td>MFN</td>
<td>Exempt</td>
<td>15</td>
<td>01.01.14</td>
<td>Free</td>
<td>01.07.06</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>180400</td>
<td>7.7</td>
<td>01.12.13</td>
<td>MFN</td>
<td>Exempt</td>
<td>15</td>
<td>01.01.14</td>
<td>Free</td>
<td>01.07.06</td>
<td>Free</td>
</tr>
<tr>
<td>High Value-Added</td>
<td>180500</td>
<td>8.0</td>
<td>01.12.13</td>
<td>MFN</td>
<td>Exempt</td>
<td>5</td>
<td>20</td>
<td>01.01.14</td>
<td>Free</td>
<td>01.07.06</td>
</tr>
<tr>
<td></td>
<td>180610</td>
<td>8*</td>
<td>01.12.13</td>
<td>MFN</td>
<td>0; 20; 326.59 USD/ton</td>
<td>20</td>
<td>01.01.15</td>
<td>2</td>
<td>01.07.06</td>
<td>10</td>
</tr>
<tr>
<td></td>
<td>180620</td>
<td>8.3; 15.4</td>
<td>01.12.13</td>
<td>MFN</td>
<td>20; 326.59 USD/ton</td>
<td>20</td>
<td>01.01.15</td>
<td>12.5</td>
<td>01.01.21</td>
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</tr>
<tr>
<td></td>
<td>180631</td>
<td>8.3</td>
<td>01.12.13</td>
<td>MFN</td>
<td>20; 326.59 USD/ton</td>
<td>20</td>
<td>01.01.15</td>
<td>11.8</td>
<td>01.01.21</td>
<td>5.6</td>
</tr>
<tr>
<td></td>
<td>180632</td>
<td>8.3</td>
<td>01.12.13</td>
<td>MFN</td>
<td>20; 326.59 USD/ton</td>
<td>20</td>
<td>01.01.15</td>
<td>11.8</td>
<td>01.01.21</td>
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<tr>
<td></td>
<td>180690</td>
<td>8.3</td>
<td>01.12.13</td>
<td>MFN</td>
<td>20; 326.59 USD/ton</td>
<td>20</td>
<td>01.01.15</td>
<td>5</td>
<td>01.01.11</td>
<td>3.5; 6</td>
</tr>
</tbody>
</table>

Source: UNCTAD Secretariat, based on information from Foreign Trade Information System (FITS) of Organization of American States; (*) RTA with Mexico does not include any provisions on cocoa, and it can be potentially included into further rounds of negotiations.
Possibilities of diversification in the high value cocoa products – apart from, in general, high fixed costs requirements – are thus also hindered by the tariff protectionism and make the niche/boutique sales of traditionally low and medium value-added products more appealing. Niche/boutique sales are associated with the premium that the consumers pay for the product when compared to the traditional bulk sales. This premium does not necessarily reflect the profits allocated to the value chain actors, but it highlights the existence of the market opportunities for agriculture products that are produced in low volume but with unique characteristics. While there is no centralized information on the breakdown of VSS certified cocoa products in Guatemala, it became apparent that currently small-scale farmers are excluded from access to niche/boutique market outlets (See Box 4).

Box 4: Self-organization, self-compliance and niche/boutique marketing

Kakaw National Association (ANAKAKAW) is an organization comprised by small scale producers from all over Guatemala, orientated to produce fine cocoa. ANAKAKAW is fully funded by its own private funds. Its operational structure is divided into four business units: i) Services; ii) Primary processing; iii) Secondary processing; and iv) Financial trusts.

The association has developed their own seedlings based on a careful selection and recovery process of native Guatemalan germplasm. Also, ANAKAKAW has introduced their own agricultural practices for preharvest and postharvest. In the absence of a national classification of cocoa beans, the association has created an internal distinction of three kinds of cocoa beans, differentiated by soil and elevation (0-500 m.; 501-900 m.; and 901-1500 m). Such classification has allowed the association to successfully replicate the production of either kind nation-wide, depending on the agroforestry system present in each geographical area. ANAKAKAW’s model is aimed at developing a business plan for developing Guatemala’s productive capacity. It comprises five components: i) Quality; ii) Sanitary and phytosanitary measures; iii) Agricultural good practices for cocoa; iv) Traceability; and v) Cocoa quality and transformation.

In 2017, ANAKAKAW had the capacity to produce only 2 tons per month, but Guatemala shows a deficit of about 850 tons of cocoa beans per annum. Using internal resources, the association has developed a medium value-added product (cocoa nibs) which is produced in line with the global rules for Rainforest Alliance VSS certification. At the current moment the association is establishing links to buyers in EU, Canada and US markets. The experience of ANAKAKAW illustrates the internal capacity in Guatemala for adaptation to VSS-like production (implying absence of proper certification) and presence of the entrepreneurial potential among local population.

Regional Certification Efforts

CUNAKakaw is a standard being implemented, adopted and monitored by the Meso-American Association of Fine Cacao and Chocolate (AMACACAO), which consists of exemplary cacao and chocolate companies from the traditional Mayan territories in Belize, El Salvador, Guatemala, Honduras, Nicaragua, and the South of Mexico.

CUNAKakaw aims at regenerating cacao and chocolate production in Meso-America together with a guarantee for quality products, managed under a strict Internal Control System. The standard covers cocoa beans and nibs, refined cocoa liquor and chocolate produced in the region. The standard covers private farms, cooperatives, artisanal and industrial chocolate makers from all the region united under a collective brand. In Guatemala, FEDECOVERA, Cacaos de Mesoamerica and Finca La Cruz use the brand to guarantee of quality, social and environmental responsibility.
The general principles and requirements of food law in the European Union are set in Regulation (EC) No 178/2002. The regulation established the European Food Safety Authority (EFSA) which shall provide scientific advice and scientific and technical support in all fields related to food safety. Additionally, the regulation provides a rapid alert system for the notification of risk to human health deriving from food, emergency measures and crisis management.

**Food Hygiene.** Regulation (EC) No 852/2004 comprises certain basic food hygiene requirements. Every food business operator in third countries is responsible for monitoring the food safety of products and processes. It requires that third countries after primary production must put in place, implement and maintain procedures based on the hazard analysis and critical control point (HACCP) principles and comply with applicable Community legislation or national law.

**Contaminants in foodstuffs.** Regulation (EC) No 1881/2006 explicitly imposes on suppliers the burden of ensuring that imported foods of non-animal origin comply with European legislation. Foodstuffs containing an unacceptable toxicological level are barred from entering the EU market. Maximum levels are set based on the advice of EFSA for the contaminates of greatest concern to EU consumers, either due to toxicity or potential prevalence in the food chain e.g. aflatoxins, heavy metals (cadmium), dioxins and nitrates.

**Maximum residue levels for pesticides (MRLs).** Regulation (EC) No 396/2005 defines a fully harmonized set of rules for pesticide residues. In the EU Pesticides database, the only MRLs applicable to cocoa products is classified under code number 0640000 (cocoa beans, fermented or dried, after removal of shells).

**Microbiological criteria.** Regulation (EC) No 2073/2005 comprises criteria to secure that foodstuffs do not contain micro-organisms or their toxins or metabolites in quantities that pose an unacceptable risk for human health.


**Labelling.** Regulation (EU) No 1169/2011 sets mandatory general rules on food labelling i.e. nutrition information on processed foods, highlighting allergens in the list of ingredients, better legibility, etc. Directive 2000/36/EC defines specific common rules for cocoa and chocolate products which complement the applicable legislation to foodstuffs.

**Phytosanitary requirements.** Regulation (EC) No 882/2004 authorizes the EU Commission to request third countries to provide accurate and up-to-date information on their SPS regulations, control and risk assessment procedures. These must be carried out in accordance with a control plan addressing potential risks enshrined in national laws of Member States. The regulation does not require third countries to have reference laboratories. However, laboratories engaged in verifying compliance with EU food standards must be accredited. Annex I to Regulation (EC) No 669/2009 implementing Regulation (EC) No 882/2004 list the foods of non-animal origin subject to controls at the point of entry into the EU based on known or emerging risks.

Regulation (EU) No 211/2013 requires certification to the import of consignments of sprouts or seeds intended for the production of sprouts, excluding sprouts which have undergone a treatment which eliminates the microbiological hazards.

**Additional buyer requirements.** Product-specific quality standards and Quality Management Systems (QMS) regarding the production and handling processes are not compulsory but usually requested as extra guarantees. There are two different kinds of certifications those applicable to processors and those for producer organizations and exporters. The former are HACCP-based and required by buyers, importers, food processors and retailers. The most important food safety management systems are recognized by the Global Food Safety Initiative. Whereas the latter are key for safe and traceable products.

European buyers usually develop their own Corporate Social Responsibility policies and codes of conduct to ensure good practices and address social and environmental concerns. In addition, there are also industry codes and Voluntary Standard Systems to guarantee compliance, such as Business Social Compliance Initiative and Social Accountability International.
Chapter 4 Cardamom Sector

Cardamom is not native to Guatemala, but the country possesses unique climate conditions for its cultivation, which may explain why it has been a long-time world-leading exporter (US$486 million in 2015, accounting for 54% of the world trade, followed by India and Nepal with 20% and 10%). Major difference between Guatemala and other countries exporting cardamom is that Guatemala does not consume it domestically and 99% of production goes to the international market, making it solely an income-extractive activity exposed significantly to international price fluctuations.

Cardamom is well-suited for small-scale forestry farming, and the global best practices tend to recommend around a 30-60% shadow of other trees depending on the stage of cultivation with later stages requiring less shadow. With a productive life span of tree at about 15 years, cardamom bears fruits on the third year, with the peak quality at 5-10 years. Cardamom production is not labour-intensive: after being planted around March - June (usually through rhizomes, while seed reproduction can produce better results but requires more time and preparation), it needs to be weeded and then harvested around through July-November with majority of harvest in October-November. The flower buds are light but need to be dried with fire quickly after harvested to preserve the quality of the product.

Cardamom cherry is produced in small piles by a multitude of farmers – over 350 000 families are taking part in initial harvesting, spread over Alta Verapaz, Quiché, Petén departments. This activity is seen as a cash-extracting activity, as there is little domestic demand or tradition on the use of cardamom. Families engaged in cardamom farming do so only as too receive income from the sale, and do not usually use it at home. After being collected, cardamom is mostly exported to the countries with a long-standing tradition of cardamom consumption (in coffee, food or as a scented incense or oil).

Cardamom cultivation requires large areas, preferably with forestry cover. This study indicates that while the production is spread among 350 000 small scale farming families approximately, in about 60% of the cases it is not under the forestry cover, which leads to the lower per hectare yields. In National Agricultural Census (2003) it was estimated that there was 46 276.3 hectares planted with cardamom. There is no data collected since then, however national experts’ estimates that are based on the expansion of the export volumes (according to COMTRADE Guatemalan export volumes increased 2.3 times since 2003 to 2015, while value by 3.08 times; in the same period the average world export price increased 2.3 times) and declining of product quality due to thrips, approximately the area where cardamom is produced amounts to close to 97 000 hectares.

Current productivity of cardamom plantations in Guatemala significantly lags behind world’s best practices of 60 quintals of cherry cardamom per hectare. This is met only by 1% of the plantations – only by the plantations located in Uspantan, Quiche, Coban and Santa María Cahabón, Alta Verapaz – while the rest of the producers have productivity of about 33 quintals per hectare.

Uses and processing

While cardamom is one of the worlds’ most expensive spices with a variety of final uses as described in Annex III, it is traded mostly as a dried grain. The colour, size and shape of the dried grain determines the quality of the product before it is processed into powder to be used as input into the final product (e.g. bakery, cosmetics). While addressing the quality improvement of exported cardamom, development of the internal market for cardamom products should be also addressed. Domestic market demand can help absorbing international price shocks and improve the “governability” of the local production chains.
After harvesting, cardamom must be dried within two days to preserve its colour, smell and flavour. The process of drying takes about 36-40 hours, and per 100 kg pile of cardamom drying about 0.5 m³ of wood is used; it has to be supervised constantly in the process. Cardamom can only be stored in the dry form, and while it is about 4-5 times lighter than non-dried, it has to be stored in specialized facilities to preserve the wholeness of the flower.

The need to preserve the flower in its original dried comes from the customary system of product quality detection for both exporters and importers. There is no universal cardamom quality standard, and the size, colour and integrity of the seed matter in order to determine the taste and flavour characteristics of the processed spice. The exporters use these characteristics to determine the presence of thrips infestation that has been spreading throughout Guatemala in recent years (see Box 6). With the absence of direct link to the cardamom farmer, this becomes the way to get the information on the possible export price (as price depends on quality). Similar logic is followed by the importers – the complexity of quality determination and maintenance of a crushed seed reinforces the dominance of international sales of non-crushed cardamom, or cardamom as a part of some other secondary processed product. While with the current technologies the equipment to test crushed cardamom quality can be developed, high buyer bargaining power and market concentration lead to reinforcement of the customary approach. All the above leads to cardamom being exported in the form of dried seeds, packaged in plastic bags, and then crashed at the importer/processor’s site.

**Box 6: Cardamom Thrips**

The cardamom thrips (*Sciothrips cardamomi*) is a destructive pest which lacerates the surface tissues from leaf sheaths, unopened leaf spindle, panicles, flowers, tender capsules and suck the exuding sap causing qualitative and quantitative losses of the cardamom flower. The life cycle of thrips is barely 25 to 30 days. Both larvae and adults affect cardamom.

It was first spotted in 2011 and is estimated that it has affected directly around 30 per cent of the harvest, between 15-50 per cent of every affected plantation in Alta Verapaz and Baja Verapaz. The department of Quiché has not reported the presence of thrips. These losses in plantations’ productivity evidence loss of genetic force caused by phyto-zoo-pathological problems.

The threat has called for international cooperation. The European Union contributed by developing a manual titled “Cardamom Thrips Integrated Plan”, which combines strategies and methods to manage pests in an economically sound and environmentally responsible manner. It comprises identification and monitoring of the plague, prevention methods and control. Similarly, the Canadian international cooperation has funded CECI and Uniterra program in their collaborative work with ADECAR in Cobán, Alta Verapaz to assess the effectiveness of the control methods in place through the work of a team of technicians led by the biologist Claudio Nunes. In parallel, MAGA, FEDECOVERA and CARDEGUA have launched joint efforts in combating this plague and resulted in the design of an integrated management calendar for cardamom cultivation.

Management of this plague has posed serious challenges given that it is exotic for Guatemala. There are cultural, mechanical, ethological, physical, biological and chemical methods, which may be recommendable depending on the economic damage caused by the plague, the geographic location, the effectiveness of less harmful methods and resources available.

The processing sites are concentrated in municipal centres of cardamom regions, from which it is transported mainly to Guatemala City – the main exporting hub for cardamom trade. Twelve of 13 cardamom exporting companies are operating from the city, serving about 70% of cardamom exports, while other companies are located in San Pedro Carchá and Cobán, both municipalities of Alta Verapaz.
Cardamom exporters in Guatemala have a very high exposure to cardamom world price fluctuations. Due to substantial lack of transparency in the sector and almost non-existent pass-through in the marketing system through intermediaries (see Box 7), an increase of the world cardamom price does not tend to benefit cardamom farmers, while in the opposite scenario, exporters bear all the losses from the drop. This non-transparency and lack of backwards linkages to the farmer has contributed to the loss of quality and increase in tensions among the cardamom farming communities as they lack the ability to assess the changing market situation.

The proliferation of the so-called thrips disease since 2014 multiplies the problem: the exporters mostly accept the price regardless of the quality of the product, which now has a high presence of thrips and leads to lower export gains and profitability of cardamom trade. With no backwards link from exporter to farmer to inform about the quality and price issues, this constitutes to the blockhead situation that can lead to the decline of cardamom sector.

**Marketing Structure**

Cardamom production in Guatemala relies fully on small-scale farming, involving about 350 000 families spread over the whole zone of cultivation in Franja Transversal del Norte region, mostly Mayan Q’eqchi. Countrywide, the drying process is performed by only about 2 000 processors, which makes their availability and accessibility depend on closeness or infrastructure and means of transportation. The shortage of processing plants is influenced by the size and cost of the tangible equipment, and the seasonality of the need for such services. Annex III illustrates the marketing chain of the cardamom production.

The cherry cardamom needs to be dried within two days of the harvest, and this creates the need for a processing facility nearby. This timely drying of cardamom defines the quality and colour of resulting cardamom spice and allows for storage up to about one year. Some farmers’ organizations have opted for investing in their own processing equipment, the so-called “benefit” i.e. a warehouse containing a cardamom washing machine, a cardamom dryer machine, and a cardamom-polishing machine. However, non-associated producers or organized producers without a benefit depend on the services of a processor and most of the times on an intermediary to transport their produce to the processing site. Afterwards, the producer or processor needs to sell the dried cardamom to the exporter, a relationship that usually spans over great distances and makes the role of intermediaries key in the marketing chain of cardamom production.

In many of the cardamom-producing communities, the links to intermediates represent the only opportunity to commercialize the cardamom production. Some producers are located in remote villages with poor road infrastructure, others are unable to dry or pack their own produce. The need for intermediaries is unquestionable; the difficulty exists in the excessive number of them, as in many cases the number of intermediaries between the producer and the exporter can go up to 8, and their influence in price fixation at the farm gate (see Box 7). Informal arrangements between the intermediaries create a high level of price stickiness at the farm gate or at the processing, and quite frequently at a fraction of the price paid at the world market. Furthermore, being the only link between the farmers and processors and exhibiting explicit non-market behaviour, they create an impediment for the information flow through the value chain. While this excessive reliance on intermediaries should be addressed, it should be taken into consideration that presence of some of them is necessary in case of remote farming communities.
Cardamom exports are highly concentrated. Information gathered for this study indicated that out of 13 registered export companies only 4 actively export cardamom yearly, with Asociación de Exportadores de Cardamomo (ADECAR) being the association of the smaller cardamom exporters. In recent years, a number of cardamom farmers’ associations and groups were created to tackle the problem of the intermediaries through the creation of processing facilities or improving the communication between the farmers and exporters. This has proven to be a successful arrangement that improves transparency of the value chain, provides access to information for the farmers and improves the quality of the product.

Multiple intermediaries are present across the cardamom value chain: between the farmer and the processor, and between the processor and the exporter. They act as logistical service due to poor infrastructure in the cardamom planted area and hence are fundamental for the sector: usually buying unprocessed product from farmers at the farmgate and then either processing it themselves or selling it to a processor. Subsequently, the dried cardamom must be linked with packers and exporters.

Guatemala is the only country in Central America that still has neither competition policy/legislation nor a competition authority that can enforce this legislation. Existing authorities lack the necessary tools to address anticompetitive practices which emerge due to the lack of legislation and enforcement e.g. price fixation. In the context of intermediaries, they take advantage of asymmetric information and power – the lack of cartel regulations allows intermediaries in certain geographic areas to overtake the full control of the production chain: control the distribution of revenues, interrupt the flow of information to their benefit, fix the price at their convenience eliminating the pass-through of world prices. It should be noted that the market information on the consequences of thrips presence and value decline caused by it is also not being transmitted through such intermediaries.

Although de facto not illegal in Guatemala, globally price fixation constitutes in general an anti-competitive practice since it suppresses competition and distorts trade links. From the first shipping transaction, the intermediary restricts competition by paying the producers a non-market based farmgate price, regardless of the quality of the product. Given that on many occasions intermediaries may be the principal (if not the only) transport alternative, they possess disproportionately high bargaining power over the markets in which they operate. In most cases, even when alternatives exist, they also operate under the same conditions. Such practices disincentivize value-addition by producers themselves because the farmgate price they get barely covers the operation costs of drying cardamom. Hence, in Guatemala, the key problem is not the lack of drying equipment per se, but inability of getting fair benefit of processing cardamom. This implies that even if cardamom is dried, the gross profit producers make is almost similar to selling cherry cardamom: benefit of processing cardamom becomes negligible. Additionally, it is quite common for these cartel-like intermediaries to be also processors, and they are motivated by personal benefit of acquiring cheap inputs for their own processing businesses. These collective actions restrain reciprocal benefits from business activities along the cardamom agricultural value chain in Guatemala: both horizontally and vertically. Horizontally, it constrains numerous independent entrepreneurs competing in the same level of a business industry from gaining profits from their activity. Vertically, it distorts the information on the market success and creates disincentives for quality or value upgrading. While providing logistic benefits to the sector, this cartelling behaviour harms more than benefits the sector, and creates the need for a regulation that can reduce the high power of logistic intermediaries, the so called “coyotes” as they are commonly known.

This high level of value chain non-transparency puts all the market risk on the exporters working with such chains but enhances profits of the intermediaries, while delivering low and unfair revenues to the farmers.
Federación de Cooperativas de las Verapaces (FEDECOVERA) is an example of successful farmers’ association for the economic and social development of smallholders. It is a second-level cooperative structure present all along “Franja Transversal del Norte” which groups a series of autonomous and democratic legal entities, who own land and grant their associated producers the right of usufruct over plots. Every first-level cooperative constitutes a vehicle capable of channelling the agricultural production of its members to agroindustry to obtain the highest level of profit. Additionally, FEDECOVERA provides its affiliates with technical assistance, credit assistance, legal advice, accounting services, health assistance, planning and project development, agricultural entrepreneurship training and other services. The production scheme is structured as a value chain in which all the associates represent the producers, who benefit from training and technical assistance, the cooperatives act as collectors and perform the drying of the cardamom, to then sell it to FEDECOVERA, adapts the product to meet consumers’ standards either by classifying the cardamom according to its quality, packing or even transforming it into cardamom oil.

Guatemalan production of cardamom exhibits different trends from the native cardamom-producing countries (e.g. India, Bhutan, Nepal). In these countries, cardamom production is heavily reliant on women’s labour, including mid-season and post-harvest activities; whereas in Guatemala women are usually in charge of specific tasks related to cultivation and harvesting. An additional impediment to women participation in the sector is the need to deal with the intermediaries. The culturally imposed role of women in society puts them at disadvantage dealing with intermediaries (overwhelmingly males) and trying to bargain for a fairer price. While globally cardamom is more of a “female” crop due to its light weight – women can not only harvest it, but also carry it to the dryer – in Guatemala women participation is less than 5% of the sector.

**Market Access in Global and Regional Trade**

While cardamom is produced only in a handful of low- or middle- income countries such as Guatemala, India and Tanzania, its consumption is mostly concentrated in high-income countries (see Figure 15). There is a high level of mismatch between the countries producing and consuming cardamom worldwide, partially because its high dependency on very specific climatic conditions, and also because of the distinct use patterns.

International cardamom trade has a high influence of the exporter-importer relationship. The particularity of the favourable climate beneficial for cardamom production and specificity of its use, makes its global market relatively small compared to the other two sectors studied. According to COMTRADE as of 2015 Guatemala still occupies the top position with US$240 million international trade, followed by India (US$80 million), but India is catching up due to increased demand (including domestic demand which allows to absorb export price fluctuations) and improved productivity. In that regard to keep the world leading position, Guatemalan cardamom production needs to address the falling quality and productivity rates (e.g. through addressing the issue of thrips). In like manner, the cardamom import market is highly concentrated regionally in MENA countries, driving buyer power up. As a result, concentration on both sides of the international trade market – subject to the quality level of cardamom produced – constructs the international trade of cardamom as a system of long-term exporter-importer links.

While the global market of cardamom has grown more than twice between 2003 and 2015, the centralization of its final consumers in core markets have also biased the growth – cardamom consumption in MENA countries grows almost twice faster than in other destinations. This and the mentioned before customary rule on exporting cardamom in its non-crushed form (see Figure 16) creates circumstances under which cardamom production – despite having multiple possibilities of final use diversification actually has limited options of diversification in the current system of international trade links. Notably, this changing trends in traditional cardamom trade are confirmed by the statistic on the exports of crushed cardamom, where Guatemala occupies only the 5th place, with India at the top position, and three cardamom non-producing...
countries in between – Netherlands, Sweden and Germany. The developed countries markets are continuously gaining importance as cardamom processing hubs.

This highlights the new potential global markets for cardamom final products should include the non-traditional (as per non-MENA) developed markets such as EU or other Latin American countries. Remarkably, the current price dynamics of Guatemalan cardamom exports exhibit certain tendencies towards developing new export destinations already. While the unit price of Guatemalan cardamom exports across regions has been relatively similar over time (see Figure 18), the export markets that have seen highest growth in both value and volume of cardamom are Spain, France, Netherlands and Great Britain (Figure 19). As indicated in Annex III, there are such products as baked goods, cosmetics, tea and coffee and etc. that can be produced with cardamom and then be exported. Considering the other sectors of this study, one of the possible products that can be explored is cardamom-flavoured chocolate.

Figure 15: World imports of cardamom by income groups


Figure 16: Exports of cardamom by type

**Figure 17: Regional breakdown of Guatemalan cardamom exports (value)**


**Figure 18: Regional breakdown of Guatemalan cardamom exports (price)**

Source: UNCTAD Secretariat calculations, based on COMTRADE data, accessed July 2017. Cardamom exports as exports of both non-crushed and crushed cardamom. Export price is defined through unit values – USD per kilo of the product.
Figure 19: Changes in the Cardamom export price and value ratio, by destination, 2000 to 2015

Source: UNCTAD Secretariat calculations based on COMTRADE data, accessed July 2017. Cardamom exports as exports of both non-crushed and crushed cardamom. Export price is defined through unit values – USD per kilo of the product.

The difference between crushed and non-crushed cardamom has only been introduced into the Harmonized System (HS) 2012, and there is no distinction between their tariffs. Evidently, this breakdown can be exploited in further negotiations. This low (or nil) tariff is present across all destinations, including the major Gulf Cooperation Council (GCC) importers. Different situation is observed in tariffs on the products that use cardamom as part of its inputs (e.g. chocolate, tea, or coffee which are illustrated in Table 7) that indicates tariff escalation for the medium and higher value-added agriculture products.

SPS and TBT treatment of cardamom – crushed and non-crushed – is very favourable, as during the production process it goes through a heat-induced dehydration process that eliminates many of the food safety concerns. The colour of the product by itself is indicative of the conditions in which it has been cultivated and kept, and hence it faces low level of SPS and TBT measures compared to most of other agriculture products. The products that use cardamom as an input are however as likely as other agriculture products to face SPS and TBT measures.
Table 7: Tariff structure for Guatemalan cardamom sector

<table>
<thead>
<tr>
<th>Type of cardamom product (as per report)</th>
<th>HS6</th>
<th>EU (in force since 01.12.2013)</th>
<th>Mexico* (in force since 01.09.2013)</th>
<th>Colombia (in force since 13.11.2009)</th>
<th>Republic of China (Taiwan) (in force since 01.07.2006)</th>
<th>DR-CAFTA (in force since 01.07.2006)</th>
<th>Panama (in force since 20.06.2009)</th>
<th>Chile (in force since 23.03.2010)</th>
<th>Dominican Republic (in force since 15.10.2001)</th>
<th>GCC countries (***)</th>
<th>Base rate (%)</th>
<th>Ad valorem duty-free from Base rate (%)</th>
<th>Base rate (%)</th>
<th>Ad valorem duty-free from Base rate (%)</th>
<th>Base rate (%)</th>
<th>Ad valorem duty-free from Base rate (%)</th>
<th>Base rate (%)</th>
<th>Ad valorem duty-free from Base rate (%)</th>
<th>Base rate (%)</th>
<th>Ad valorem duty-free from Base rate (%)</th>
<th>Base rate (%)</th>
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<td>Low value added</td>
<td>090831</td>
<td>Exempt 01.12.13</td>
<td>-</td>
<td>20</td>
<td>10</td>
<td>13.11.09</td>
<td>Free</td>
<td>Free</td>
<td>0</td>
<td>20.06.09</td>
<td>6</td>
<td>23.03.10</td>
<td>MFN (14.08.98)</td>
<td>15.10.01</td>
<td>Free</td>
<td>5</td>
<td>oggle rounds of negotiations; (***) Saudi Arabia, United Arab Emirates, Kuwait, Qatar, Bahrain and Oman.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Medium value added</td>
<td>090832</td>
<td>Exempt 01.12.13</td>
<td>-</td>
<td>20</td>
<td>10</td>
<td>13.11.09</td>
<td>Free</td>
<td>Free</td>
<td>0</td>
<td>20.06.09</td>
<td>6</td>
<td>23.03.10</td>
<td>MFN (14.08.98)</td>
<td>15.10.01</td>
<td>Free</td>
<td>5</td>
<td>oggle rounds of negotiations; (***) Saudi Arabia, United Arab Emirates, Kuwait, Qatar, Bahrain and Oman.</td>
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<td>Special lane</td>
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<td>20</td>
<td>10</td>
<td>01.01.15</td>
<td>15</td>
<td>01.07.06</td>
<td>1.9</td>
<td>01.07.06</td>
<td>6</td>
<td>01.01.20</td>
<td>MFN (14.08.98)</td>
<td>15.10.01</td>
<td>5</td>
<td>None</td>
<td>oggle rounds of negotiations; (***) Saudi Arabia, United Arab Emirates, Kuwait, Qatar, Bahrain and Oman.</td>
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<td>High value added, used cardamom</td>
<td>180690</td>
<td>8.3 01.12.13</td>
<td>-</td>
<td>20; 326.59 USD/ton</td>
<td>20</td>
<td>01.01.15</td>
<td>5</td>
<td>01.01.11</td>
<td>3.5; 6</td>
<td>01.07.06</td>
<td>6</td>
<td>MFN (14.08.98)</td>
<td>15.10.01</td>
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<td>oggle rounds of negotiations; (***) Saudi Arabia, United Arab Emirates, Kuwait, Qatar, Bahrain and Oman.</td>
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<td>6</td>
<td>MFN (14.08.98)</td>
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<td>Free</td>
<td>5</td>
<td>oggle rounds of negotiations; (***) Saudi Arabia, United Arab Emirates, Kuwait, Qatar, Bahrain and Oman.</td>
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Source: UNCTAD Secretariat, based on information from Foreign Trade Information System (FITS) of Organization of American States; (*) RTA with Mexico does not include any provisions on cocoa, and it can be potentially included into further rounds of negotiations; (**) Saudi Arabia, United Arab Emirates, Kuwait, Qatar, Bahrain and Oman.
Chapter 5 Upgrading trajectories

Chapter 1 has summarized the development state and the need for addressing rural transformation of Guatemala in a systematic way. Using the analysis performed in Chapters 2-4, this section outlines the upgrading and diversification options for the studied sectors.

Value-addition and diversification strategies can catalyse the sustainable structural rural transformation. As highlighted in the preceding chapters, the competitiveness of Guatemalan potato, cocoa and cardamom sectors is affected by a combination of a decrease in productivity due to quality issues and the volatility of primary commodity prices. To boost the traditional rural economy of Guatemala, policies directed at upgrading and diversification in these sectors need to not only address current challenges, but also entice systemic rural transformation. Best practices of sustainable agriculture enhance rural transformation through provision of new non-farm income opportunities to rural areas (FAO 2017). The studied sectors offer a variety of options for diversification through agricultural upgrading, small and medium agro-processing, artisanal and handicraft enterprises, and tourism. Commercialization options to engender these processes should include any or a combination of the following options: product diversification through designations of origin, compliance to existing voluntary sustainable standards, packaging and brand strategies, small scale downstream processing to serve local markets. These options can benefit from demand-side drivers such as linking the existent sector capacities to boutique buyers, hospitality industry (hotels, restaurants, etc.), local stores, coordinating existing farmers’ groups and training them on the export processes. Using these can offer viable options for harnessing the synergies between the traditional subsistence-oriented production and non-farm income options in the rural economy.

The high potential of these demand-side options for enhancing rural transformation cannot be separated from solving some of the supply-side challenges. Addressing these challenges requires a multi-stakeholder approach under the principles of sustainable agricultural trade policy. Therefore, below we provide the analysis of the foremost supply-side questions identified throughout the background work for this study and fact-finding missions, and the ways they can be addressed within a sustainable agriculture trade policy framework.

Question of industrial demand requirements

The summary analysis provided in previous chapters has highlighted the need for a more homogenous primary product in the studied sectors, in terms of type, quality, or both. It should be noted that quality is a result of not only genetic material, but also care and skills that are applied on all production stages. This implies that apart from being concerned with agricultural inputs used by the small-scale farmers, also their skills should be addressed in order to ensure the agriculture production to be inclusive of small-scale farmers.

Despite traditional views, agricultural industry is not insulated from manufacturing – the interconnection goes beyond the food and foodstuffs production into chemicals, cosmetics or other products. These industrial links can provide additional opportunities for employment and high value-added generation. However, processing of high value-added products requires high investments into human and capital and may not be feasible as a short-term industrial plan. Regarding the primary agriculture inputs, the key requirement relates to the homogeneity of agricultural products.

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11 See Annexes on the product maps in the studied sectors.
Among potato and cocoa small-scale farmers, there is a very diverse genetic pool in the local production base. In combination with the overall present varied pre-harvest and post-harvest technics, genetic diversity creates a very heterogeneous upstream input base for the product processing, hindering the secondary processing of materials acquired from the small-scale farmers. Creating national regulatory structures that protect small producers and enables them to receive profits from their activity without providing monopolizing powers to the large, multi-national, vertically integrated agro-industrial enterprises is hence the challenge that needs to be addressed.

While there are some efforts undertaken by private and public entities, particularly MAGA, to promote Good Agriculture Practices (GAP) and Good Manufacturing Practices (GMP), they must be adopted at national level as general compulsory rules.

The adoption of the GAP practices in the short term can build the basis for higher medium-term inclusion into the global agriculture value chains through value upgrading of local products. Current practices are very diverse and in Guatemala lead to greater heterogeneity of primary products in potato and cocoa sectors. This heterogeneity inhibits the value upgrading in the agricultural sector as it is prohibitive for secondary processing, such as production of potato chips or potato flour of the same consistency, chocolate butter or other higher value-added products. Regarding cardamom, promotion of these practices can increase yield per hectare, and help controlling the spread of pests and diseases such as thrips.

It should be noted, that these issues should be addressed in a way that preserve biodiversity, limit the degradation of natural resources, restrict and protect from pests and diseases, while also creating legal requirements on food safety, food contaminant levels, extraction solvents and labelling.

Selection should consider such conditions as:

- Taste characteristics;
- Qualities of consistency (for potato – starch consistency, flavour and “mouth-feel” characteristics; for cocoa – bitterness, aroma, texture; for cardamom – shape, size and colour of the dried cherries);
- Practices that have to be followed to cultivate this product;
- The possible volumes that can be cultivated and whether that is enough for commercial purposes.

For potato and cocoa sectors, the selection of varieties that are most suitable for commercialization is advised to increase higher uniformity of small-scale farmers’ products. For these sectors, the existence of many native types of potatoes and cocoa in Guatemala, and sometimes the characteristics of the product depend on very specific climatic and geographic conditions. It is important to consider the potential volume of the specific product that can be reached. There are certain volumes that have to be reached to serve the demand. For example, it has been identified that the consistency and volume combination is the key parameter for value upgrading of potatoes.

With regards to affordable seed certification, existent private nurseries currently produce seedlings at a price that is prohibitive for the small-scale farmers, and only 0.5% of potatoes are produced using certified seeds. While in general the long-term goal should be the sufficient provision of certified seed, it is a widespread practice of using multiplication of the certified seed to make it affordable for the small-scale farmers, and this has been a part of the activity of the Science and Technology Agricultural Institute (ICTA).

However, introducing multiplication and selection techniques into agricultural production chain should be done at the same time as the introduction of traceability considerations. Following traceability
principles is important for confronting regulations in export markets or conforming to private standards (see Box 3).

Efforts aimed at quality improvement of Guatemalan potato, cardamom and cocoa products should, in the long-term, focus on creating and meeting market standards. In the short-term, however, these efforts should concentrate mostly on building a consistent domestic market standard. Transparency in rules and standards in agricultural value chains will not only enhance internal business capacities, but also attract foreign investors able to assess unique market opportunities of Guatemalan products.

**Question of institutional capacity and transparency**

Providing policy framework that facilitates the engagement of small-scale farmers in a sustainable way is one of the key tasks of the policy makers that aim at sustainable agricultural trade enabled revitalization of the rural economy (FAO 2014a). This is by far a complex task that requires a multi-stakeholder approach and a two-way information flow between stakeholders who face a number of key challenges.

A first challenge is to provide a coherent policy space between trade and agricultural policies, and natural resource management. In the presence of a National Development Policy and Plan: K’atun Our Guatemala 2032 and current built-in capacity within each ministry, a number of policies have been enacted to set a framework of policies and strategies in line with major development goals. In that regard, the Rural Development Integral National Policy (PNDRI), the Agricultural, Fisheries, Forestry and Hydro biological Policy, and the Economic Policy contribute to the design of sustainable production models, which must be culturally pertinent with regards to agriculture and forestry and have a vision for human development in rural communities. Next, the National Policy on Food Security holds among its aims the goal to strengthen the productive chains and to decrease the level of intermediation between producers and consumers. The National Policy for the Promotion and Integral Development of Women and the Equity Plan emphasize on the search of funding destined to cover women’s entrepreneurship projects, particularly in rural areas. Additionally, the National Strategy for the Restoration of Forestry Landscapes is based in restoration measures inspired in income-generating alternatives under a productive perspective to contribute to the competitiveness of agroforestry systems. However, implementation is not so clear-cut – to ensure successful implementation, the coordination of efforts and reinforced commitment of many government institutions mandated to advice on sustainable development is required. At the moment, these efforts consist of formation and functioning of:

- The Presidential Secretariat for Planning and Programming (SEGEPLAN) is the public entity in charge of planning, providing technical assistance and advice to the Executive Branch of government and the Development Councils System to link public policies, planning and programming with the national development policy and plan;
- The Presidential Secretariat for Women (SEPREM) is mandated to advice and coordinate public policies to promote the integral development of women;
- The National Competitiveness Program (Pronacom) is mandated to facilitate inter-institutional alliances between public and private sectors, civil society and academia to develop competitiveness in the context of human capital and enterprises to generate investment, promote decentralization and improve living standards;
- The Agricultural and Farming Development National Council (CONADEA) is a unit of MAGA designed to facilitate the interaction of the ministry with all non-governmental institutions and organizations involved in the agricultural sector to organize agricultural chains and to form working groups to allow the formation of spaces to promote dialogue in which all actors may be represented;
The Urban and Rural Development National Council (CONADUR) is responsible for organizing and coordinating public administration through the drafting of urban and rural development policies, as well as land-use planning. Facilitating regular cooperation between these bodies in trade-related agricultural policies is therefore an important step in improving institutional capacity and transparency in Guatemala. This implementation framework coupled with a review and endorsement of recommendations contained in this study is encouraged to ensure a smooth progress towards sustainable agriculture and the achievement of Sustainable Development Goals.

A second challenge in sustainable agriculture is to improve the link between government institutions and other stakeholders in the sectors. Endorsing such multi-stakeholder initiatives such as the Sectoral Table of the Potato of the Department of San Marcos and the Agro-alimentary Chain of the Potato of San Marcos and Quetzaltenango,12 bringing together research institutions, academia, industrial actors and government can provide the ground for planning and formulating appropriate trade policies and boost rural agriculture. Such efforts share the ultimate objective of targeting poverty and exclusion of vulnerable groups and protecting the environment. In that regard, government institutions and other stakeholders shall consider formulating national guidelines for Good Agricultural Practices (GAP) to inform and guide small-scale farmers. Formulating these practices to fit Guatemalan conditions, specifically small-scale farmers, will improve their position in the agricultural production chain through limiting the buyer/off taker/intermediary-driven requirements on products, allowing for more “small-holder friendly” requirements. Note that improving the link between government institutions and other sector stakeholders can also tackle the negative effects of cartel behaviour of intermediaries described in Box 7; and help formulate regional and sectoral plans of action with concrete policy goals and actions that can be sustainably implemented.

A third challenge for sustainable agriculture relates to improving information provision (and cooperation) at the primary level - between the smallholder farmers. As discussed, the studied sectors are: heavily dependent on small-scale farming, spread throughout Guatemala, and are the main activity of the most remote regions of Guatemala where access to technology, capital, education, and infrastructure is the lowest. These limitations can be overcome by creating self-governing groups; namely, farmers’ groups and associations, well recognized as vital instruments in achieving SDGs (FAO 2016a). Farmers groups, associations and other voluntary organizations support members in becoming more productive, adopt common guidelines and through cohesion can benefit from economies of scale that are needed for improved governance and value upgrading in agricultural value chains. These organizations pool resources of members together, overcoming individual constraints of limited access to inputs, information and technology.

Addressing the challenges listed above will improve the overall institutional governance of agricultural production chains in Guatemala and unlock the internal potential of the rural economy, improving the lives of small-scale farmers. Most importantly, having a better and more structured institutional environment has to be coupled with sustainable agricultural trade policies.

12 Cadena Agroalimentaria de la Papa
Niche Exports

The trade analysis conducted on cocoa and potato emphasized how high value-added products can increase trade opportunities in rapidly expanding markets. Moreover, trends indicate both a surge in consumer demand overall and an expansion of products traded. At the same time, recent decades have seen growing market opportunities within the “specialty” niche/boutique markets.

Throughout this report, specialty agricultural products are defined as widely-marketed differentiated food products, including but not limited to, fair trade, organic and origin-based. These products are differentiated in an unconventional way through characteristics that can relate to consumer concerns for certain aspects of production or the sustainability of production. While commonly these products are certified under Voluntary Sustainability Standards (VSS), they can use the benefit of geographic indication or “selling” a specific “story” of the product.

In Guatemala, unique genetic pools in cocoa and potato sectors provide a strong basis for utilizing these “specialty” opportunities. The commodity chain overview discussed the potential trade partners for traditional products, being able to serve specialty markets worldwide is an additional advantage for the Guatemalan rural economy. Although specialty products relate only to cocoa and potato markets, they can also be considered for products that use cardamom as their ingredient (FAO 2011a).

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13 Analysis in corresponding chapters on potatoes and cocoa illustrated the higher growth rate of higher value-added products.
14 In case of cardamom, while there is also growth in demand for sustainable spices, it is yet lower than for other agriculture products.
According to FAO, the global cocoa market in 2012 – including the domestic and self-subsistence consumption – amounted to 83 billion USD, with the global chocolate market being approximately 830 billion USD (Potts et al. 2014). Figure 12 illustrates that according to UN Comtrade, high value cocoa-related exports have doubled between 2005 and 2015, confirming the global rise of the consumer demand for chocolate.

In this global market, the specialty chocolate segment (bean-to-bar, single origin, fine flavour gourmet chocolate) is growing at the fastest pace. Since 2011, the specialty chocolate market has been growing about 7-10 per cent year-to-year, while the growth in the traditional bulk chocolate for major companies (Nestle, Mars, The Hershey Company, Mondelez) faced 0-4 per cent increase in their confectionary sales. This trend indicates increased opportunities within the non-bulk cocoa market segment (ICCO 2018). In 2014, about one third of global cocoa trade was already certified under some VSS (Potts et al. 2014), with the current global VSS certified amounts to as much as 300 billion USD market. Presence of VSS or VSS-like certification in Latin America is not commonly spread out among countries: Dominican Republic has 100% of its exports certified, followed by Peru with about 80%; however, the presence of VSS certifications in exports of other countries (e.g. Brazil, Ecuador, Colombia) is less than 10%. Overall, there is a rising trend regionally of certifying cocoa production under VSS certification.

Statistics for global sustainable potato market are scarce, but in recent years the concern for sustainability of potato and its production has been growing (Lutaladio and FAO 2009). Many concerns are derived from the biological characteristics of potato itself; potato cultivation is susceptible to seed-borne insects and pests so seed quality is important; slow seed multiplication speed; a need for open field cultivation to avoid deforestation. Therefore, addressing seed provision for small-scale farmers along with best agricultural practices are key for sustainable production in Guatemala.

An increased commercial emphasis on accessing specialty markets will have a direct impact on smallholders. Potatoes and cocoa are widely smallholder crops and are ready to be exported at the very early stages of processing. They can be handled in fairly small amounts, which make them more suitable for farm gate sale or small-scale processing (e.g. fermenting and drying for cocoa). Boutique or niche market outlets and certification generally prefer generally traditional-type farming over heavily capitalized production. Such preference implies higher intensity and benefits for labour on land. Moreover, it provides the possibility of increased gains in the longer term, as in labour- and knowledge-intensive agriculture, the value produced per unit of land in smallholder agriculture can outweigh that of large-scale agriculture (HLPE 2013). Additionally, as niche/boutique traders and brand manufacturers also buy and sell the stories and relationships behind the product they trade, they can empower small scale farmers to become a centrepiece for their marketing and sourcing strategy (UNCTAD 2014).

While the niche/boutique exporting has the potential to provide higher inclusion of small-scale farmers and improve their livelihoods, there are still a number of internal industrial constraints that need to be addressed to unlock this potential. To explore these possibilities of commercializing small-scale farmers’ products – especially within niche/boutique markets – a sufficient volume of products with similar quality or characteristics needs to be attained as well as other prerequisites on traceability and documentation.

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15 The market distinguishes between two broad categories of cocoa beans: "fine or flavour" cocoa beans, and "bulk" or "ordinary" cocoa beans. Fine or flavour cocoa beans are generally from Criollo or Trinitario cocoa tree varieties, while bulk, or ordinary cocoa beans derive from Forastero trees, with some notable exceptions. As reported by the ICCO, “the difference between fine or flavour cocoa and bulk cocoa is in the flavour rather than in the other quality factors. Fine flavours include fruit (fresh and browned, mature fruits), floral, herbal, and wood notes, nut and caramel notes as well as rich and balanced chocolate bases".
Sustainable tourism

Engaging into the export-oriented activities holds several challenges for small-scale farmers, coming from both international agreements and domestic regulations. While aiming for niche exporting in the long-term, a more short- to medium-term alternative may be to focus efforts on enhancing higher-value agricultural products and rapidly growing domestic touristic attractions. This includes linking artisanal producers of higher value-added products to providers of touristic services, such as hotels, cruises or business flights. Tourism is a convenient mechanism to export non-tradable goods and services – when tourists come to the country, they buy local products and use local services, which enables local producers to reach foreign markets without facing the certification and regulation requirements.

An already growing sector since 2012 (illustrated in Figure 20), tourism in Guatemala has been mostly concentrated in few areas such as Guatemala City, Antigua Guatemala, Lake Atitlán and Petén. Through developing such streams of tourism as agritourism, several development challenges still should be addressed – among them low agricultural productivity, monocropping, high food imports, poor public health, low level of education and youth unemployment.

Basic commodities such as cocoa, potatoes and cardamom can be transformed into value added goods using home food processing techniques. The majority of these higher value-added products can then be sold to the tourism sector – for example, cardamom baked goods, chocolate bars or potato chips. Tourism has the potential to create the right incentives for a more diversified and value-added agriculture. While these farmers are unlikely to become direct suppliers to hotel chains and business services, they can be straightaway added to the excursion itinerary by offering agritourism products. Agritourism can reposition rural small-scale farmers and establish sustainable links between the two sectors – tourism and agriculture.

It should be noted that it might be more economically viable and sustainable to establish these strategic partnerships between the tourism sector and organized small-scale farmer’s groups and associations. First, a broader base of suppliers diversifies the risks of the upstream processor and final trader. Second, a collective organization puts less strain on the skill composition of every farmer – they do not need to possess the full set of organizational, business and economic skills to be a part of a value-added production. Moreover, while dealing with local retailers or hotel chains does not require the same degree
of certification and documentation as exporting, there could be certain minimal requirements set by the buyer that reflect health and safety concerns and tourist preferences. Facing these requirements can be very difficult or virtually impossible for an individual small-scale farmer but accumulating the expertise of small-scale farmers under the umbrella of a farmers’ group or association has the potential to meet these requirements (see Box 9: Cooperatives and the Sustainable Development Goals). The capacity of these organizations to meet the on-farm and off-farm investment in productive assets, quality assurance and tracking systems requirements will stimulate the development of agriculture-tourism link. When pooling knowledge and skills, farmers’ organizations can not only pass these necessary certifications, but also advertise themselves via different ICT channels.

Guatemala is sometimes called the “heart of the Mayan culture”, as it is abundant with nature and cultural heritage of pre-Hispanic times. This has attracted tourists within and outside the country, arriving mostly from the Americas (90%) and by land (58%). While Central American countries represent the majority of tourists because of their close proximity and common language, there are a number of local efforts which attract tourists from other areas, such as, for example a vast urban art project called “Pintando Santa Catarina Palopó” that aims at turning the lake-side town of Santa Catarina Palopó in Lake Atitlan into a cultural destination, initially by painting all houses and buildings in vibrant hues and symbols that recall the traditional hand-woven huipil blouses worn by its women, handed down through generations.

Among these local efforts, there are successful examples of collaboration of rural small-scale farmers’ groups and associations through a single consolidator (processor, lead entity, presenter) in the studied sectors already. For instance, cardamom and cocoa products by “Te Nutritivo del Norte” or “Dieseldorff Kaffee” in Alta Verapaz which are sold in small shops in areas where these products are processed. The key challenge is to find the strategy to scale up and replicate successful models that link tourism with small-scale agriculture in other areas of Guatemala that have potential for ecotourism - or cultural tourism, and how to ensure that the benefits are objectively distributed among the participants.

The development of sustainable tourism is very important in the context of the Transversal Strip of the North of Guatemala: the region is very rich with natural resources, landscapes and attractions, but has low access to infrastructure and other services. The existent “Comprehensive Development Plan for Transversal Strip of the North” developed by SEGEPLAN summarizes the obstacles and formulates possible actions for the region. A similar approach can be undertaken in other places (or regions) of potential touristic interest.

While the potential of tourism in triggering development of rural regions is unquestionable, it has to be implemented in a careful way. When implemented in an unsustainable way, it can harm biodiversity of virgin nature and disrupt fragile ecosystems. Some evidence suggests that the expansion of tourism can lead to marginal improvement of incomes of the poorest households, while richer and middle-class households benefit more (UNCTAD 2011). Hence an integrated approach is needed to assess the pro-poor and sustainability outcomes of tourism strategies, considering that sustainable tourism can activate the rural economy through inclusion and by building capacities of the poor, vulnerable and underrepresented groups.
Globally, about one billion people are involved in cooperatives in some way, either as members/customers, as employees/participants, or both. In Guatemala, cooperatives duly registered and incorporated are associations which have legal personality and own a democratically-controlled economic enterprise to the service of its members and their common economic, social and cultural needs and aspirations. According to INACOP, by the beginning of 2018 there were 2,123 registered cooperatives out of which 969 are currently active, the majority of them dedicated to agricultural activities. About 13% of Guatemalans are members to a cooperative, with a gender distribution of about 53% men and 47% women. Nationwide, cooperatives produce 60% of basic grains, making them more efficient in relation to the rest of agricultural sector (among smallholder-related farming) and therefore crucial for issues related to agricultural activities, nutrition and food security.

ILO defines cooperatives by nature to be a sustainable and participatory form of business. They create jobs and provide improved working conditions, pay competitive wages, promote additional income through profit-sharing and distribution of dividends, foster gender equality, reduce poverty, and contribute to social integration through support community facilities and services such as health clinics and schools. They are considered to be self-help organizations foster democratic knowledge and practice social inclusion, allowing for personal economic growth of their members and the local communities they live in.

The jobs created by cooperatives are either permanent or temporary, the former comprise the technical and administrative support, while the later refers to the seasonal productive activities in which its members are involved. Nevertheless, job creation is only one of the many contributions to sustainable development, particularly in rural areas. Agricultural cooperatives are recognized for their role in poverty reduction. They help farmers access the inputs required to grow crops, control pests and diseases, process, transport and market their produce; they facilitate access to extension services, as well as good quality household supplies and other products at affordable prices. However, in Guatemala challenges within the cooperative system exist, and they reflect those of society. For instance, women representation is limited in traditional cash/export (“male”) crop-related cooperatives such as coffee and cocoa, in which crop ownership is mainly male.

At present, there are several farmers’ groups and associations within the cocoa, cardamom and potato sectors. These groups and associations are a positive example of the inception of efficient collaboration links that result in information dissemination. With the appropriate technical assistance, those organizations could benefit economically from the commercial orientation of a cooperative structure to harness the entrepreneurial capacity of their members. In the studied sectors, cooperatives can assist in a number of constraints and problems faced by the smallholders, including remoteness and lack of access to information about food prices on national and international markets; high unit costs in logistics; access to high-quality inputs; low bargaining power in contractual relations; limited access to finance, technology and extension services; and, lack of transport and other infrastructure in rural areas.

Cooperatives have proved their relevance in sustainable development through their contributions to the realization of the Millennium Declaration Goals and their involvement in the strategies towards achieving SDGs 1, 5, 7, 8, 11, 12 and 15. As enterprises that endeavour to meet the economic progress of members while satisfying their socio-cultural interests and protecting the environment, cooperatives are the best suited type of organization to address poverty reduction and exclusion. The promotion and expansion of this form of organization has been a national priority to Guatemala since the adoption of the General Cooperative Law in 1978. Thus, if accompanied by a sustainable an inclusive strategy, the cooperative system could certainly help achieve goals set in the National Development Policy, K’atun: Our Guatemala 2032.
Chapter 6 Sustainability Outcomes

The goal of this chapter is to assess the sustainability of efforts to upgrade, expand and diversify the potato, cocoa and cardamom sectors in Guatemala. More precisely, to ensure those endeavours are in line with the objectives, goals and strategies outlaid in the National Development Policy: K’atun Our Guatemala 2032, which is the highest development framework in Guatemala and takes after the 2030 Agenda for Sustainable Development.

The Sustainable Development Goals (SDGs) focus on the elimination of poverty, the reduction of inequality, the protection of the planet and the guarantee that all people will enjoy peace and prosperity. These principles therefore lay behind the National Development Policy, where trade policy objectives relate to several social and environmental goals. The goals in the national development framework shape the collective action in support of an economically viable, socially inclusive and environmentally friendly development path. A further step is to ensure that policies under the plan take into account these goals, positively affecting the nexus between trade, agriculture and sustainable development. In the context of this study this implies that the social and environmental impacts of the trade-led structural transformation in agriculture should be assessed – focusing on the effects of diversification and upgrading strategies in potato, cardamom and cocoa sectors. These links between diversification and upgrading strategies in potato, cardamom and cocoa sectors and sustainable development are outlined in this chapter. Ensuring the sustainability outcome of agricultural trade policies hence can boost and develop the rural economy, contribute to the overall economic growth and reduce poverty.

Box 10: Underlying technical and agronomic model

In terms of farming practices, the focus should be on low-external input practices well suited to smallholder production. These practices are location, context and crop-specific. They combine features of conservation agriculture (minimal mechanical soil disturbance, use of organic matter to nourish the soil, rotations or associations of crops), integrated pest management, organic agriculture, crop diversification, multiple crop/pasture systems and multifunctional landscape management that associates agriculture, home gardening, trees and forest. They are generally knowledge-intensive, labour-intensive, and of low-external input. As widely discussed by expert, they tend to perform better in well-developed smallholder agriculture than in estate production, because of the favourable incentive structure in self-employed farming and the significant transaction and monitoring costs of hired labour (HLPE, 2013 footnote). They also tend to be gender-sensitive, as they leverage roles and knowledge associated with female farmers.

Improved planting material - The focus should be on the use of non-proprietary genetic material and on research to develop locally adapted genetic material, Guatemala farming systems, and extreme exposure to weather incidents. The focus is on public seed breeding programmes as a public good, allowing the diffusion of locally adapted genetic material that farmers could freely save, use and exchange. The most suitable planting material must be inexpensive to propagate (which is not the case with most hybrids). The approach should be implemented within the framework of public/private partnerships and should integrate a strong training and extension component.

Mechanical inputs – The envisaged approach promotes investment in technologies that reduce drudgery of farm work without involving change in farming scale/model. The focus is here on relatively simple equipment and machinery, such as improved hand-held agricultural tools, harvest bags, push and pull or rotary weeder, threshing and cleaning equipment etc. This light mechanization is also the most gender-sensitive approach, as women tend to be marginalised when heavy capital equipment and machinery are introduced.

Collective and public investment - The approach favours and stimulates collective and public investment in infrastructure (irrigation, landscape management, knowledge), and emphasizes the role of support services and enabling markets.

16 This nexus is widely acknowledged, and is part of UNCTAD mandates in Accra Accord, the Doha Mandate and Nairobi Maafikiano.
**Smallholder agriculture and food and nutrition security**

Rural agriculture in Guatemala plays a major role in the overall economy. As discussed in Chapter 1, about 52 per cent of the Guatemalan population lives in rural areas, and about one third of its GDP comes from agriculture. Chapters 2 to 4 presented agricultural value chains of potato, cardamom and cocoa sectors stressing the significant role of smallholder farming. This speaks to how important it is to have coherent sustainable policies in place to benefit smallholders, improve livelihoods and provide higher food security. Trade-led diversification policies can indeed guide structural rural transformation, provide better and more diverse income opportunities for the rural community as well as reverse flows in rural-urban migration.

Guatemala is facing challenges to reach Sustainable Development Goal 2 on ending hunger, achieving food security and improved nutrition, and promoting sustainable agriculture (WFP 2017). The situation is at much higher risk in Altiplano Occidental and Dry Corridor areas considering the volatility of the rainfall patterns in the past couple of years (FEWS NET 2018). This regularly turns into low harvests for the small-scale farmers and therefore continuing poverty or increasing risk to fall into the poverty category for some of the households in the remote, marginalized areas. The General Government Policy (2016-2020) of Guatemala prioritizes food security and nutrition, comprehensive health, quality education and social protection. Several international organizations, international cooperation agencies and non-governmental organizations are implementing supporting activities and interventions.

Agricultural commercialization and diversification do not have a single-direction effect on the local food security situation. The benefits of agricultural diversification and trade are not automatic, especially on welfare and food security. Commercialization and diversification of subsistence or semi-subsistence agriculture can provide households with additional source of cash income, thus improving the food security and nutrition. Nevertheless, farmers can expose themselves to higher market risks (e.g. price fluctuations) and risk of running out of capacity to produce enough food crops. This double-sided effect makes the agriculture commercialization and diversification policies require a more intricate design that does not endanger the access to enough, safe and nutritious food at all times for the small-scale farmers.

Hence, the upgrading and diversification of potato, cocoa and cardamom farming should be done in a way that does not compromise the production of local food for subsistence, on the contrary it should complement it. According to the 2017 World Food Report, the proportion of smallholder farming households has been decreasing due to concentration on production of export crops (WFP 2017). This has also moved food production away from the traditional staple foods – maize and beans. Along with overall decreasing agricultural productivity this highlights the need for a sustainable approach to policies related to commercialization and diversification of smallholder farming.

Off-farm activities accessible to farmers should also be included within the framework of sustainable policies and strategies, as they offer alternative sources of income and provide opportunities for investments in support of smallholders.

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17 Western Highlands region (Altiplano Occidental), located in the north-western region and conforming by a number of municipalities from the departments of Quetzaltenango, San Marcos, Huehuetenango and Totonicapán, the latter not covered in this study. Dry Corridor region (Corredor Seco) covers parts of the departments of Quiche, Baja Verapaz, El Progreso, Guatemala, Zacapa, Chiquimula, Jalapa and Jutiapa.

18 While the statistics they provide show a decrease from 24.1 to 10.8 per cent between 2000 and 2011, they use a different definition of smallholder farming – more binding than one used in this study. Nevertheless, the overall trend to decreasing smallholder farming is present for both definitions.
Enhancing commercialization of small-scale farming should be directed at increasing productivity of land in a sustainable manner. WFP has identified that enhancing productive farming practices and limiting land degradation contribute to strengthen food security and improve nutrition in the country. These two factors can improve the availability of food for small-scale farmers through increasing income of households that can commercialize their surplus production and providing higher variety of products on the local markets, differentiating the diet of the local population. These processes result in a better and more sustainable livelihood in rural Guatemala. Therefore, a sustainable agricultural trade policy should incorporate the traditional agronomic model that relies heavily on smallholder farming.

In Guatemala, INE identified in 2003 that the food consumption patterns in urban areas evidenced a widespread low level of nutrition knowledge and education. Such conclusion derived from a constant increase in sweetened beverage and high-fat and high-sugar snack foods consumption. Consequently, the Food and Nutrition Security National Policy includes an axis oriented towards developing and strengthening people’s capacity to adequately select, acquire, store, prepare and distribute foods at the household level. In order to guarantee generalized access to basic foods, this policy aims at creating the market conditions to maintain stability in the general level of basic commodity prices. In that regard, sustainable agricultural trade policy that is inclusive of smallholder farming can improve nutrition not only of enhancing coherence between trade, agriculture, food security and malnutrition goals and policies is of key importance. The nexus agriculture-food-trade is of specific importance in context of inclusion of the small-scale farmers into the global value chains. Traditional trade has been relying on more productive and more competitive food production systems, favouring large scale commercial farming and leaving out small-scale farming. However, in recent years global trade has favoured more small-scale production as they can offer “specialty” products, as discussed in Chapter 5. This trend has opened additional opportunities for rural farmers to improve and diversify their income while potentially improving their food security. Nonetheless, additional institutional and policy coherence is needed to enable or improve inclusion of small-scale farmers into such markets.

According to FAO, another potential benefit of the sustainable small-scale farming is associated with the traditional practice of intercropping and other variations of multiple cropping. While monocropping is a common component of industrial commercial farming, among small-scale farmers it is replaced by traditional family-style farming styles, involving multiple crops and combining subsistence-oriented and commercial-oriented productions. This can result in surplus selling or in organization of the farmers’ groups and associations that pool their joint assets and expertise.

Farmers’ groups and associations can be more efficient not only in terms of food security, but also in terms of information flow, governance and transparency, including addressing intermediary problems (see Box 7). An additional combination of planting of trees, creating pasture space and raising livestock to traditional agriculture cropping should also be considered, but on the discretionary basis as they may require different investment in capital and labour in different regions.

Establishing better agricultural practices that include multi-cropping methods and promotion of these practices among suitable agro climatic conditions will have a positive effect on food security in the specified regions. The options for intercropping in the studied sectors are summarized in Table 8. Intercropping in general has a positive effect on food security through direct and indirect channels as it improves the resilience of the smallholder agriculture stocks to droughts, floods, changes in rainfall pattern, as well as internal or external price volatility. It should be noted that the establishment of the best multiple cropping practices is not only crop-specific, but also region-specific since they depend on various agro climatic conditions. Using internal knowledge of already established regional working groups on
potato and cocoa sectors, and national research in this connection (IICA, ICTA, MAGA) deserves attention.\(^{19}\)

### Table 8: Multiple cropping possibilities

<table>
<thead>
<tr>
<th>Sector</th>
<th>Intercropped with</th>
<th>Conditions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cardamom</td>
<td>Allspice, Inga edulis,</td>
<td>Well suited to provide shade for cardamom trees in the entire currently</td>
</tr>
<tr>
<td></td>
<td>Eucalyptus</td>
<td>planted area. They can be grown under the same agronomic conditions. Help</td>
</tr>
<tr>
<td></td>
<td></td>
<td>fix atmospheric nitrogen to the soil and prevent erosion. Could cover around</td>
</tr>
<tr>
<td></td>
<td></td>
<td>50% of the cardamom planted area. Growing these trees well requires good</td>
</tr>
<tr>
<td></td>
<td></td>
<td>agricultural practices and long-term investment plans.</td>
</tr>
<tr>
<td></td>
<td>Clove, Coffee, Vanilla,</td>
<td>Require warm humid tropical climate with high annual rainfall. They can be</td>
</tr>
<tr>
<td></td>
<td>Liquidambar</td>
<td>grown in highlands at around 700-1300 m a.s.l.</td>
</tr>
<tr>
<td></td>
<td>Cocoa, Cinnamon, Pepper</td>
<td>Grow in soft humid climates in lowlands between 200-700 m a.s.l.</td>
</tr>
<tr>
<td>Potatoes</td>
<td>Maize</td>
<td>It represents the ideal option for crop rotation. The relationship is 2:1</td>
</tr>
<tr>
<td></td>
<td></td>
<td>rotation in lowlands (no frost), and 1:1 rotation in highlands (presence of</td>
</tr>
<tr>
<td></td>
<td></td>
<td>frost).</td>
</tr>
<tr>
<td>Cocoa</td>
<td>Inga edulis, Erythrina,</td>
<td>Used as backbone species in specialized shade systems. Well suited to</td>
</tr>
<tr>
<td></td>
<td>Gliricidia (madre cacao),</td>
<td>provide shade for cocoa trees in the entire currently planted area (below</td>
</tr>
<tr>
<td></td>
<td>Cassia, Cedar, Palo Blanco</td>
<td>1000 m a.s.l.). Grow at a fast rate and are used as permanent shade for</td>
</tr>
<tr>
<td></td>
<td></td>
<td>cocoa trees. Help fix atmospheric nitrogen to the soil, prevent erosion,</td>
</tr>
<tr>
<td></td>
<td></td>
<td>contribute to pest, disease and weed control. The optimal number of shade</td>
</tr>
<tr>
<td></td>
<td></td>
<td>trees for timber are high, around 144 trees/ha.</td>
</tr>
<tr>
<td></td>
<td>Avocado, Citrus, Zapote</td>
<td>These fruits varieties represent higher profitability for cocoa producers.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Fruit harvest within 2-3 years. Require high annual rainfall. Except from</td>
</tr>
<tr>
<td></td>
<td></td>
<td>some avocado varieties, their optimal development happens around the same</td>
</tr>
<tr>
<td></td>
<td></td>
<td>altitude as that of cocoa (below 1000 m a.s.l.).</td>
</tr>
<tr>
<td></td>
<td>Banana, Plantain, Cassava,</td>
<td>Musaceae species are the most commonly used trees to provide temporary</td>
</tr>
<tr>
<td></td>
<td>Pigeon peas</td>
<td>(first 4 years) shade for cocoa. Better suited for lowlands with warm,</td>
</tr>
<tr>
<td></td>
<td></td>
<td>frost-free, coastal climates.</td>
</tr>
</tbody>
</table>

Source: UNCTAD Secretariat, based on consultant work and field mission.

As regards the studied sectors, while cardamom bears no intrinsic value for nutrition directly, it is, an important source of income for cardamom regions. Intercropping of cardamom can improve the quality of the product without increasing the number of cardamom trees. It can also potentially address the problem of neglect of cardamom trees in some areas, since farmers attending to other crops at different frequency are also likely to check their cardamom planting. Consumption of cocoa-based products and potatoes is deeply rooted in Guatemalan culture. Potato production has limited abilities of intercropping.

\(^{19}\) Grupo Técnico – Cadena Productiva de Papa. Agrocadena de Cacao Working Group for Northern Region and Southern Region, respectively.
but when adapted rules of crop rotation are followed, the potato harvest may increase about 20-60 per cent, depending on the technology used.

As discussed, current smallholder farming practices in Guatemala tend to involve rotations or associations of crops, among other multiple cropping practices. They tend to use organic fertilizers, but when chemically-produced fertilizers are used, there is no clear understanding on whether they have long-term harming effects on the soil. Most of Guatemala’s smallholder agriculture is “organic by default” – especially concerning cocoa and cardamom sector - where under minimal planting procedures farmers’ effect on the soil is minimal.

There are already national development frameworks that touch upon food security and nutrition. For instance, certain provisions contained in the National Development Policy; The Government Plan (2016-2020) among others establish priorities and directives on health, gender equality and quality of education. Together with other more targeted and detailed country programs and strategies, food security should be an integral part of such sustainable trade-related agricultural policies.

**Factor Endowment**

Guatemalan rural smallholder subsistence and semi subsistence-oriented agriculture is characterized by small, remote, often run on a family-basis, which lacks information on markets. As discussed, cocoa and cardamom production chains are largely based on small-scale farming, whereas the potato sector to a lesser extent. Upgrading strategies can unlock the additional potential for income improvement and new employment opportunities. For this to occur, a number of issues have to be discussed that will activate the additional possibilities of the endowment possibilities.

First, incentives should be given to rural holdings so as to enhance multiple cropping techniques. One example is found in Table 8: Multiple cropping possibilities. There is documented evidence of multiple cropping (including of intercropping) – to some degree even among the studied sectors in the country and promotion of it for the rural smallholders (Defenders of Nature Foundation). Such intercropping may be beneficial and is formulated as a part of “Technical Guide for Rural Extension Workers” which follows an overall national sustainable agriculture policy and promotes the use of the extension services of ministries. This will very likely increase the per capita income for small-scale farmers. Several aspects should be noted: while the size of agriculture holding does not preclude multiple cropping practices, an alliance of small-holders under an umbrella of a farmers’ group or association can significantly improve the income per ha.; One must not forget as well that the intercropping strategy should be adapted according to the regional climatic, environmental and other circumstances.

Second, specific traditions and unique knowledge applied by smallholders to production, together with the unique natural resources’ endowment, can be used as a part of strategy in taking up the specialty markets. In niche/boutique markets the product is bought not based on how cost competitive it is, but on the history behind it and its origin. This is in line with the fact that sustainable agriculture products usually have a higher labour intensity relative to conventional agriculture products and therefore sustainable agriculture products does not necessarily need to be economically efficiency to enjoy market success.\(^{21}\)

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21 There are no widely accepted guidelines on indicators for sustainable agriculture, but a well-based guide can be found in the European Commission’s Agriculture Directorate-General 2001 accessible at: https://ec.europa.eu/agriculture/publi/reports/sustain/index_en.pdf
In addition, artisanal products (or artisanal value addition) can be efficiently done and distributed at local markets – for the local population and visitors. All these factors can generate greater inclusion of the rural smallholder into the agricultural value chain.

Infrastructure

One of the key problems of rural Guatemala is remoteness: agricultural activities are mainly outside of proximity of the municipal centres, where most of agriculture processing and trading are happening. The roads connecting these agricultural lands and main cities are characterized by a very limited, low quality, unpaved system. While some of the more urban areas of the country have seen significant improvements, there has been little improvement in the recent decades in rural areas.

In rural communities, absence of a functional infrastructure system and in particular functional roads not only hampers livelihood improvements, but also creates other barriers for economic and social activities. For instance, weak transportation routes combined with weak flow of information make it unlikely to capture economic opportunities or the possibility to adapt to market changes in a timely manner.

The absence of paved roads and available means of transportation between and among communities and municipal centres puts additional stress on the municipal centres as hubs for provision of economic and social services while slowing down the needed development of rural areas and improvement of farmer’s livelihoods. For some farmer communities, the transportation costs to and from the market hub – municipal centre – constitute up to a 100% arbitrage charged by the reseller.

For example, in case of potato cultivation, it is most commonly an inherited family activity, and many of potato farmers do not look for alternative selling routes. Moreover, as potato is bulky it is very dependent on means of transportation, which creates additional bargaining power of the intermediary who possesses the transportation means or has access to the selling market. As per information collected, the cost of using an intermediary is about a half of the freight cost and constitutes about 25% of the farm gate price, making the exported price double of what the farmer receives.

Infrastructure development is included into Government General Policy 2016-2020 where it is formulated as a part of presidential priorities toward development, and it is mainstreamed in the development plans of government institutions. Ministry of Communications, Infrastructure and Housing includes infrastructure development (inclusive of electric, internet and other types of infrastructure) in its yearly operational plans, but mainly through setting financial and physical capital goals. Indeed, a set of more tangible goals that are oriented at measurable activities (e.g. walking distance in minutes until the nearest road, distance from village to the nearest paved road, etc.) should be introduced. This information can guide Ministry of Communications, Infrastructure and Housing, but also MAGA, MINECO, and other relevant authorities. Additionally, collection of such information can be incorporated at a minimal cost into activities of extension services of MAGA.

Gender-informed pro-poor assessment

Guatemala has a strong influence of socio-cultural norms and traditions in determining the role of women in the household, which deserves special attention. The perceived notion of what should be the role of women results in higher girls’ dropout rate (5.295 average schooling age for girls, while 6.035 for boys), lower bargaining power within the household, lower participation of women in farmers’ groups and
overall fewer women engaged into entrepreneurship\(^\text{22}\). In Guatemala, this socially constructed role of a woman in the household is strongly tied to their dependency on a man. The increasing work migration of recent years – both internal and international – and therefore a higher number of female-headed households, makes the female role in the household even more exposed to the effects of these socio-cultural norms.

Guatemalan women are not an exception to the world phenomenon of overlooking and disregarding women’s unpaid work (UNCTAD 2015, 2016). Domestic labour and care are not accounted for in society as an equivalent of paid labour and are seen as the responsibility of women – despite having a paid job or not. This disregard not only reduces significantly the household bargaining power of women, but also limits the time for paid work in addition to unpaid domestic work.

As described, the split between tasks performed by women and men in agriculture in Guatemala are blurry, especially in small-scale farming households. The studied sectors are not an exception. While overall there is little data on the precise gender breakdown of in-household and on-farm tasks, drawing on interviews with stakeholders and international experiences, some important observations can be made that show that trade-led value addition and diversification strategies in potato, cocoa and cardamom sectors while aiming for higher sustainability of agriculture overall can also leverage the position of women in Guatemalan households.

As discussed in Chapter 5, improving institutional transparency and capacity in the sectors studied is one of the key steps in achieving sustainable agricultural trade. This includes training and teaching materials that incorporate gender-informed practices, coupled with the formulation of good agricultural practices.

The empowerment of rural women through improving institutional transparency and capacity can be illustrated using the cardamom sector as an example. Cardamom is light and easy to carry, and hence women should not have a significant disadvantage cultivating and trading cardamom compared to men. As described in chapter 2, proper harvesting practices need to be accompanied with timely access to driers to acquire good quality cardamom. In rural areas this generally requires getting to the intermediary and through his network, getting e access to the drier. Neither of those steps have to exclude women, on the contrary women are well positioned to execute them. Despite this fact, dealing with intermediaries and seeing cardamom cultivation as solely an “income extraction activity” makes it male-driven. Making the intermediation process more transparent between the producer and the exporter of cardamom, educating farmers on gender-sensitive good agriculture practices can create win-win-win scenarios as they can increase yields in cardamom, improve small-scale farmers livelihoods and empower rural women.

In this regard, there are already some positive experiences to share in the cardamom sector, namely women farmers’ groups in the north of the country. In these cases, women are also managing access to driers, however, they are in general not involved in further processes (e.g. trade).

The argument made above does not mean that these groups have to be “women only”. In fact, women’s active participation in various positions at various levels within producer organizations have been proven to positively contribute to development outcomes (Kaaria et al. 2016; FAO 2016a). Endorsing and promoting women participation in farmers’ groups and organizations is important since their participation in already active organizations are mostly limited by socio-cultural gender norms and double burden. To improve gender equality in farmers’ groups, some strategies can be envisaged, which are predominantly based on rules of membership and entrance, promoting better organizational governance.

\(^{22}\) Information based on the interviews during the mission. Despite no official statistics available, it is a common fact for majority of lower middle-income countries and countries dependent on subsistence agriculture. As per upcoming UNCTAD trade and gender report on MERCOSUR, it is a very common fact among Latin American countries.
and structures, building institutional capacity to ensure long-term gender-sensitive change and protecting and promoting women products and by-products (FAO 2013, [b] 2016).

Solving the matter of industrial demand satisfaction, also discussed in Chapter 5, has high potential to benefit women in rural Guatemala. As discussed, gender segregation in Guatemalan agriculture production chain does not have a clear breakthrough. Introducing agriculture practices that aim at improving and creating a more homogeneous product (mostly relevant for cocoa and potatoes) could potentially become an enabling factor that triggers women’s productive and entrepreneurial potential. While these practices generally do not address gender, they can be formulated in a gender-informed way and, specifically, consider how women participants should be included in trainings (Embondeira, n.d.). Even in for male-dominated crop production such as potato, some tasks can – and already are – performed by women. For example, the post-harvest procedures on potato classification to seed/consumption/sale are important for the crop quality harmonization, and trainings on that should ensure women’s participation, as they are the ones most likely to be performing such tasks.

FAO estimates that, by only granting women access to the same productive resources as men, this will increase by 20-30 per cent the yield on their farms, and as a result improve livelihoods, diversify household incomes and provide higher food security.

Product differentiation and niche marketing strategies can have a positive effect on women’s engagement in cocoa and potatoes production. For the cocoa market, obtaining specific taste and aroma of the cocoa bean is a key prerequisite of niche and specialty marketing. This is done by precise steps in early crop care, fermentation and drying of the cocoa bean - activities that can easily be managed by women in the household. In the case of potatoes, introducing classification rules for seed tuber selection and preservation can have a positive effect on homogeneity of the potato harvest. As described in Chapter 3, the inconsistency of these post-harvest activities is a bottleneck for the value upgrading in the cocoa and potato sectors of Guatemala. Training women, on how to follow good practices can unlock pathways to achieving higher gender equality, enable them to be a part of product specification and serve to their promotion in the international markets. This will happen if when off-takers of the niche/specialty products can integrate gender equality considerations as a component of the procurement and marketing strategies (UNCTAD 2014).

Additionally, small-scale agro-processing (artisanal and industrial) creates new income opportunities for rural women not only in the potato and cocoa sectors, but also in cardamom. For example, small-scale artisanal production of potato chips, cocoa drink, chocolate, baked goods with cardamom or other products offer significant opportunities for women, who in turn can independently sell these products at the local markets and places where tourists often visit (‘SheTrades’ n.d.).

Tourism has high potential to enable development of entrepreneurship and self-employment opportunities for rural women. According to the European Commission, rural women can be at the forefront of innovation and diversification in rural areas by engaging themselves in or creating microenterprises that develop new activities, production lines and services. For instance, women can develop agritourism activities, artisan food and drink production, craft enterprises, and telecommunication and caring services. Despite generally being less educated and having lower access to resources than men, women often have the added advantage and knowledge of specific local needs, as well as effective interpersonal and communication skills (European Institute for Gender Equality 2016).

Nonetheless, upgrading trajectories can magnify existing gender disparities within the rural economy. Production of higher value-added products or niche products tends to favour commercially-oriented farmers, better educated and with easier access to technological inputs or institutional support. This in turn crowds out the more marginal and vulnerable groups – less educated, more remote groups already
underrepresented in the marketing chain. This, by a number of characteristics describes the position of women in Guatemala.

Furthermore, gender-blind agriculture policies can enlarge the gender gap in rural subsistence-oriented agriculture. Firstly, these policies can enlarge the area of cash crops impinging staple crops, where women are more engaged and have higher control. Secondly, in the case of commercialization of subsistence products, women can lose their power on decision-making. Gender-blind expansion and commercialization of traditionally subsistence production can therefore further marginalize women in rural societies (Mudege et al. 2015).

There are also some nation-wide programs and private sector initiatives that work with women, but as some are not directly targeting women, these have little opportunities to their bargaining position. For instance, despite the fact that gender equality is part of the National Development Policy, there are inconsistencies in implementation. SEGEPLAN has no review process in place of implementation of these recommendations. In many of the municipalities there is currently an ongoing program implemented by the Ministry of Agriculture “Family Agriculture Program to Strengthen the Rural Economy (PAFFEC)” which has a significant bias towards women. While the program itself is targeted at the poorest or most vulnerable rural households to diversify their income opportunities and provide hands-on trainings on better practices, women and men are subject to different activities and learning sessions. Such approach is not only openly gender-biased, but also limits both the economic and social possibilities of women.

**Environment, climate change, deforestation and biodiversity**

Trade policies can have an impact on the climate change mitigation efforts of countries, just as policies for addressing climate change can influence trade among countries. Guatemala, as any other country, is facing environmental challenges that affect the economy: loss of biodiversity, deforestation with the pressure from rising rural and urban population, high levels of internal migration and construction projects. Expanding trade in potato, cardamom and cocoa sectors can also be a part of the problem if done unsustainably. More specifically, when environmental considerations are not taken into account, monocropping can expand when increasing production of a product. The analysis below considers the environmental implications of upgrading and diversification trajectories in this trade expansion.

**Biodiversity in the context of climate change**

Biodiversity and climate change are interconnected. While climate change has a strong impact on ecosystems, changes in biodiversity can impact climate change and influence climate change mitigation efforts. Guatemala is the fifth biodiversity hotspot (according to International Union for Conservation of Nature), having 13% plant and vertebrate species registered as endemic (USAID; FIPA; EPIQ 2002). To preserve its unique ecosystems, Guatemala is taking part in 2020 Aichi Biodiversity Targets, but despite developing department-level strategic plans such as *Estrategia Departamental de Diversidad Biológica de Huehuetenango 2014-2018*, it has seen poor implementation rate (CONAP 2014)

Preserving biodiversity has a positive impact on agriculture. While higher efficiency and productivity is generally observed in the case of large-scale industrial production, sustainable smallholder systems are a better fit for biodiversity preservation despite the need for more complex governance. Heavily capitalized productions lean towards monocultures that decrease in the medium and long-term biodiversity and lead to overall environmental degradation. Diversified farming structures that incorporate livestock and trees are more knowledge-intensive, but usually are more socially and environmentally inclusive. Enabling these farming structures plays an essential role in preservation of biodiversity.
As discussed, potato cultivation requires open fields with full sun exposure – this practice can easily create soil degradation and erosion without appropriate management. Rotation cropping, poly-cropping, contour planting, fertilization can also be used to limit the impact of potato cultivation on the environment. It must be noted that regulated use of fertilizers is important since they can provoke soil contamination and degradation in the long term (FAO 2008). At the same time, current harvesting practices are characterized as low-yield (25 tons/ha compared to 60-80 tons/ha for the global major potato-producers) and take place almost all-year round, providing fresh potatoes for consumption and exports. This has a two-fold effect on the environment: while exhausting the land (potato fields need a lot of space) it decreases the pressure on the need for seasonal storage facilities. Introducing proper post-harvest techniques should be introduced to increase the productivity of potato cultivation and have an overall positive economical environmental effect.

Biodiversity considerations in the potato and cocoa sectors are highly related: there is a diverse genetic pool of these plants. As discussed in Chapter 3, this diversity leads have a prohibitive effect on secondary processing in agriculture and thus makes value upgrading unfeasible. Selection of certain type of potatoes for trade, while preserving other varieties for domestic use could increase the resilience of smallholder farmers to trade shocks: the sufficient amount of selected variety is used for processing, while existence of other varieties preserves unique biodiversity.

Biodiversity considerations deserve particular attention in the cardamom sector. In contrast to the cocoa and potato sectors where the traditional knowledge on cultivation of these plants have been cultivated in families for years, cardamom is an imported plant, not endemic to Guatemala. Moreover, it is seen by farmers as a strictly cash source – the decision to cultivate cardamom is seen as a cash-extraction activity. This lack of knowledge and information quite often leads to farmers cleaning up space for cardamom cultivation leaving it with no shade and not attending the tree until it produces the flowers. This decreases the productivity of a cardamom tree by around 30 per cent and has a negative effect on biodiversity. Introducing sustainable forest management in cardamom-producing regions and providing information and training will promote intercropping with other plants (see Table 8 for discussions on possible options) and can have positive effect on resilience of local ecosystems.

**Water access**

Availability and access to water resources is an important factor of agricultural activities. Worldwide agriculture consumes over 70 per cent of freshwater. Therefore, proper irrigation techniques should be introduced. One of the ways in which water consumption can be minimized is to introduce intercropping practices.

While sowing is planned around the rainy season to ease the watering of plants and insure certain humidity, in recent years Guatemala’s volatility of rainfall has affected crop yields and increased pressure on access to water. The draught increases dependency on irrigation, which is not available ubiquitously.

In the case of cardamom and cacao, both are tree-like plants and can be successfully intercropped with bigger trees. For cardamom, it is estimated that up to 32 per cent of possible harvest was lost in 2016 due to the lack of humidity, especially in the northern parts of the cardamom area. Having forest cover not only preserves water levels, but also conserves organic matter, improving the quality of the agricultural product. Trees such as Allspice, Inga edulis, Eucalyptus can be used to shade cardamom and cocoa, improve humidity and hence the quality of cardamom.

Regarding potatoes, there is significant intraregional difference between fields with and without an irrigation mechanism, as indicated in Table 2. Where irrigation systems are in place and there are no severe frosts over the year, potatoes are being rotated with corn (2:1 per year) as there is a need for large amount
of physical capital to deal with potatoes in the rainiest season (storage, pest control, etc.). In case of no irrigation, the rotation is (2:2) with 2 harvests per year, resulting with one year fully devoted to potato cultivation, and the next one to another crop (e.g. corn). The absence of irrigation increases exposure of small scale farmers and decreases food security of smallholders cultivating potatoes. Therefore, promotion of responsible irrigation most likely through low-pressure irrigation mechanisms - will have an economically beneficial effect on livelihoods of small-scale farmers and limit the impact of agriculture on water resources.

**Deforestation**

Guatemala is a country that has one third of its territory covered with forest, but these numbers are going down as between 2000 and 2017 Guatemala has lost 17 per cent of its tree cover (World Resources Institute 2017). Wood extraction for energy and construction is the main contributor to this decline, but agriculture activity can also have a lasting negative effect on forests when done unsustainably. According to FAO, globally, unsustainable agriculture practices that contribute the most to deforestation in tropics and subtropics are large-scale commercial agriculture (40 per cent), local subsistence agriculture (33 per cent), infrastructure (10 per cent), urban expansion (10 per cent) and mining (7 per cent).

Cardamom is a forest plant that produces about 30% higher harvest when growing under the shade of a taller tree. As discussed, there is limited local knowledge on cardamom cultivation and this fact results in 53 per cent of cardamom communities in absence of shade or in planting of cardamom in place of the forest. Developing national rules for sustainable forest management and interrelating rules with practices of cardamom cultivation is therefore an important step in preventing deforestation. This can be partially explained by the absence of “inherited” knowledge in small scale farmers’ families on cardamom production since the plant is not native. In some farmers’ organizations and associations (e.g. “FEDECOVERA”) there is an established practice of farmers’ trainings where the benefits of forest coverage are explained. The association of the cardamom exporters ADECAR has promoted similar activities, but the presence of a complex network of intermediaries is complicating information dissemination. Reforestation projects can also include cardamom cultivation to increase sustainability of the forest23. Cardamom cultivation has also been included into the reforestation efforts as it increases the short-term economic benefits of preserving forests for smallholders.

Monocropping and large-scale commercial cropping are other factors that enhance deforestation process and can have environmental impacts. While cocoa is traditionally seen as a part of the more diverse ecosystem, potato trade through expansionary efforts can have a negative environmental effect. In that regard, plant rotation, contour farming, the introduction of organic fertilizers can address the need for yield improvements. Enhancing agronomic models that are based on multiple cropping can reduce the harmful effect while achieving positive economic impact and even be used as a part of the reforestation efforts.

**Inequality**

As discussed above, rural Guatemala is much poorer than urban – 58.1 and 77.2 per cent respectively – and it has been rising within the country. This inequality trend should be studied in parallel to migration trends: higher inequality (along with fewer income opportunities) in rural areas inevitably leads to higher internal migration to urban areas and magnifies urban inequality. At the same time, there is rising trend

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23 As an example of success of such efforts we can use FUNDAECO project in Cerro San Gil area: http://www.livelihoods.eu/projects/fundaeco-guatemala/
globally on dependence on remittances from abroad, which is also the case of income-based inequality in Guatemala.

Improve income of subsistence-oriented farmers through sustainable agriculture reforms decreases inequality, as it provides both higher food safety and income for the small-scale farmers. It is estimated that cardamom farmers receive about 70 per cent of their annual income from cardamom farming, while potato farmers receive around 30-70 per cent depending on the level of specialization while cocoa farmers less than 25 per cent (considering only the farmers that already sell cocoa). Cardamom families are specifically dependent on income from cardamom sales and introducing other cash crops to their farms will diversify their sources of income, ensuring the higher sustainability of their activities.

Without the provision of sustainable reforms that impact positively rural levels of living, small-scale farmers tend to seek jobs in more urban areas, limiting the agricultural production base and increasing urban food demands. Such internal migration flow fuels unsustainable urbanization that increases urban poverty and accelerates pressure on urban infrastructure. The loss of young people and the corresponding replacement by an ageing population provides a critical threat to the ongoing vitality of rural economies and rural communities. This threat applies across sectors but may be particularly important in agriculture where the average age of farmers increases relentlessly. Equally, retirees to the countryside force up house prices and restrict the available stock for young people, further exacerbating the problem of retaining young people. An ageing population also brings new challenges to rural areas (and in fact new economic opportunities) relating to service delivery (health, social services) and accessibility for older and less mobile people. Revitalizing rural economy through diversification of income opportunities that are attractive to the younger population has the potential to curb internal migration flows.

Regarding the sectors studied, the relationship between potato products and income of consumers should also be considered. Poor households are dependent on fresh potatoes as a significant part of their consumption, but their share is decreasing in the overall food consumption basket, until processed potato products gain share for the middle-income household. This illustrates that by producing and relying mostly on fresh potatoes, the Guatemalan small-scale farmer is not reaching the middle- and high-income market segments. Their own domestic middle- and high-income market segments in fact tend to consume potatoes mostly produced abroad.

Ethnically, only cardamom production is predominantly linked to indigenous groups. In the case of both cocoa and potatoes, it is an overall activity of rural farmers spread over Guatemala. Simultaneously, fresh potatoes take up higher share in the consumption basket of the poorer households, which are most likely to be representatives of indigenous population groups (INE 2014). So, through improving the livelihood of farmers that cultivate potatoes, the livelihood of the poorest households may be improved. The prioritized municipalities in the cocoa sector are mostly consistent of ethnic minorities (predominantly the Q’eqchi’ group), and therefore improvement of livelihoods of cocoa producing families will also have a positive impact on the lives of ethnic minorities.

SEGEPLAN has already created the “development corridor” for the Northern part of the country, for which it has devised the “Comprehensive Development Plan for the Transversal Strip of the North”. This plan targets the value upgrading and market inclusion of the rural farmers, while trying to improve their living conditions. This area is specifically under developed, with low access to health, infrastructure, education and other services. It has also identified that the local population has lacks capacity to access global markets. Enhancing the operation of farmers’ groups in this region hence is a sustainable way to improve lives of the local rural population.
Policy Recommendations

Guatemala, on par with other developing countries, faces a critical need for structural transformation of its economy: while most of the population resides in the rural parts of the country, international trade provides at the moment disproportionately more benefits to the urban population. Agriculture is specifically important in that regard as almost all rural population is involved in subsistence farming.

This study has outlined policy trajectories in cocoa, potatoes and cardamom sector, that build on the comparative strengths of Guatemalan rural economy, provide more equal benefits to the small-scale farmers, leverage existing traditional knowledge and practices, highlight the women’s roles and contingencies. These trajectories are formulated in a sustainable manner, as they address environmental goals (protection of biodiversity, natural resources preservation, climate change resilience), draw on social welfare objectives (food security and nutrition, social inclusiveness), accost various issues related to economic and social equality (including gender equality and more equitable distribution of income from current activities) and economic development objectives (increased income, more diversified income opportunities). These strategies relate to internal and external factors, providing a link for a more sustainable economic development that improves and vitalizes Guatemalan rural economy.

Building on the technical backgrounders, international expertise and consultations with national stakeholders, this report provides a structural overview of sustainable outcomes related to agricultural trade in cardamom, cocoa and potato sectors. Policy options and sustainability analysis performed for these sectors outline a set of actions to be implemented to inform the policy dialogue that will engender sustainable agricultural trade for Guatemala that is socially and economically inclusive and environmentally sustainable in its value chains. The following key recommendations represent the findings of the present study.

1. Enhance policy coherence and multi-stakeholder dialogue to guide coherent national action supportive of smallholder farmer development

Institutional and policy coherence is crucial for following these trajectories and implementing sustainable agriculture trade strategies in the country. This coherence is key in sustainable development of the country and improvement of the livelihood of its population. There are several aspects of which this coherence is composed:

First, inter-ministerial cooperation, more specifically, trade and agricultural policies should be aligned, and not contrast the policies related to natural resources preservation. Coordination between these institutions will ensure the mainstreaming of sustainability considerations into the issues related to agriculture trade. This can be achieved through provision of soft incentives in line of internal intra-ministerial mainstreaming, and through regular coordination meetings and policy dialogue between the ministries involved.

Second, Guatemalan agricultural policy should integrate zealous rural-oriented development policies that are inclusive of small-scale farmers and encourage commercially oriented micro, small and medium entrepreneurs. This by turn cannot be achieved without including various stakeholders who do not have traditional economic bargaining power into the policy dialogue and policy formation. The experience of the multi-stakeholder approach in potato and cocoa chains (Technical Group – Productive Chain of Potato; Cocoa Agricultural Chain Working Group for Northern Region and Southern Regions) has shown that
interactions between the various levels of value chain actors have a very positive experience on the sector practices and resulted in improved market opportunities\textsuperscript{24} for Guatemalan products.

Third, the overall alignment of agriculture and economic policies should be in line with the overall country development strategy: National Development Policy and Plan K’atun: Our Guatemala 2032. Hence, a periodical review mechanism is highly recommended to verify the progress. One of the suggested ways to implement such mechanism is through integrating a periodical review of the policies, strategies and plans conducted by a collegiate development-oriented technical committee integrated by SEGEPLAN and SEPREM, among others.

2. Promote the formation of farmers’ groups and associations, and participatory forms of business

Guatemalan rural farmers currently lack inclusion into the market structures serving internal domestic market of high-value processed agriculture produce. Promoting the formation of farmers’ organizations can improve the information flow between the rural farmers and urban markets, while preserving the existing underlying smallholder agronomic model.

For example, upgrading of potato products can be achieved through processing fresh potatoes only when there are enough similar quality homogenous potatoes at the same time – through pooling the resources and disseminating the same information within a farmer’s group this upgrading can become an economically feasible option, and hence provide additional source of income to the farmers. Current fragmentation of the production base and absence of coordination creates additional hurdle for the upgrading possibilities within the private sector.

Farmers’ groups, associations and cooperatives are inclusive of the poor and remote and can become a market outlet for smallholder farmers in Guatemala. They can be an important institution for the transformation of smallholder farming, productivity and income increase and diversification. Therefore, they can thereby contribute to the reduction of poverty and improvement of rural livelihood.

Farmers’ organizations decrease the relative cost of the extension service provision. Dealing with farmers’ group and associations makes less costly the delivery of services as information is transmitted faster and can be spread within the group through internal links. This, by-turn, is more beneficial for the policy execution. These organizations can serve to both formations of farmer self-help groups, utilizing the internal pool of knowledge and expertise, and linking to other farmer groups with common, similar or complimentary interests, overcoming asymmetry of information and achieving the economy of scale.

According to the information gathered, the sectors studied have a low level of presence of farmers groups and associations. In case of cardamom, 80 per cent of farmers nationally do not belong to any group or association that produces cardamom. While almost 90\% of farmers cultivate potatoes, less than 10\% of those are a part of some organization – similar situation is envisaged in the cocoa sector.

The farmers’ organizations have the potential to increase the smallholder business capacity, creating green and sustainable small businesses and providing income diversification to the farmers (FAO, 2015). They are also a more active actor in sustainable policies, as they possess the ability to disseminate and pool knowledge much faster than among the scattered farmers.

\textsuperscript{24} For example, in potato sector this includes the business relationships with Frito Lay, Walmart, Hortifruti, and else.
Sustainable policy options should not only include the provisions dealing with the farmers’ organizations, but also the blueprints on the types and forms of farmers organizations. It is suggested to train the extension officers, or provide them with the materials, on creation of farmers’ organizations.

Creation of farmers’ organizations can successfully address the agriculture gender gap through educating women, enabling their access to resources, developing entrepreneurial skills. In case of a strongly men-influenced culture creating establishment of women groups can positively influence the general “unaccountancy” for women labour that tends to happen with subsistence-oriented farming. This gender equality improvement can be achieved through certain rules or programs, targeted at women—such as, for example, introducing quotas for women membership in groups or trainings (e.g. no less than 50 per cent), or targeting women-only groups. Therefore, promoting formation of farmers’ organizations can have a positive effect at addressing gender gap. As enterprises that endeavour to meet the economic progress of members while satisfying their socio-cultural interests and protecting the environment, cooperatives are the best suited type of organization to address poverty reduction and exclusion.

3. **Introduce competition policy and legislation**

Competition policy is instrumental for functioning of a market economy, as it addresses such issues as productivity, innovation and transparency through incentivising market-led competitive behaviour in private sector and enhances the efficiency of public sector. National authority that creates and governs a legal and policy framework related to competition will have a positive effect on Guatemala’s growth and sustainability of its economy.

The studied sectors illustrate the need for competition rules and enforcement in the country. In the cardamom sector, price fixation throughout the production chain indicates the existence of horizontal agreements among intermediaries. This behaviour is generally regarded as cartel behaviour when the competition law is present, as it constitutes anti-competitive price-distorting behaviour by a group of market participants. However, the lack of such legislation in Guatemala makes such behaviour not illegal, and hence no sanctions can be imposed at these market participants unless such practices are prohibited by other laws.

Competition policy encourages market behaviour, but also promotes more efficient utilization of resources in general, incentivising economic behaviour and creating sustainable growth. Guatemala is lagging compared to majority of countries in adopting competition policy and legislation. Its introduction has been in discussion for more than a decade. The country is already in default of an international obligation to adopt competition policy and legislation. Yet, both complex legal and economic analysis behind every possible restriction is needed to guarantee its constitutionality and to avoid vagueness that could lead to misinterpretation in favour of political interests.

This overall competition policy and legislation framework in Guatemala should be aimed at enforcing market rules that encourage investment, either domestic or foreign. These additional capital inflows carry the potential to cumulate resources needed for quality upgrade of local products, higher efficiency and more sustainable economic development by protecting the process of competition. For sustainability concerns, these investment flows should include some economic, social and governance considerations, in order to promote sustainable growth. Such investments in the studied agricultural sectors can take form of medium scale productions of origin-based single-aroma single-flavour chocolate, or production of artisanal chips,

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25 According to the World Bank, at least 100 countries have sufficient and functional competition policy.
and other. Ensuring fair competition for economic activity is a necessary foundation for attracting sustainably investment into agriculture value chains.

4. Target the economic markets of the non-traditional, sustainable agricultural products

Targeting the currently rising market trend of high-value “niche/boutique” products can highly benefit Guatemalan rural farmers but faces a number of challenges.

- **Structured agriculture supply chains.** In general niche/boutique supply chains are buyer-driven and, while providing opportunities for inclusion of small holder farmers that are remote and have little traditional bargaining power, they require fully coordinated and transparent chain of actors. The rich and diverse agriculture genetic pool of Guatemala provides an incentive for targeting the single-origin single-flavour chocolate markets and similar type of markets for other products. Targeting these markets requires coordination between the buyer and local smallholder farmers (most likely an organized farmer’s group or association) in a form of a structured agriculture supply chain. These can take form in contractual farming arrangement, out grower schemes, or other forms of coordination. These links can highly benefit through provision of extension advice, standard compliance training, information on best practices provision, and agricultural inputs provision.

- **Use of local genetic material and appropriate technics.** While targeting niche/boutique markets can help overcome the primary product volume constraint that is in place of commercial farming, it still requires sufficient amount of homogenous primary product. Apart from linking the potential buyers with prospective sellers, the variety selection and selection of production technics, proper trainings on according pre- and postharvest management should be introduced. In case of cocoa, as described in Chapter 3, management technics during the pre-harvest and post-harvest stages can significantly affect the resulting flavour and taste of the product. Leveraging the existing unique traditional knowledge, local traditions, culture specifics while raising awareness on the importance of following prescribed production technics can not only provide sufficient amount of primary product, but also be a part of the “story” that traditionally accompanies the branding of niche/boutique products.

- **National strategy.** Apart from niche/boutique export markets, there is a number of domestic possibilities for inclusion of Guatemalan smallholder farming. First, through local tourism and hospitality industry can provide the market for the niche/boutique products without facing export certification and other procedures. Linking hospitality industry to inclusive agriculture production chains is less costly both in terms of time and resources and can serve as a stepping ground for further accessing export markets of niche/boutique products. Second, an option of creating a national marketing strategy should be explored. Creating a marketing strategy that will raise awareness of buying “Guatemala-made” can rejuvenate the existing domestic links and revitalize the rural economy. Enhancing domestic market has a potential to not only increase the demand for local products, but it also diversifies against external (international) price shocks.

- **Certification.** Guatemalan economic and trade policy should embrace the comparative advantage of agricultural products that is not related to traditional competitive characteristics (price, volume, market competition with established traditional products) and build an overall agriculture trade strategy of Guatemala-specific agriculture characteristics. Introduction and promotion of the proper agriculture certification scheme that is in line with the world-accepted norms is especially important in case of native varieties. Unique taste and texture characteristics of native varieties can be certified through a locally established norms and processes, specific to Guatemala. Some buyers can accept national sustainable agriculture certification as an indication of the premium product, alike to VSS products.
5. Promote the existent Good Agriculture Practices through various channels

The basic concepts of Good Agricultural Practices (GAP) provide a guide to the production systems that are based on sustainable agriculture principles and are ecologically safe, systems that obtain harmless products of higher quality, contribute to food security generating income through the access to markets and improve working conditions of producers and their families.

In terms of GAPs promotion, it should combine two sets of considerations – short-term resilience improvement and long-term environment sustainability improvement. First set of considerations relate to using GAPs to improve the production process of the smallholder farmer, and consecutively increase their level of income and ameliorate their livelihoods. This most efficiently can be done through targeting farmers groups and associations (see point 2 above) as they can pool their skills and leverage on the local information transmission mechanisms. Second set of considerations relate to overcoming the limitation of GAPs to be linked solely to MAGA. Properly formulated GAPs are sustainable (SEGEPLAN) and relate to questions of nature preservation (MARN), improved economic potential (MINECO), are gender-inclusive (SEPREM), improve the competitiveness of Guatemalan agriculture products (PRONACOM). In that regard GAPs can be used as a tool for achieving policy coherence (see point 1) through intra-ministerial dialogue.

Among other factors of GAP that can improve the smallholder productivity, such factors should be regarded:

- Nutritional and fertilization recommendations, apart from setting national rules on implications of harmful substances, must be based on specific agronomic conditions;
- Seed breeding systems that provide small-scale farmers with seeds of local varieties which are pest and disease resistant, heat resistant and GM-free;
- Introduces appropriate pre- and postharvest management technics that are aimed at the decrease of the harvest loss;
- Promotion of the sustainable small farming systems that combine functional complementarity between crops and biodiversity preservation (e.g. multiple cropping).

It is important to envisage the feedback provision on GAPs (and GMPs) application to achieve the most sustainable and environment friendly agronomic model that suits local, context-specific technical solutions. This will ensure that Guatemalan rural agriculture transforms in a way that improves productivity, but remains local-specific, inclusive of smallholder farmers, climate resilient and preserves biodiversity.

GAPs should be looked at in conjunction with GMPs (Good Manufacturing Practices) as they are also capable of providing recommendations applicable to production, processing and food transport. In case of small holder farming agronomic models, they benefit not only the product quality, but also improvement of worker conditions and their families, including their health and wellbeing. In that regard, the promotion of GAPs should have been gender-cautious, and include questions related to gender equality and women empowerment. It is recommended to explore new possibilities of gender-friendly interventions that build on the existing farming models. This can be more easily done through leveraging the experiences in agriculture sector of UN Women, World Food Programme and mainstreaming SEPREM’s activity.
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Annex I
Annex II

**Farmer**
/ Huehuetenango, Quetzaltenango, San

- **Sub-agent** (sub-intermediary)
- **Domestic consumption**
- **Farmer of the next season (seed)**

**Farmer associations and cooperatives**
/ Huehuetenango, San

- **Regional Intermediary**
- **Artisanal potato chips processors**

**National Wholesale and Retail**
/ Guatemala City

- **Wholesale market**
- **Exporters**
- **Tourism and open vendors**

**Exporters**

(**) – indicates the product being currently exported by Guatemala
Cocoa beans (raw)

Cocoa shell & pulp

(++) Cocoa beans (dried)

Cocoa extract
Cocoa essence
Oleo Chemical
Cocoa butter

Jelly
Bio Gas
Fuel
Fertilizer

Chemistry
Imports

Medicines, chemistry
Imports

Medicines, cosmetics
Imports

Sweetened Cocoa Powder
Other patisserie

Chocolate

(++) Cocoa powder
Cocoa concentrate

(**) Cocoa paste

(++) Cocoa powder
Cocoa concentrate
Cocoa extract

Medicines, chemistry
Imports

Medicines, cosmetics
Imports

(++) Chocolate

Fertilizer
Bio Gas
Fuel
Jelly
Cocoa butter
Cocoa essence
Cocoa extract
Cocoa concentrate
Cocoa powder
Cocoa beans (raw)

(**) – indicates the product being currently exported by Guatemala
Cocoa sector actor-geography map
(only exported products)
- Indicates same processing location. The quality of the spice is established when it is at the primary processing stage.

(**) Indicates the product being currently exported by Guatemala.

(*) Indicates the product being currently produced in Guatemala.
Annex III

Farmer (350,000 individuals) → Fresh flower → Intermediary → Fresh flower → Intermediary → 3-7 steps with intermediaries → Fresh flower → Dryer (2000 units) /municipality centers/ → Dried flower → Intermediary → Dried flower → Packaging (50 companies, 500 indiv. entrepreneurs) /Department capitals/ → Packaged dried flower → Intermediary → Packaged dried flower → Municipal or Major Intermediary

Cooperatives/ Farmers’ groups (about 10% farmers) → Dried flower, less than 5% of exported volume

Exporter (10 companies) /Coban, Alta Verapaz/ → Dried re-packaged flower, about 95% of exported volume

Off-shore buyer