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Unlocking Central America's Export Potential

2. Unlocking Potential at the Sector Level: Value Chain Analyses

Finance and Private Sector Development Department

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List of Acronyms

ADAPCCA	Program of Support for the Design and Application of Central American Common Policies
ACEN	Asociación de Cafés Especiales de Nicaragua
ADB	Asian Development Bank
ANACAFE	Asociación Nacional del Café (Guatemala)
ASEAN	Association of Southeast Asian Nations
CACM	Central American Common Market
CATIE	Center for Tropical Agricultural Research and Higher Education
CATT	Customs Assessment Trade Toolkit
CCA	Central American Council for Accreditation of Higher Education
CDRH	Center for Devices and Radiological Health
CIAT	International Center for Tropical Agriculture
CINDE	Costa Rica Investment Promotion Agency
CMP	Common Market Protocol
CONACAFE	Consejo Nacional del Café (Nicaragua)
CPA	Certified Public Accountant
DR-CAFTA	Dominican Republic – Central America Free Trade Agreement
EAC	East African Community
EACIA	East African Community Institutes of Accountants
ECLAC	United Nations Economic Commission for Latin America and the Caribbean
FAO	Food and Agriculture Organization
FDA	U.S. Food and Drug Administration
FDI	foreign direct investment
FOB	free on board
GATT	General Agreement on Tariffs and Trade
GDP	gross domestic product
IAAC	Inter-American Accreditation Cooperation
IADB	Inter-American Development Bank
IAF	International Accreditation Forum
ICO	International Coffee Organization
ICT	Information and communication technologies
ICT	Instituto Costarricense de Turismo
IICA	Inter-American Institute for Cooperation in Agriculture
IQF	individually quick frozen (fruits)
ISO	International Standards Organization
ISO	International Organization for Standardization
MERCOSUR	Southern Common Market (<i>Mercado Común del Sur</i>)
MSMEs	Micro, Small, and Medium Enterprises
NAFTA	North America Free Trade Agreement
NFC	not from concentrate (juice)

NGO	non-governmental organization
ODECA	Charter of the Organization of Central American States
OEMs	original equipment manufacturers
PPD	public private dialogue
PPP	public private partnerships
PROESA	Agencia de Promoción de Exportaciones e Inversiones de El Salvador
R&D	research and development
RTA	Regional Trade Agreement
SICA	Secretaría de Integración de Centroamérica
SIECA	Central American Economic Integration Secretariat
SITCA	Secretaría de Integración Turística Centroamericana
SMEs	Small and Medium Enterprises
USD	United States Dollars
WEF	World Economic Forum
WTO	World Trade Organization
WTTC	World Travel and Tourism Council

Summary

The conclusions from the section on Export Performance point to the need to increase the quantity, quality, sophistication, and sustainability of exports. To move beyond high-level and generic policy prescriptions for doing so, it is necessary to look at the specific factors constraining the competitiveness of firms and sectors in Central America. Hence, this section utilizes a value chain lens, focusing on industry-specific factors contributing to low productivity and high costs. The analyses cover a range of issues—from production costs to information flows to end-market positioning—affecting the competitiveness of the coffee, shrimp, fruit juice, medical device, and tourism value chains. These value chains were chosen through a selection process designed to identify a representative set of promising sectors spanning agribusiness, light manufacturing, and services. Selection criteria included estimates of size and growth potential, relevance to exports, small and medium enterprise (SME) concentration, and potential for forward and backward linkages.

To complement the value chains analyses, a separate analysis was undertaken of two professional services sectors: accounting/auditing and engineering services. The purpose was slightly different: shed light on the potential to increase intra-regional services exports.

Common constraints identified include lack of security; poor transport and logistics infrastructure; weak market intelligence and export promotion; lack of industry harmonization and standardization; and weak manufacturing and agricultural extension services. Many constraints that are unique to individual sectors were also identified, such as the importance of investment promotion efforts to build a medical device (or similar) industry, and the importance of regional cooperation to develop multi-country tourism itineraries. Such findings would be overlooked in more traditional competitiveness or growth analyses. Another finding was that some sectors that seemed promising *ex ante* have less growth potential upon closer inspection. One example is the fruit juice industry. Countries outside of Costa Rica might have difficulties maintaining enough consistent supply of raw fruit at scale to justify investments in modern juice processing equipment. Examples of more findings for specific value chains are shown in the table below.

Summary of sectoral analyses

Value Chain	Countries	Main Findings
Aquaculture - Shrimp	Honduras, Nicaragua	<ul style="list-style-type: none"> • Global prices have dropped substantially in recent years due to competition from Asia. Prices in HN and NI have fallen even more than global average. • Very little value-added processing (e.g. breeding, spicing, precooking), although profit margins are potentially much higher. • Lack of R&D and extension services to improve yields and feed conversion ratios. • Weak links to end markets make it hard to understand customer needs.
Coffee	Guatemala, Nicaragua, Panama	<ul style="list-style-type: none"> • Majority of exports are green beans, meaning missed opportunities for adding value. • Limited branding (GT and NI). • Producers need better information on production technologies, product innovation (e.g. processing of coffee cherry mucilage), and end-market buyer preferences.
Tourism	Costa Rica	<ul style="list-style-type: none"> • Strong fundamentals and powerful branding.
	El Salvador, Guatemala, Honduras	<ul style="list-style-type: none"> • Need to fix fundamentals: safety and security and health and sanitation in tourist areas. • Within and between country transportation linkages keep tourism below potential and deter emergence of regional tourism packages. Investment priorities should be based on market research and segmentation / demand analysis. • Strengthen the national tourism promotion agencies particularly in the areas of market research, market segmentation, and client management (i.e. country of origin outbound tour operators).
Fruit Juices	Costa Rica, El Salvador	<ul style="list-style-type: none"> • Fruit juice sector has less potential for growth than sector selection analysis suggested, due to limits in supply of raw fruit. Costa Rica is the only country with consistent supply (pineapple) of an adequate scale for world-class processing. • Shortcomings in cold chain facilities network.
Medical Devices	Costa Rica	<ul style="list-style-type: none"> • Production has evolved into more sophisticated and higher value-added products. • Compares favorably with Mexico, offers greater security.
	El Salvador, Guatemala	<ul style="list-style-type: none"> • Could be hard to duplicate Costa Rica's success in medical devices, but could learn from Costa Rica's investment promotion activities to attract other sectors. • Low levels of human capacity in language and management skills. • Inefficient import/export procedures drive up costs. • Lack of industrial parks to attract FDI in Guatemala.
Professional services	Costa Rica, El Salvador, Guatemala, Honduras, Nicaragua, Panama	<ul style="list-style-type: none"> • Analysis focused on how to increase intra-regional accounting/ auditing and engineering services exports. • Stronger provisions requiring the recognition of academic and professional qualifications are needed, as is capacity building for professional associations and a mechanism for a professional services integration dialogue. Special considerations would be needed for SME service providers.

Introduction

PURPOSE

More so than traditional country/sector level analysis, a value chain approach to competitiveness¹:

- Identifies the linkages (e.g. goods, services, information, and capital) between different stakeholders in the production process. The alignment of productive assets is as important as their quantity and quality. Thus value chain analysis is particularly effective at identifying coordination failures.
- Has economic viability and commercial sustainability at its core because of its market focus. Value chains reflect how economic actors align themselves in response to market demand.
- Determines the distribution of value added between activities, both within and between countries, which affords a better understanding of the country's positioning within the global production chain.
- Examines information flows between economic actors. The quality (e.g. content and speed) of information flows can have a significant impact on the level of innovation and is particularly important in knowledge-based industries.
- Segments activities (e.g. production, processing, exporting etc.) allowing for a deeper understanding of the constraints and opportunities within each segment and by extension the industry as a whole. Segmentation also allows for the identification of entry points for SMEs seeking to access regional/global markets.

As noted above, one of the key features that distinguish a value chain analysis from a simple supply chain study is the emphasis on how each element provides value to the final consumer. This study responds to that imperative by initiating each value chain analysis with a thorough analysis of end markets, ensuring a global value chain perspective, prior to evaluating the specific value chain elements present in each country. Overall, the study aims to generate insights into practical approaches to address identified constraints, based on opportunities linked to global market trends, while paying special attention to issues related to economic integration.

The analysis is presented in two sections. Section I: Regional Dimension provides an overview of cross-cutting obstacles at the regional level. Section II: Value Chain Main Findings provides a

¹ There is a rich and growing body of literature on the benefits of value chain analysis. For example, see Globalisation and Unequalisation: What Can Be Learned from Value Chain Analysis? R. Kapinsky (2004) or Creating Product Value: Putting Manufacturing on the Strategic Agenda, Womack and Jones (1996). Much of the literature in this space has been influenced by the work of Michael Porter see "The Competitive Advantage" (1985). Development organizations such as UNIDO, FAO, USAID and IADB have adopted value chain analysis as a standard analytical tool and have added to the body of literature on value chain analysis as it relates to economic development.

review of each value chain including a brief discussion of market opportunities and constraints. Recommendations are provided at the end of each section.

ANALYTICAL APPROACH

In the process of conducting these value chain studies, specific themes guided the analytical process and helped shape the outcomes.

Longer term regional strategies. The logic of this report is based on an understanding of the business strategies required for industries to grow and thrive in changing global markets. However, while the main concerns of business leaders are often short-term in nature, this study adopts a medium to long-term perspective, looking ahead a few jumps to ensure that policies will foster sustained competitiveness, not just temporary increases in revenue. For example, recent increases in prices paid to coffee producers and Central America's success in penetrating the specialty segment might imply that existing policies should simply be maintained. However, the competitive benchmarking indicates that Central American producers must invest strategically and adopt a medium-term strategy that increases the distinctiveness of Central American coffees vis-à-vis competitors such as Brazil, Peru, Vietnam, and Laos.

Focus on end markets. Microeconomic distortions often insulate developing country value chains from responding to market signals from the global value chains with which they should be integrated. In some cases producers are willing but unable to respond, due to capacity issues such as compliance with industrial or phytosanitary standards. The end market approach requires that, rather than starting by analyzing local value chains, the correct starting point is to understand the medium and long-term effects of global market and technology trends on the target value chains. This approach helps to identify creative ideas for how local market players might want to position themselves strategically in light of these global trends. Thus the end market analysis is critical to developing a long term business strategy that will deliver sustainable competitive advantage. Much of the end market analysis is encapsulated in the development of segment-specific critical success factors, which allows analysts to view local constraints and opportunities through the prism of international market requirements.

Identifying industry-specific constraints. The value chain analysis draws on several tools to drill down to the level of binding constraints. First among these is the *value chain map*, which delineates the sequence of activities at the industry level and key linkages for each step and distribution channel in the production process, providing a systemic overview of the value chain and allowing the analyst to better pinpoint transactions that may be responsible for higher costs or lower productivity. *Cost and productivity analysis and benchmarking* brings the analysis to the more detailed industry segment level, comparing input costs against regional competitors and benchmark countries.

Emphasis on data collection. Original data collected for this report was obtained through extensive in-country interviews with producers and manufacturers, interviews with industry

experts (both in-country and in key end markets such as the U.S.), surveys of key market actors, consultations with stakeholders, and secondary source analysis. In some value chains it was feasible to engage in primary data collection, while in others qualitative information was all that was made available. Despite the emphasis on uniformity, the results and applicability of analytical tools outlined above differ by value chain due primarily to the availability of reliable data and the nature of cost drivers for the product segment.

Narrowly defined value chains. For consistency and to enable an “apples to apples” comparison of value chains, the following definitions are used:

Sector	Broadest classification, e.g. food processing, light manufacturing, consumer services (2-digit industry code).
Industry	Specific industry within a sector, e.g. fruit & vegetable juice, coffee, medical devices, leisure tourism (4-digit).
Segment	A product or group of products within an industry, e.g. fruit juice from concentrate, specialty coffee, Class I medical devices, eco-tourism.
Value Chain	The series of value-generating activities undertaken by producers, suppliers, organizations, resources and knowledge streams in the production of a good or service. Can be defined at the level of a firm, product, segment, or industry. For the purposes of this study the value chain maps have been defined at the industry level, with detailed cost and gap analysis at the segment level. Value chain mapping was conducted at the industry level, and market, cost, and gap analysis at the segment level.

Each of the value chain studies provides an overview of the industry along with a more in-depth treatment of the particular segment or segments that have emerged as opportunities for export competitiveness. The focus on narrower industry segments allows for more specific research and more actionable recommendations. It is anticipated that even where specific recommendations may not be directly applicable to other industries (or even other segments of the same industry), the methodology for reaching those recommendations is replicable.

Spillovers. The analysis pays attention to spillover effects, primarily by evaluating the stimulus that increased activity in the sector under evaluation can provide to other providers of goods and services, both domestically and in other Central American economies. This is relevant especially for the medical devices and tourism value chains. In the case of medical devices, spillover

analysis was conducted using the product space tool. Product space analysis focuses on a network representation of the relatedness between products that are traded in international markets.

Clustering effects. Where clustering effects are already present, as in medical devices in Costa Rica and coffee in Panama, they are verified; where they are recommended, as in tourism for Guatemala and Honduras, the rationale is provided based on identified constraints such as coordination failures, and comparator performance.

VALUE CHAIN SELECTION

A six-step sector selection process which utilizes a Sector Selection Matrix was used to select the value chains for this study. From this, eleven combinations of sectors and countries were selected using a rigorous and transparent sector selection process and identified for further analysis (see Methodological Appendix in Background Report). In an effort to cover a range of factors impacting the economic competitiveness of Central America, this process selected at least one product or service in each of three broad sector categories: agriculture and food processing, light manufacturing, and services. Additionally, priority was given to ensuring that each Central American country was involved in at least one value chain analysis. The table below illustrates the final selection of value chain units as well as the benchmark country used for comparison.

Table 1: TEN SELECTED VALUE CHAIN ANALYSIS UNITS

Country	Medical Devices	Tourism	Coffee	Aquaculture	Fruit Juice
Costa Rica	■	■			■
El Salvador	■	■			■
Guatemala	■	■	■		
Honduras		■		■	
Nicaragua			■	■	
Panama			■		
Benchmark	Mexico	Costa Rica	Colombia	Vietnam	Mexico

For the three broad sector categories, the final value chains of focus were:

- *Light manufacturing:* medical devices
- *Services:* tourism
- *Agriculture and food processing:* coffee, fruit juice and aquaculture

This selection of sectors includes a mix of more traditional products (such as coffee), products that are relatively well established in some countries (aquaculture and tourism), and products that seemed promising since they have had some success cases in the region (medical devices and fruit juice). This mix of sectors allows for coverage of a diverse range of challenges, including: how to maintain the competitiveness of traditional products given evolving market demands; how to replicate the success of benchmark countries, such as aquaculture in Vietnam and tourism in Costa Rica; and how to think about “discovering” new products (such as medical devices and juices outside of Costa Rica).

What follows is a synthesis of common constraints across the value chains and regional integration related recommendations.

Section I: Regional Dimension

Central to the purpose of the value chain analysis is identifying constraints that are common across Central America and understanding how greater regional integration can improve the competitiveness of the value chains under study. Indeed, regional integration is not an end unto itself. Rather it can be a powerful force for economic development by allowing countries to:

- Overcome the disadvantages of small size allowing firms to achieve greater economies of scale and to access regional production networks and more efficient technology development and absorption;
- Attract foreign direct investment by providing access to a larger market for products and for factors inputs like specialized labor;
- Gain faster access to the global marketplace as regional trade integration usually advances much faster than multilateral international trade agreements; and
- Leverage regional public goods: a regional public good is a service or resource such as transport infrastructure, environmental standards, research and development activities, and production technologies, whose benefits are shared by neighboring countries.

Over the last 20 years Central America has made significant progress on the traditional regional integration agenda of lower tariffs and free trade agreements. The average MFN tariff has fallen from 40% to 10% since the 1980s. There are now 42 free trade agreements covering 237 bilateral relationships representing 89% of intra-LAC trade. However, the findings of the value chain analysis indicate that the region's integration agenda has not adequately responded to the rise of global value chains where competitiveness is increasingly determined by non-traditional factors such as transport and logistics costs, product customization, time to market, and private standards for market access. The importance of these factors underscores the need for Central America to increase the quality and quantity of regional public goods available to its firms.

Specifically, the value chain analyses identified the following constraints to competitiveness, which to varying degrees are common to all countries in the region:

Lack of security. One of the largest and most overarching obstacles to competitiveness in Central America is the lack of security. In almost every dimension of analysis, security was ranked a top issue. For example, as illustrated in the cost bar analysis of coffee in Guatemala, theft of coffee beans can account for up to 8% of production costs. The full cost of the lack of security is difficult to quantify as it includes both explicit costs such as security personnel as well as opportunity costs in the form of lost sales and investment. For example, tour operators in the United States and Canada cited security as a major impediment to the development of new tour packages to the region. While it is beyond the scope of this analysis to put forward solutions on how to solve the regional security issue, it is imperative to stress the effects that lack of safety

have on all value chain industries – aquaculture, coffee, fruit juice, medical devices, and tourism. The recent World Bank 2010 study on “Crime and Violence in Central America” puts forward a number of thoughtful recommendations to address the security issue; however, more refined strategies for addressing industry-specific security issues should be considered as should strategic marketing approaches that could begin to recast the region’s reputation.

Room for improvement in transport and logistics infrastructure. The cost of transporting goods – whether it is coffee, raw fruit, processed medical devices, or tourists – affects the competitiveness of all sectors. The region’s exports are particularly sensitive to transport costs due to their low value-to-weight ratios and perishability. For example, cold chain facilities are needed throughout the region. While much attention is paid to international transport costs, domestic freight expenditures can be significant as well.² (See Figure 1 below). One widely cited study estimates that if transport costs were lowered by 10% the LAC region’s exports might grow by 30%.³

Figure 2: NATIONAL & INTRA-REGIONAL FREIGHT RATES (NICARAGUA PT. OF ORIGIN)

Route	Cost	% of Intl Freight Rate to Miami
Chinandega - Corinto	\$230	38%
Matagalpa - Corinto	\$760	59%
Segovia - Corinto	\$960	64%
Jinotega - Corinto	\$850	62%
Chinandega - P. Limón	\$1,130	31%
Chinandega - P. Cortes	\$1,830	51%

Source: stakeholder interviews

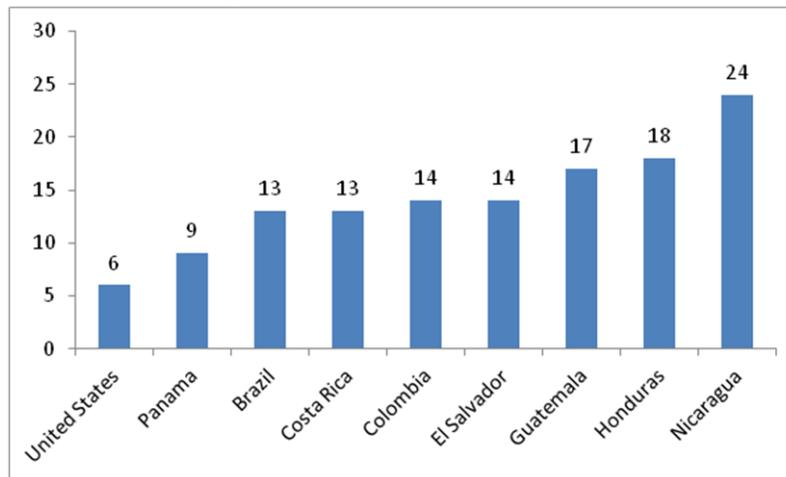
The costs resulting from shortcomings in overland transport linkages are compounded by time and costs required for documents preparation, customs clearance and technical control, and ports and terminal handling (Figure 2). Shipping delays can adversely impact product quality especially for agricultural goods and may even result in product loss. Moreover, inefficient port operations can undermine resulting product traceability and certification processes, which are increasingly important for agribusiness products like coffee and aquaculture. The cost of such delays is often underestimated as depreciation and the cost of inventory financing are seldom included.⁴

² It is important to note that domestic freight is generally over ground while international freight is primarily by sea. Additionally, it should be noted that Port Limon and Port Cortes have much higher traffic than Port Corinto.

³ “Unclogging the Arteries: The Impact of Transport Costs on Latin America and the Caribbean” Trade, Mesquita Moreira, Christian Volpe, Juan Blyde, *Globalization, Competitiveness and Governability*, 2008. Georgetown University & Universia.

⁴ Lengthy waiting times can result in loss of business opportunities and impose inventory-holding and depreciation costs on traders. Costs for inventory-holding include both the lost interest on capital tied up in goods at borders, as well as the need to keep larger

Figure 1: TOTAL EXPORT TIME (DAYS)⁵



Source: World Bank Doing Business Report 2012

In addition to shortcomings in land and sea transportation networks, air transportation shows much room for improvement. Poor interregional air linkages are deemed by tour operators in North America to be the biggest obstacle to the development of a regional tourism product.

Weak market intelligence and export promotion: Weak end-market linkages lead to a poor understanding of customer needs resulting in missed product development, value-addition, and branding opportunities. The competitiveness of all five value chains was undermined by relatively weak market intelligence and export promotion. This problem was particularly acute in the tourism sector. Most of the tourism development boards, chambers, and associations in Central America lack technical skills in key areas such as data collection, market research, marketing, promotion, training, certification, and product development. Similarly the majority of shrimp exports are in commodity form (i.e. basic processing) and the majority of coffee exports are made-up of green beans with limited specialty coffee designations, which suggests that more value could potentially be added if there was greater investment in understanding customer needs.

Lack of industry harmonization and standardization. In value chains such as medical devices, coffee, and fruit juice, specific industry standards are established to ensure that importers, retailers, and consumers are getting what they pay for. In coffee, for example, while unique variety and taste are critical to success, there must be standards that ensure levels of

buffer-stock inventories at the final destinations in order to accommodate possible variations in border clearance times. Depreciation captures costs related to spoilage of fresh produce, items with immediate information content, such as newspapers, and goods for which demand cannot be forecast well in advance, such as holiday toys or high-fashion apparel.

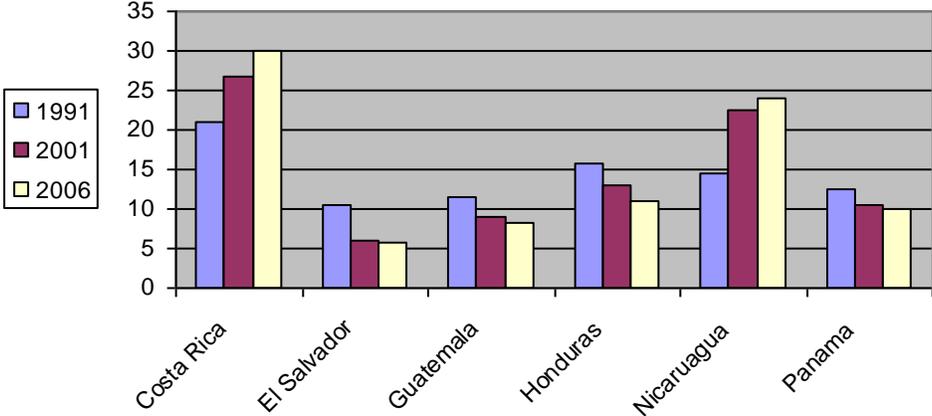
⁵ Total export time includes document preparation time which is done both before and at the port.

quality and fairness (i.e. commercial grade beans cannot be mixed in with specialty). Coffee producers and exporters can benefit from up-to-the-minute reports on sales volumes and prices by origin, destination, type and quality grade, but existing systems collect data using classifications that are outdated and incompatible across countries. A harmonized, modernized, and highly accessible system with the flexibility to adapt quickly to new product features would give Central American coffee producers a competitive advantage over other regions that are less integrated. Standard coding can also be used to streamline trade and logistics and harmonize IT systems and processes within and across each country. Additionally, greater standardization in shipping documents across countries and modes of transport (i.e. unified multimodal transport contract) would help to make the shipping process more efficient.

Lack of industry data. As encountered in this study (especially in fruit juice), robust, reliable data is difficult to come by and generally either incomplete or highly proprietary. Comprehensive data on various industries, on costs of production, sales, demand, markets, revenues, and investment would be a valuable resource for business owners, investors, and industry advisors, to use to guide their decision making. This type of data could also help to better define the bottlenecks and constraints that exist, so that the private and public sectors can jointly set priorities at some level and promote the improvements in overall regional competitiveness.

Low levels of research & development and weak extension services to small farmers. Total spending on agriculture-related R&D has fallen since 1991 in every country except Costa Rica and Nicaragua. The intensity of agricultural R&D spending (total R&D spending divided by total value of sector) in Central America is amongst the lowest in Latin America at 0.3% versus 1+% in Argentina, Brazil, Chile and Uruguay. Smaller producers in all of the aquaculture and coffee value chain units complained of poor extension services. It is therefore not surprising that yields in the aquaculture and coffee sectors lagged benchmark countries.

Figure 3. TOTAL SPENDING ON AG RESEARCH (MILLIONS OF 2005 PPP DOLLARS)



Source: Public Agricultural Research in Latin America and the Caribbean, ASTI Report (2009)

A regional versus country-level approach could more effectively address almost all of the challenges outlined above. Doing so will require increased coordination (i.e. functional cooperation) between states and between public and private sector stakeholders within states to effectively address the challenges outlined above. Unfortunately, the majority of value chains analyzed exhibited weak linkages between public and private sector stakeholders. Moreover, very few regional institutions play a prominent role in supporting the competitiveness of the value chains analyzed. This lack of functional cooperation within Central America represents a significant opportunity cost as the solution to many of the challenges identified in this report already exist within the region. For example, Nicaragua's coffee sector could learn from Guatemala's ANACAFE in the area of export promotion while at the same time the coffee industry in Guatemala could learn from CONACAFE's technical assistance and financing models for grower's associations. Similarly the tourist promotion agencies of El Salvador, Guatemala, and Honduras could all learn from the Costa Rican Tourism Board (ICT).

Recommendations for Regional Integration

The one overarching recommendation from a regional integration perspective is to improve the quantity and quality of regional public goods. There are three basic kinds of initiatives which may be undertaken to develop regional public goods: (i) non-country specific investments in knowledge, dialogue, basic research, and development for technologies meant to be in the public domain and the negotiation of agreement on shared standards and policy regimes; (ii) inter-country mechanisms for creating beneficial cross-border externalities or managing adverse ones; investments in cross-border infrastructure; creation of regional institutions to facilitate solutions in areas ranging from security to the sustainable management of shared environmental resources; and (iii) country-specific action to take advantage of the benefits created by the initiatives outlined in (i) and (ii).

Table 2: RECOMMENDATIONS FOR REGIONAL INTEGRATION

Recommendation	Rationale	Potential Lead Organizations
<p>Develop comprehensive regional databases on various industries including costs of production, sales, demand, markets, revenues, and investment.</p>	<p>Data collection processes and databases is an area where regional leadership can be transformative.</p>	<p>Sistema de la Integración Centroamericana; SICA</p>
<p>Standardize and streamline customs procedures and documentation across countries and modes of transport. – i.e. unified multimodal transport contract.</p>	<p>Transport and logistics costs are a significant obstacle to the region’s competitiveness in aquaculture, coffee, and tourism. To reduce delays and improve the region’s time to market performance, port and airport cargo handling procedures could be streamlined and customs documentation standardized across countries and modes of transport. (Further details on transport and logistics recommendations can be found in <i>Logistics in Central America</i> (World Bank, 2012), and the results of the Customs Assessment Trade Toolkit (CATTs), undertaken for Nicaragua and other countries.)</p>	<p>Sistema de la Integración Centroamericana; SICA</p> <p>Consejo Centramericano de Ministros de Finanzas</p> <p>World Customs Organization</p>
<p>Promote regional research and development centers of excellence to undertake world class research and development in cutting edge production technologies. Funding for these centers should be driven in large by the commercial applicability of their research. A network of such centers could be developed so that each country in the region is home to at least one center.</p>	<p>Total spend on agriculture-related R&D has fallen since 1991 in every country except Costa Rica and Nicaragua. The intensity of agricultural R&D spend (total R&D spend divided by total value of sector) in Central America is amongst the lowest in Latin America at 0.3% versus 1+% in Argentina, Brazil, Chile and Uruguay. Smaller producers in all of the aquaculture and coffee value chain units complained of poor extension services. It is therefore not surprising that yields in the aquaculture and coffee sectors lagged benchmark countries. The development of regional centers of excellence would avoid needless duplication of efforts at the national level. Rather than have a highly fragmented approach to R&D subject to national budget constraints resources could be pooled to develop world class centers that could serve as a competitive advantage to their industries.</p>	<p>Sistema de la Integración Centroamericana; SICA</p>
<p>Invest in rural roads and key transport links to facilitate producers’ access</p>	<p>The cost of transporting goods is high. The region’s exports are particularly sensitive to transport costs due to their</p>	<p>Ministries of Public Works / Transport</p>

Recommendation	Rationale	Potential Lead Organizations
to processing centers and markets. Provide incentives for the construction of small storage centers in rural production zones.	low value-to-weight ratios and perishability. While much attention is paid to international transport costs domestic freight expenditures can account for as much as 30% of the price of agricultural goods. One widely cited study estimates that if transport costs were lowered by 10% the LAC region's exports might grow by 30%. (See <i>Logistics in Central America</i> study for more detailed recommendations.)	
Develop industry specific task forces to address security related issues. For example, improved product traceability procedures for coffee and shrimp may reduce the instances of praedial larceny.	Exporters in the region incur both explicit and hidden security costs. Added transport and security service fees represent explicit costs; however, actual security costs are much higher if the cost of lost tour business (region-wide) and early harvesting of crops to avoid theft (aquaculture in Nicaragua) are also included.	Sistema de la Integración Centroamericana; SICA
Create a politically autonomous regional tourism association with the institutional capacity to conduct data collection, market research and market segmentation, and export promotion. The new entity could also (i) facilitate the development of regional tours (ii) provide training to national tourism promotion agencies in the areas of product development, marketing, and promotion.	A proposal to create a new agency, modeled after the Costa Rica-based Institute for Inter-American Cooperation in Agriculture (IICA), was unanimously supported by stakeholders interviewed for this study.	
Facilitate inter-regional exchanges amongst industry associations so that each country can benefit from regional best practices in production processes, research and development, financing, as well as marketing and promotion.	Specific countries in the region often possess a high degree of expertise in areas where their counterparts are deficient. For example, Nicaragua's coffee sector has much to learn from Guatemala's ANACAFE in the area export promotion. At the same time the coffee industry in Guatemala could learn from CONACAFE's technical assistance and financing models for grower's associations. Similarly the tourist promotion agencies of El Salvador, Guatemala and Honduras could all learn from the Costa Rica Tourism Board (ICT).	Sistema de la Integración Centroamericana; SICA Relevant industry associations

Recommendation	Rationale	Potential Lead Organizations
<p>Increase support for regional integration through a public awareness campaign highlighting the benefits of regional integration and the opportunity costs of a uniquely national approach to competitiveness.</p>	<p>The costs and benefits of regional integration can be highly asymmetric undermining the consensus national governments require to pursue an integration agenda. Latinobarometro survey results indicate that support for economic integration in Latin America and the Caribbean has declined steadily since the late 1990s.</p>	<p>Sistema de la Integración Centroamericana; SICA</p>
<p>Assess the benefits of a regional investment promotion agency. Models to explore include the Caribbean Export Promotion Agency (CEPA) and similar initiatives within the East African Community.</p>	<p>Looking at Central America as a region rather than a set of countries could open its markets up to larger-scale investment across all the value chains as well as cross-cutting sectors like transportation and communications.</p>	<p>Sistema de la Integración Centroamericana; SICA Consejo Centramericano de Ministros de Finanzas</p>
<p>Facilitate public private dialogue at the national and regional level to improve the design and implementation of the initiatives outlined above.</p>	<p>Non traditional determinants of global competitiveness such as transport and logistics costs, product customization, time to market, and private standards for market access cannot be effectively addressed by state actors alone. The active involvement of the private sector is required to ensure the development of regional public goods reflect sector specific needs and priorities.</p>	<p>Sistema de la Integración Centroamericana; SICA Consejo Centramericano de Ministros de Finanzas Relevant industry associations</p>

Additional regional integration related recommendations are provided in Section II.

Section II: Value Chain Main Findings

COFFEE

The world coffee market is large – retail sales amount to approximately US\$70 billion. Demand is growing steadily by about 2.5% annually. Brazil and Vietnam, followed by Colombia and Indonesia, dominate the production market and the U.S. is the largest consumer market, spending an estimated US\$30 billion in 2009. The U.S. is also Central America’s largest export market.

There are two main varieties of coffee: arabica, a higher quality, and robusta, a lower quality. The industry is also segmented, with one segment focusing on commercial grade (e.g. Folgers) coffee and the other on specialty, or high quality/gourmet, coffee (e.g. Starbucks). The fastest growth and strongest consumer trends are found in the specialty coffee segment. The specialty coffee market in the United States has grown by 125% since 2001. In addition, there are boutique and super high grade coffees, which are graded above specialty and often carry a distinctive brand such as Certified Organic.

Central America is already established as one of the world’s premier specialty coffee producers. In most countries in the region more than half of the production can already be classified as premium (i.e. above commercial-grade) coffee. Honduras and Guatemala have traditionally been the two Central American suppliers in the global coffee markets; however, recently Panama and Nicaragua have started to gain market share in the specialty coffee segment.

Table 3: COFFEE SECTOR COUNTRY DATA

	Guatemala	Nicaragua	Panama
Value of Coffee (% of GDP)	1.7%	5.4%	2.0%
Value of Coffee (% of all commodities)	12.2%	19.0%	2.0%
Total Production (million lbs)	3,950	238.1	14.2
Total Land under cultivation (2010, manzanas)	389,185	127,260	25,583
Total land under cultivation (2010, hectares)	272,000	88,955	17,883
Total No. Producers	171,334	43,183	~4,000
Exports of green coffee (60kg bags)	3,464,419	1,657,598	63,889
Exports of processed coffee (60kg bags)	3,668	54,218	1,232
Export Value (USD)	718,350,000	350,720,000	16,900,000

Sources: International Coffee Organization, 2010; for Panama, Contraloria General de la Republica, Instituto Nacional de Estadisticas y Censo; and DAI interviews

Specialty coffee has benefited from consumer trends that favor higher quality coffees. Market analysis reveals that consumers have become interested in single origin coffee where there is an emphasis on originality, new and unique varieties, and source authenticity (like premium wine); socially and environmentally sustainably grown coffees that emphasize the consumer’s

connection to the production process; and ultra-convenient specialty coffees for automated espresso and high-end instant coffee machines. Coffee roasters, based in the end-market, are both responding to and shaping these demand side trends.

Such consumer behavior is helping to drive up the price of coffee. Global demand for coffee is outpacing supply, driven by growing consumption of coffee in emerging markets such as India, China, and Brazil with burgeoning middle classes and large numbers of young professionals showing appreciation for better quality coffee. Likewise, the increase in domestic coffee consumption in Brazil is expected to reduce exports, creating room for new entrants.

The price differential between the three segments – commercial grade, specialty, and boutique and super-high grade – as seen in the US market shows a significant premium for higher tier coffees, from the point of view of the producer.

Table 4: COST DIFFERENTIALS FOR CENTRAL AMERICAN COFFEE SEGMENTS

Segment	Producer Price Range (US\$/lb)
Commercial Grade	1.94
Specialty	5.33
Boutique & Super High Grade	15 – 110

Source: Cup of Excellence and Best of Panama, 2011

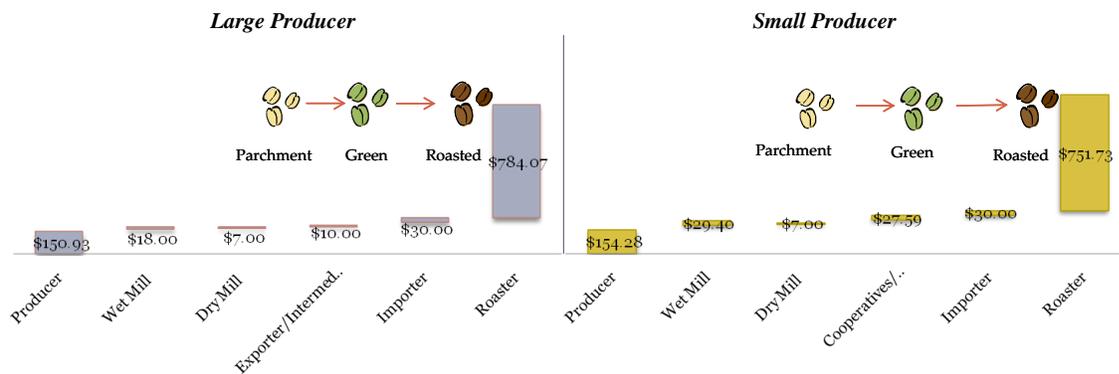
Favorable demand-side trends in terms of volume, prices, and the specialty market’s favorable perception of the region all suggest that a growth strategy for the production of higher end coffees, specialty and above, should be the focus for Central America. Central America has several competitive advantages that it can leverage in this regard. First, the region has unique geography conducive to growing high-end and unique varietals coffee. Guatemala alone produces seven distinct varietals of specialty coffee owing to its highly diverse geography. Second, Central America has a good track record of producing quality coffee and has acquired a good base of industry knowledge; third, on the whole, coffee from Central America is price competitive; and fourth, Central America is well positioned to supply to the US market.

Colombia is Central America’s key competitor in specialty coffee. In the future, however, the strongest competition in premium coffee for Central American producers is likely to come from Peru and Brazil, which are expected to increase their volume and quality levels of washed coffees. In addition, over the next 5-10 years, China, Laos and Vietnam are expected to increase their production of premium coffee. In terms of the high tier specialty coffee, producers in a few countries can currently compete with the flavor profiles of Central American coffees on world markets. These include the East African countries of Kenya, Tanzania, Ethiopia, Rwanda, and Burundi and occasionally Colombia, Peru, and Ecuador. In the future coffee industry experts expect the strongest competition in washed arabica and specialty coffee to come from Brazil.

Coffee Value Chain Analysis: Nicaragua

The coffee sector in Nicaragua is characterized by a large number of small producers. Per Figure 4 their production and wet milling costs are higher than those of the larger producers; however, costs begin to even out at the dry milling stage of the value chain as that activity is usually performed by third parties. Although the coffee market is dominated by two large exports (CISA and Atlantic), which together account for 75% of all green coffee exports, strong producer cooperatives provide small farmers access to the export market.

Figure 4. COSTS ACROSS THE COFFEE VALUE CHAIN (COFFEE AT \$1000/100LBS)



Source: stakeholder interviews

Key Constraints in Nicaragua

There are a number of weaknesses within the Nicaragua coffee value chain starting with the link to the end-market and extending back to the links between the industry stakeholders themselves. These challenges are summarized below.

Poor export promotion: There is no strong national-level coffee association in Nicaragua to build the Nicaraguan brand, promote export sales, and facilitate the export process. Nicaragua’s “market presence” in the form of product information (e.g. coffee profiles) and promotional activities (e.g. cuppings) is relatively weak. As such, the quantity and quality of market intelligence flowing back to the industry in Nicaragua is limited. This weakness may be attributed to the dominance of a few exporters, particularly CISA and Atlantic. A recurring assertion during the stakeholder interviews is that the larger exporters will sometimes limit the flow of market information to producers, inhibiting their ability to adjust production to suit consumer demand. The same constraint impedes reliable market information and data collection on industry specific topics including cost of production. Better information could help producers adjust techniques, prioritize investments, and adapt to consumer and price trends more quickly.

In extreme cases, this can result in producers not being compensated appropriately for their product and exporters profiting disproportionately.

Weak industry associations: The dominance of just a few large exporters has also impeded the institutional development of the industry. Producers voiced their frustration that fragmentation within the industry compromises the strength of the national industry to work together and overcome common constraints such as improved production techniques, poor infrastructure, as well as the high cost of key production inputs such as fuel and fertilizer. This institutional void also compromises the attention given to advocacy and investment in research and development – key elements of competitive advantage for Nicaragua’s competitors. It should be noted however that CONACAFE is viewed by many as a positive force in this regard. CONACAFE’s support of producer cooperatives in the form of technical assistance and financing is helping to strengthen the linkages amongst producers and to other key value chain participants such as financial institutions and technical assistance providers.

Box 1: Opportunities for Product Innovation

The processing of coffee cherry mucilage represents a promising new product development opportunity that could positively impact the coffee sector, but would require investments in processing technology, which is being developed in Colombia. About 16% of the coffee bean is mucilage (flesh from the cherry), which has recently been discovered as a “super fruit”, containing 4,000 Oxygen Radical Absorbance Capacity (ORAC) per gram in antioxidant power, compared to 100 for acai, 65 for pomegranate, and 24 for blueberries. Introducing technologies (such as those under development in Colombia) to process the coffee mucilage byproduct could be a competitive value-added segment to supply the growing antioxidant and cosmetics market. At present, there is no research institution within Nicaragua focusing on new product research and development.

Lack of new technologies. For many Nicaraguan specialty coffee producers, on-farm techniques are either outdated or not working well. New technologies can be incorporated to improve both quality and production and to increase sales. GIS technology for mapping and maximizing coffee growing areas is a tool that would significantly help manage national resources and promote improved farm management practices. Farm management planning tools such as those being developed by CISA AGRO capture farm data on labor, production, costs, inputs, etc., and optimize agronomic practices (e.g. more or less fertilizer usage). With such data systems, field agents collect information on a computer or tablet which is instantly transferred to the server in Managua for farm management calculations. This business information system could be applied to coffee farms, where specialty coffee management skills are in short supply.

Uniform quality and processing standards are absent. A significant limitation on the quality of specialty coffee coming from Nicaragua is the lack of uniform processing and quality standards. These inadequacies not only impact coffee quality directly, but also indirectly by degrading the exchange of market signals to growers from importers and roasters, thereby reducing market-based incentives for producing higher quality green coffee beans.

Limited financing options for producers. Issues regarding access to finance emerged mainly during on-site discussions with small producers. Due to the limited alternatives for financing available to small producers, coffee intermediaries can offer heavily discounted cash payments for forward contracts with producers, resulting in high costs for producers that could be mitigated if alternative financing options were available. But new sources of finance for coffee production and export should not focus exclusively on credit. For example, coffee farmers are highly liquid during harvest periods, and could benefit from ready access to savings accounts. This would also foster increased expansion of banks and financial service providers into rural areas, benefiting from and supporting the development of more broadly dispersed networks of correspondent banking agents.

Table 5: RECOMMENDATIONS FOR COFFEE, NICARAGUA

Recommendation	Rationale	Potential Lead Organizations
<p>Strengthen national-level specialty coffee association role in export promotion and end-market intelligence. Activities could include coffee cup profiles, improved traceability procedures, cuppings, and on-line databases for roasters. Step #1 should be a detailed market survey of coffee roasters to better understand their product and purchasing preferences. ANACAFE’s program for Guatemala provides a very relevant case study and benchmark for Nicaragua.</p>	<p>Nicaragua lacks a strong national-level association to build the country brand and promote export sales. Nicaragua’s weak end market presence limits the quality and quantity of market intelligence flowing back to producers and other stakeholders in the country. Strengthening the link between producers and roasters is particularly important as a key trend that has emerged in the specialty coffee segment is for direct sourcing from farmers. This represents an opportunity to capture more value for farmers and rural communities more broadly.</p>	<p>Asociación de Cafés Especiales de Nicaragua CONACAFE</p>
<p>Strengthen producer access to market information. The successful and cost effective use of voice and SMS mobile technologies in other countries to disseminate market information to farmers should be explored.</p>	<p>Discussions in-country and gap analysis revealed that most Nicaraguan producers operate in an information-poor environment. Improved quality of and access to market information will facilitate on-farm adjustments to suit real-time consumer demand. Alternative channels for consumer information, aside from the two large exporters, will also foster greater autonomy, competition, innovation and income generation.</p>	<p>CONACAFE Producer cooperatives.</p>
<p>Improve uniformity in quality and processing</p>	<p>There are currently weak quality control mechanisms in place in the value chain. Often, exporters or importers are relegated with the task and do so poorly. Standards of quality measures are lacking and/or weak.</p>	<p>CONACAFE</p>

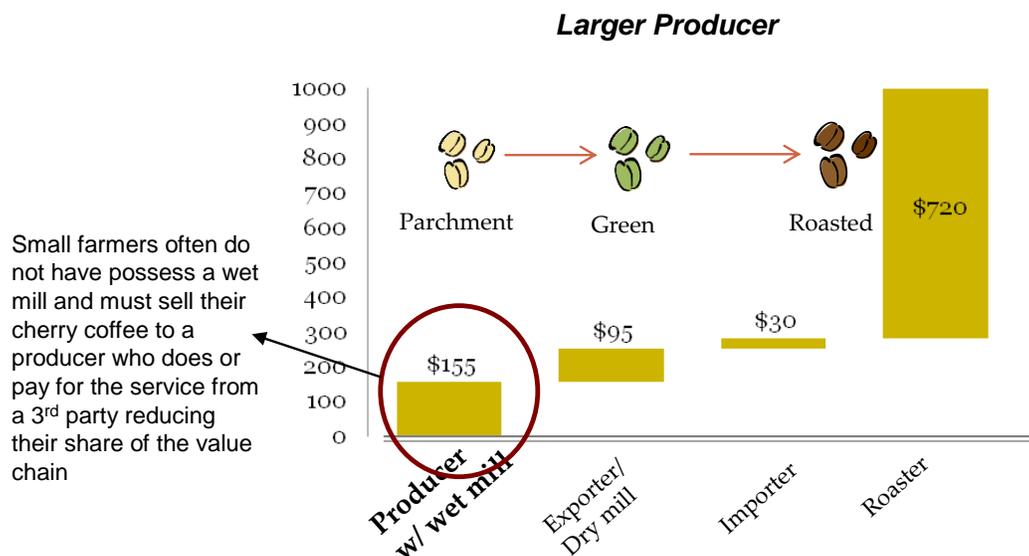
Recommendation	Rationale	Potential Lead Organizations
	Product uniformity and quality control will signal stronger commitment to suiting consumer demand. Branding and reputation built on reliability and quality will contribute to higher prices as well as signal a commitment to improving over time.	
Develop new financing models to improve access to credit for small scale producers. Producer financing models such as that employed by organizations like Root Capital could be analyzed to assess their potential to be scaled-up.	During the course of this study, the issue of small producers' inability to access finance to invest in new materials emerged several times. CONACAFE is working to address the issue of inadequate short term financing mechanisms by promoting a longer term financing product, with an eight-year loan with a three year grace period. However, greater understanding is needed in order to prescribe targeted interventions focused on extending finance in this sector.	CONACAFE
Support improvements to transport infrastructure and logistics to reduce costs and improve reliability. An assessment of the key infrastructure bottlenecks associated with the coffee production industry, including (i) key feeder roads in priority regions, and (ii) port facilities, would be the first step in prioritizing infrastructure investment.	Stakeholders highlight that poor infrastructure and logistics causes delays in the transportation and clearance of goods, which increases costs and undermines performance.	Ministry of Industry and Commerce
Launch and support public private dialogue between industry stakeholders to improve trust and coordination within the value chain.	The dominance of just a few large exporters has created tension and undermined trust between larger and smaller players within the industry. Producers voiced their frustration that fragmentation within the industry compromises the strength of the national industry to work together and overcome common constraints. A productive public-private dialogue would also improve receptivity to the recommendations outlined above and help to prioritize investments.	Ministry of Industry and Commerce Asociación de Cafés Especiales de Nicaragua CONACAFE Producer cooperatives Mill operators Exporters

Coffee Value Chain Analysis: Guatemala

Over the last 30 years the coffee industry in Guatemala has undergone a dramatic transformation. Whereas specialty coffee accounted for just 20% of exports in 1980, it now accounts for over 80%. Guatemala’s coffee marketing board, ANACAFE (Asociación Nacional de Café), has successfully positioned the country as a leader in the specialty coffee market segment. The “Cup of Excellence”, Guatemala’s on-line Coffee Auction Program, has garnered worldwide recognition. In 2010 ANACAFE launched a new marketing interactive electronic platform powered by Google Earth maps and GPS technology to link international buyers with local sellers at the farm level. ANACAFE is also attempting to develop more of a coffee culture within Guatemala. Domestic consumption of coffee has doubled in the past five years.

While the export promotion of coffee in Guatemala has been very strong, production has not kept pace. Yields are relatively low compared to Nicaragua and Colombia and acreage under cultivation (272,000 HA) has not risen over the past 7 years. Smaller producers face a number of challenges, outlined below in the Key Constraints section, that too often prompt them to sell their coffee to wet mills at a discount. For example, smaller producers may sell at \$96/100lb, whereas their larger counterparts can sell dry milled coffee at \$155/lb. As a result, although Guatemalan coffee fetches a higher FOB prices than Nicaraguan coffee (\$250 vs \$218 per 100 lbs) Guatemala farmers capture less value than their Nicaraguan counterparts.

Figure 5: COSTS ACROSS THE COFFEE VALUE CHAIN (COFFEE AT \$1000/100LBS)



Source: stakeholder interviews

Key Constraints in Guatemala

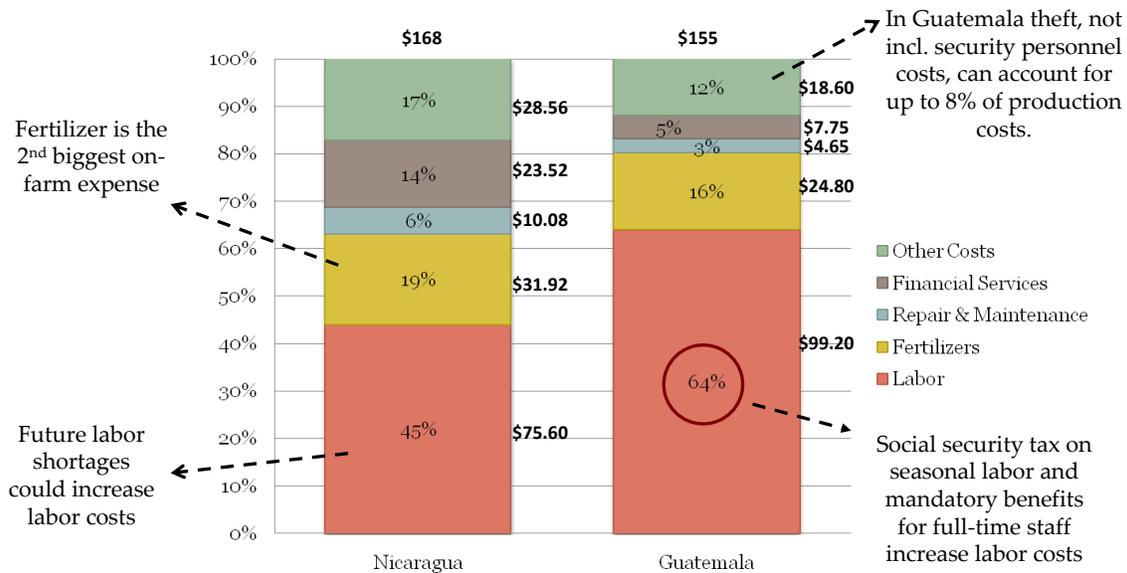
High production costs owing to security-related expenses and the cost of key production inputs such as fertilizer could impact investment at the production end of the value chain. These

challenges persist due to a lack of financing options and relatively weak technical assistance to smaller producers - approximately 80% of production is from small to medium sized farms.

Security. As illustrated in Figure 6, theft in the form of praedial larceny⁶ can account for up to 8% of production costs; this figure does not include the direct costs of security guards and other theft prevention measures (e.g. increased lighting, fencing). The World Bank’s Crime and Violence in Central America 2011 Report estimates that the total security-related costs and losses of Guatemalan companies averaged 3.9% of sales, higher than the 2.8% average for Latin America and the Caribbean as a whole and significantly higher than countries with relatively low security concerns.

High input costs. Per Figure 6 the relatively high cost of fertilizer poses a challenge to producers. Improved technical assistance in the area of crop fertilization could lower fertilizer costs in Nicaragua and Guatemala; which at 19% and 16% of total production costs are higher than in Colombia at approximately 13%. A tendency to reduce the application of fertilizer when fertilizer prices are relatively high also puts the national crop in jeopardy of developing long term pest and fungi management issues.⁷

Figure 6: COMPARATIVE ON-FARM PRODUCTION COSTS BETWEEN NICARAGUA & GUATEMALA FOR PARCHMENT COFFEE (100lbs)



Source: stakeholder interviews

Lack of credit. Similar to Nicaragua, coffee production in Guatemala is constrained by a lack of credit. Issues regarding access to finance emerged mainly during on-site discussions with small

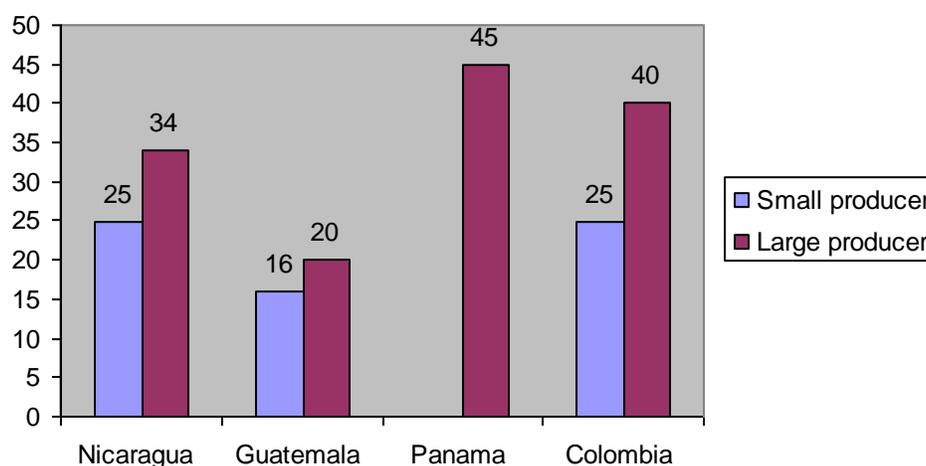
⁶ Praedial larceny is the theft of agricultural produce or livestock directly from the farm.

⁷ This issue needs to be further highlighted as the full cost of high fertilizer prices relates to the fertilizer that the farmer cannot afford to purchase and therefore does not apply. Yields suffer and the crop is more susceptible to disease.

producers. Due to the limited alternatives for financing available to small producers, coffee intermediaries can offer heavily discounted cash payments for forward contracts with producers, resulting in high costs for producers that could be mitigated if other financing options were available. This constraint is especially acute for smaller producers who pay interest rates of 14% to 18% (when credit is available) versus 6% to 14% for larger producers. In some cases, due to cash flow problems, farmers will sell their unprocessed cherry coffee at a deep discount.

Lack of technical assistance. Per Figure 7, yields in Guatemala are significantly lower than those in Colombia and Nicaragua. The continuous and uninterrupted use of older plantations poses a long term threat to the productivity of the sector. Field interviews indicate that ANACAFE’s technical assistance to smaller producers is lacking. Technical assistance is provided but needs to be scaled up to have a truly sector-wide impact given the structure of the industry which relies primarily on small to medium sized producers. The lack of assistance to smaller producers was attributed to ANACAFE’s funding model. Guatemalan law stipulates that ANACAFE receive 1% of all export revenues. To maximize revenues, several stakeholders reported that ANACAFE focuses their support on larger export ready producers to the neglect of smaller producers who require more support to access the export market.

Figure 7: YIELDS BY QUINTALES OF PARCHMENT COFFEE PER MANZANA (QQ/MANZANA = 100LB/0.7 HECTARE)



Source: Colombia figures from national coffee association, Nicaragua figures from Cafenica, Guatemalan figures from Anacafe, Panama figures from Asociacion Nacional de Cafeteros.

Weak producer associations. There is no strong national-level coffee association for small-scale producers to introduce improved production techniques, provide production and business training, and disseminate market information on prices and buyers. Better market intelligence could help producers adjust techniques, prioritize investments, and adapt to consumer and price trends more quickly. This institutional void also compromises the attention given to government advocacy particularly as it relates to the needs of SMEs. Although they account for the lion’s

share of production, many smaller producers do not feel they have a voice in the industry. Furthermore, as noted above, ANACAFE’s general inclination to larger scale producers contributes to the relative lack of voice of small producers.

Recommendations for Guatemala

The challenges outlined above are significant; however many of the solutions can be found within the region. For example, Nicaragua’s coffee sector has much to learn from Guatemala’s ANACAFE in the area of export promotion. At the same time the coffee industry in Guatemala could learn from CONACAFE’s technical assistance and financing models that have been specifically tailored for small grower’s associations.

Table 6: RECOMMENDATIONS FOR COFFEE, GUATEMALA

Recommendation	Rationale
Pilot new financing models to improve access to credit for small scale producers in Guatemala	During the course of this study, the issue of small producers’ inability to access finance to invest in new materials emerged in Guatemala as well as Nicaragua. The Consejo Nacional del Café (CONACAFE) in Nicaragua is working to address the issue of inadequate short term financing mechanisms by promoting a longer term financing product, with an eight-year loan with a three year grace period. Guatemala should explore similar programs as well as shorter term products.
Strengthen producer access to market information. The successful use of SMS mobile technologies to disseminate market information to farmers in Kenya could be explored.	Discussions in-country and gap analysis revealed that many Guatemalan producers operate in an information-poor environment. Improved quality of and access to market information would facilitate on-farm adjustments to suit real-time consumer demand.
Improve product traceability procedures to reduce the instance of praedial larceny.	Theft in the form of praedial larceny can account for up to 8% of production costs; this figure does not include the direct costs of security guards and other theft prevention measures (e.g. increased lighting, fencing).
Tailor the content and delivery of extension services to reach more producers with more effective technical assistance.	Many stakeholders interviewed for this study felt that ANACAFE focused too much on medium to large producers to the neglect of smaller farmers. ANACAFE’s institutional knowledge is strong; however it needs to be more accessible and relevant for to smaller producers.
Support infrastructure investments and process improvements both rural and at point of export.	Cost benchmarking Poor infrastructure causes delays in transportation of goods and increases the cost of production. An assessment of the key infrastructure bottlenecks associated with the coffee production industry including key feeder roads in priority regions and port facilities would be the first step in prioritizing infrastructure investment.

Coffee Value Chain Analysis: Panama

Panama is the smallest coffee producer in all of Central America, producing less than 2% of Guatemala's gross output volume. However, Panama's focus on the specialty and boutique segment of the market along with the producer driven structure of its value chain makes it a very informative case study for the rest of the region. Unlike other countries in Central America, where leadership and governance of the sector is driven by the coffee exporters, in Panama it is driven by the producers: Café Durán and Café Sitton for the commercial grade domestic market, and the specialty coffee producers for the export market. The Specialty Coffee Association of Panama is also a leader in promoting best practices in coffee production, conducting trials of new varieties and sponsoring the Best of Panama cupping.

Key Constraints in Panama

The value chain in Panama could be strengthened by addressing a mix of challenges relating to natural constraints (e.g. geographic limitations, and the highly destructive Ojo de Gallo fungus) and the relative youth of the industry, which translates to a brand identity that is still being formed and a market awareness that is not yet complete.

Disease: The Ojo de Gallo fungus is prominent in most areas of Panama and can cause up to 100% loss of production in a harvest year and negatively affects tissues for two and sometimes three years thereafter. A traditional coffee grower in Santa Clara remarked: "If it weren't for the Ojo de Gallo, we [coffee growers] would be millionaires, but instead because of it we are poor."

Weak brand identity. Despite the high-quality of Panama's coffee, the industry has been a "secret" until the last few years, when Panama received the highest online auction price for its geisha variety (\$111/pound). While it is now being tracked by most specialty coffee markets, its supply is still limited. As expressed in surveys, interviews, and value chain mapping exercises, Panama is not effectively branding itself as a boutique coffee producer, despite possessing rich stories accompanying each variety and farmer. Brand building and export promotion efforts have not effectively leveraged the assets of the wider region; namely because Panama is not a member of the "Cup of Excellence"⁸ network, it has had to develop its own program and buyer network. While Panama has been invited to join the Cup of Excellence, it has declined, citing the high costs associated with membership and its success with its own "Best of Panama" event. However, having separate award events impedes the development of increasingly integrated and sophisticated regional market linkages. Buyers associated with the Cup of Excellence network are effectively excluded from direct participation in the Best of Panama event, despite being allowed to purchase through online auctions.

⁸ The Cup of Excellence (www.cupofexcellence.org) is an international coffee award program, in which Colombia, Costa Rica, El Salvador, Guatemala, Honduras, Nicaragua, Mexico, Brazil, Bolivia, Burundi, and Rwanda participate. National-level competitions are held, where the best coffee produced in that country for that particular year is chosen and then sold to the highest bidder through an internet auction.

Market information and industry data is not easily accessible. As discussed in the market analysis, producers are largely dependent on market information, prices, and consumer trends in order to adapt production and maximize profits. Lessons learned fifteen years ago when the sector shrunk due to poor market prices emphasized the importance of producers understanding (a) what markets and consumers want, and (b) the market outlook. Despite this lesson, information still does not flow within the chain, which leads to sluggish adjustments in production and marketing.

Coffee production techniques need improvement. As with Nicaragua, GIS technology could have a positive impact on the coffee sector in Panama. The use of GIS mapping, combined with weather data and soil studies to map out in detail the micro-climates that exist in Chiriquí, will enable the specialty coffee sector to plan for future production and manage the resources they currently possess. Geography has a particularly profound impact on the quality of coffee in the Boquete/Volcan/Renacimiento region; knowing how to optimize this comparative advantage would strengthen the sector. There is also a high demand for land use planning, especially given the increased land use pressures in the region.

Labor is in short supply. Labor shortages are driving costs up, specifically for the larger coffee producers. Labor accounts for 48% of input costs in Panama. This creates knock-on effects by increasing costs of production, primarily at the harvest stage. Some producers are looking into forms of mechanical harvesting – customized to conditions in Panama – given the growing concern that the labor supply issue will only worsen. Currently, technology is not used in harvesting in Panama, but the machinery appropriate for Panama’s geography is being developed and applied in Brazil, which may become relevant if it proves highly productive or if labor shortages persist. A program to facilitate the use of labor from neighboring countries could also potentially be explored.

Table 7: RECOMMENDATIONS FOR COFFEE, PANAMA

Recommendation	Rationale	Lead Organization
<p>Support country branding and export sales. Support can be focused on branding and marketing techniques for individual producers as well as at the national level. ANACAFE’s program in Guatemala provides a relevant case study and benchmark for Panama.</p>	<p>Although consumer trends show a high return to investments in branding and “storytelling” in specialty coffee, producers’ capacity to leverage this trend is still limited. Improved performance in this could command better attention and signal Panama’s unique designation more boldly in the world coffee market.</p>	<p>Specialty Coffee Growers Association of Panama</p> <p>Individual producers</p>
<p>Establish a center of excellence aimed at providing best practices, research dissemination and market information to producers</p>	<p>Value chain analysis determined that smaller producers not affiliated with exporters often have limited access to technological advances and also have issues accessing market information.</p>	<p>Ministry of Agriculture</p>
<p>Implement spatial mapping and adopt intensive production techniques.</p>	<p>Better production techniques can decrease operating costs and reduce the amount spent on inputs by increasing efficiency. Both the experiences with intensive production techniques using GIS technologies in Colombia and mechanical harvesting technology in Brazil have shown positive effects on productivity and could be piloted to determine their applicability in Panama.</p>	<p>Ministry of Agriculture</p>

Recommendations for Region

Table 8: RECOMMENDATIONS FOR COFFEE, REGIONAL

Recommendations	Synthesis of Evidence
<p>Strengthen the ability of the Secretaria de Integración de Centroamérica (SICA) to promote harmonization of coding, tracking, and classifications of coffee products regionally</p>	<p>Poor quality, packaging, and measurement standards, and a lack of harmonized coding affects all coffee producing countries in Central America. An initiative to develop regional guidelines for standards and codes will improve the business enabling environment, increase efficiency, and increase the region’s competitiveness.</p> <p>Some combination of CATIE (Center for Tropical Agricultural Research and Higher Education), IICA (the Inter-American Institute for Cooperation in Agriculture)—both headquartered in Costa Rica—CIAT (International Center for Tropical Agriculture) in Colombia, and the International Coffee Organization (ICO), working closely with commercial organizations in each country (such as ACEN) could be possible partners for these initiatives to avoid creating a new entity.</p>
<p>Undertake proactive end market research and promote regional branding and promotion</p>	<p>Issues with branding, marketing, and promotion exist in Nicaragua and Panama as well as other coffee producing countries in Central America. Initiatives can be strengthened to promote Central America as a leading region for high quality premium coffee. A strong regional brand is in the best interest of all coffee producing countries in Central America as many coffee buyers view the market through a regional perspective. A weak “link” in the region could undermine the region’s brand to the detriment of all member countries.</p>
<p>Improve coordination between existing national coffee associations</p>	<p>Associations are an excellent point of access to the small producers of coffee. Although they require technical assistance themselves, facilitating collaboration between associations will assist in the flow of important market information, best practices, farm management, and new technologies.</p>
<p>Support regional infrastructure development</p>	<p>Cross-border infrastructure assets that play important roles in coffee production – transport networks, ports, and to a lesser extent, power – can be developed from a regional perspective. Private sector participation in this development should be considered where appropriate. See <i>Logistics in Central America</i> study for more detailed recommendations on strengthening logistics and infrastructure in the region.</p>

TOURISM

Tourism is one of the fastest growing and most competitive industries in the world, with a global market estimated by the World Travel and Tourism Council (WTTC) at \$1,973 billion for 2011. A number of developing countries have achieved rapid growth in employment and foreign exchange earnings by effectively implementing tourism strategies. The majority of Central American countries have been generously endowed with natural and cultural resources providing strong comparative advantage in this industry, as well as potential for building lasting competitive advantage.

The travel and tourism industry is already an important source of employment and earnings in Central America, with direct contributions to GDP ranging from a low of 2.6% in El Salvador to 5.7% in Honduras, as shown in Table 9. The WTTC applies a multiplier between 2.3 and 2.5 to estimate direct and indirect employment generated by the industry, which translates into a correspondingly larger contribution to GDP. Costa Rican tourism officials like to point out that the ratio of foreign exchange revenues from tourism to exports has remained steady at 20% over the past decade.

Table 9: TRAVEL & TOURISM INDUSTRY CONTRIBUTION TO EMPLOYMENT AND GDP

	Costa Rica	El Salvador	Guatemala	Honduras	Nicaragua	Panama
Direct Employment ('000s)	95.0	55.9	128.2	138.7	81.2	75.4
Employment Share (%)	4.7	2.3	2.6	4.9	3.6	4.9
Contribution to GDP (US\$ bn)	1.8	0.6	1.3	0.9	0.3	1.5
GDP Share (%)	5.0	2.6	3.0	5.7	4.3	5.2

Source: World Travel and Tourism Council (WTTC), 2011

North America is the largest market for Central American leisure tourism, supplying 66% of the travelers that originate from outside the region. Europe and Latin America are also significant markets, each accounting for approximately 15% of arrivals, while other markets including the Caribbean, Asia, and the rest of the world account for 1-2% each.

The structure of the tourism industry is complex. The demand-side of the industry is made up of numerous market segments and sub-segments. Generally speaking the industry is made up of leisure travelers, business travelers, and friends and family-related visitors. Each of these segments can be further segmented. For example, the leisure segment is made up of the eco-adventure, 'sun and sand', cultural, and cruise ship segments, which may be further disaggregated by their point of origin.

The supply-side of the industry is equally complex. Industry value chains encompass a wide array of stakeholders and tourism specific activities such as tour operators and hotels as well as non-tourism specific activities and establishments such as restaurants, taxis, and convention sites.

This high degree of cross pollination and integration across economic silos (or verticals) makes calculations of employment, earnings and return on investment less clear cut than in other sectors. So while its direct/indirect benefits and secondary/tertiary externalities may be significant, the elusiveness of the industry’s economic profile from a measurement standpoint can cause it to be undervalued by policy makers and citizens alike.

In the travel and tourism industry, what corresponds to “exports” in other industries is captured in the form of *international visitor expenditures*. Overall, such expenditures showed a healthy growth in all of Central America from 2003-2008, and much lower or negative growth since the onset of the global financial crisis, as shown in Table 10.

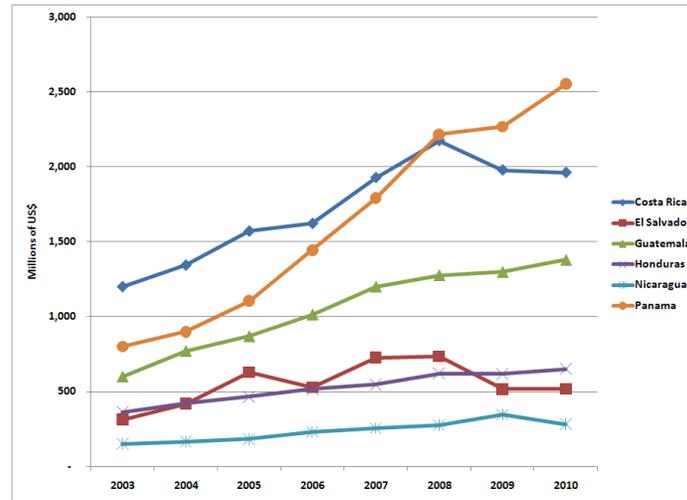
Table 10: GROWTH RATES IN VISITOR EXPENDITURES 2003-2010

Country	C.A.G.R.		
	2003-2008	2008-2010	2003-2010
Costa Rica	12.6%	-5.0%	7.3%
El Salvador	18.6%	-16.0%	7.5%
Guatemala	16.3%	3.9%	12.6%
Honduras	11.3%	2.4%	8.7%
Nicaragua	12.7%	1.0%	9.2%
Panama	22.6%	7.3%	18.0%

Source: SITCA. Does not include revenues from daytime visits (e.g. cruise ships)

Although Costa Rica had the highest overall earnings from travel and tourism at the start of the period (Figure 8), Panama, Guatemala and El Salvador have experienced much higher growth rates, and Panama’s overall earnings from tourism, including visiting friends and relatives and business travel (a strong driver in tourism), have since surpassed Costa Rica’s. However, Costa Rica’s share of leisure tourism as a percentage of total international visitors is far higher than its regional counterparts.

Figure 8: TOTAL TRAVEL AND TOURISM EXPENDITURES IN CENTRAL AMERICA 2003-2010



Source: SITCA. Does not include revenues from daytime visits (e.g. cruise ships)

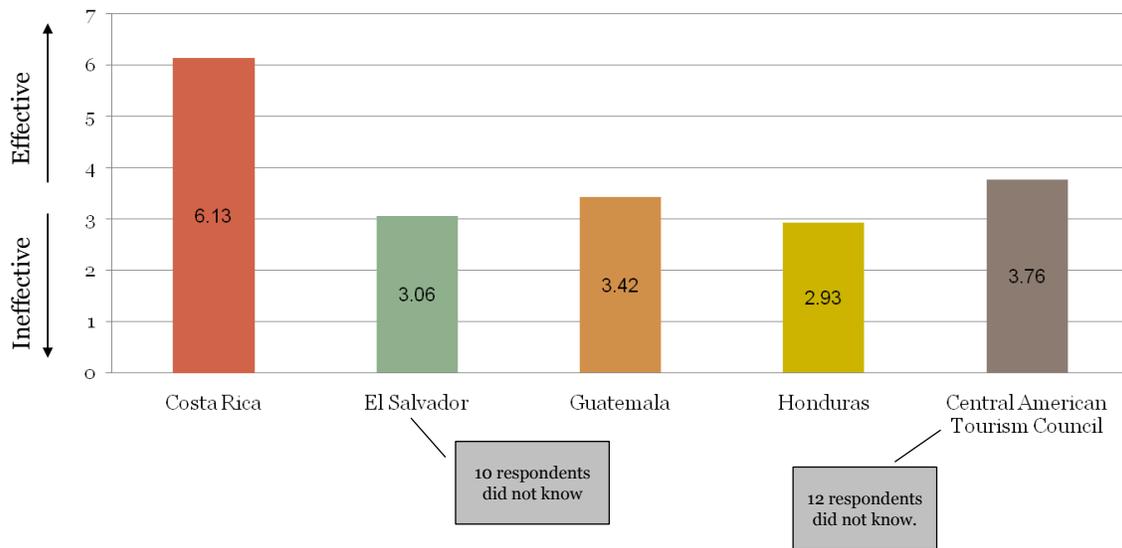
Key Constraints for El Salvador, Guatemala, and Honduras

The growth and development of the tourism sector in El Salvador, Guatemala, and Honduras over the last 10 years has been significant; however, a survey of U.S. and Canadian out-bound tour operators identified a number of challenges undermining the competitiveness of the sector.⁹ The findings of the survey are consistent with in-country stakeholder interviews and the findings of the World Economic Forum's 2011 Tourism Competitiveness Report, which saw the competitiveness ranking of all three countries fall. Key constraints include:

Relatively weak end market linkages. The majority of survey respondents considered the tourism promotion agencies of El Salvador, Guatemala, and Honduras relatively ineffective. Information and promotional materials regarding sites, services, and packages are not readily available. The survey results illustrated in Figure 9 are consistent with the findings of the WEF's 2011 Tourism Competitiveness Report, which ranked the effectiveness of Guatemala's marketing and branding materials 132 out of 139 countries. Honduras was ranked 66 and El Salvador 69. Unlike Costa Rica, Guatemala and Honduras have anemic tourism promotion efforts and suffer from institutional disorganization in tourism development at the national and sub-national level. The national promotion agencies have poor data collection methods and do not disseminate the much-needed market analysis for firms involved in tourism. Likewise, as a sharp contrast to Costa Rica, branding and marketing is not successful in targeting specific end-markets.

⁹ An on-line channel survey of U.S. and Canadian outbound tour operators was conducted in March and April 2012. Full results may be found in Tourism Value Chain Assessment Channel Survey: U.S. Outbound Tour Operators Survey Results, April 2012.

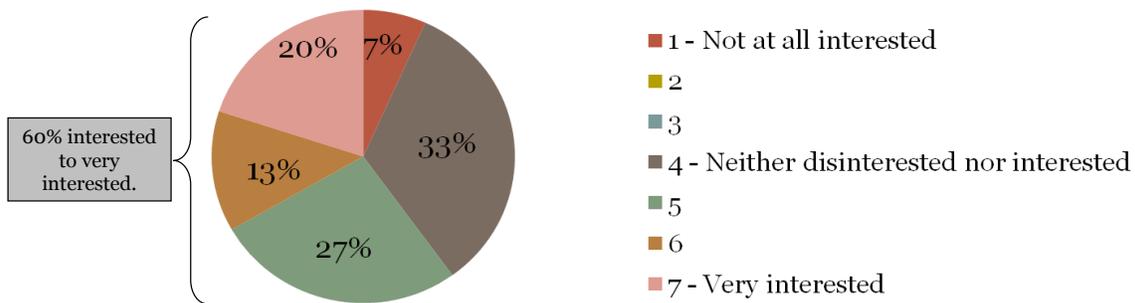
Figure 9: EFFECTIVENESS OF TOURISM PROMOTION AGENCIES (WHERE 1 = LOW AND 7 = HIGH)



Source: U.S. / Canada Outbound Tour Operators Survey Results, April 2012

Unsatisfied demand for regional tourism product. Weak end market linkages limit the information that may be obtained on customer needs and preferences. One case in point is the demand for regional tours, which has gone largely unaddressed. 60% of survey respondents expressed “*interest to strong degree of interest*” in a regional tour package (see Figure 10). Despite this promising level of interest, relatively little has been done to develop a regional tourism product. The majority of survey respondents are not familiar with the regional tourism promotion agency for Central America (CATA).

Figure 10: INTEREST IN OFFERING A MULTI-COUNTRY TOUR PACKAGE TO CENTRAL AMERICA

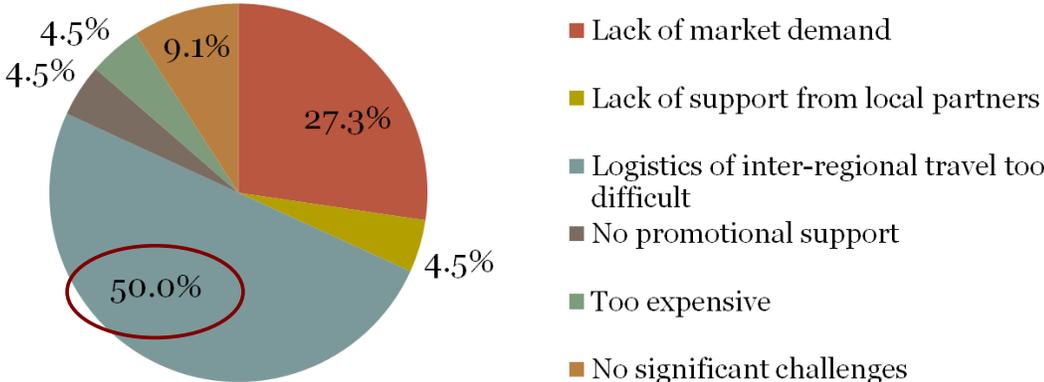


Source: U.S. / Canada Outbound Tour Operators Survey Results, April 2012

Infrastructure deficiencies impede product development and deter growth. All three countries, to varying degrees, suffer from bottlenecks caused by poor infrastructure, which limits accessibility, increases insecurity, and drives up costs. Intra-regional air travel is limited,

hindering travelers from visiting more than one country on a trip. The survey of outbound tour operators identified the difficult logistics of intra-regional transportation as the single biggest obstacle to the development of a regional tourism product. See Figure 11 below.

Figure 11: OBSTACLES TO THE DEVELOPMENT OF A REGIONAL TOUR PACKAGE

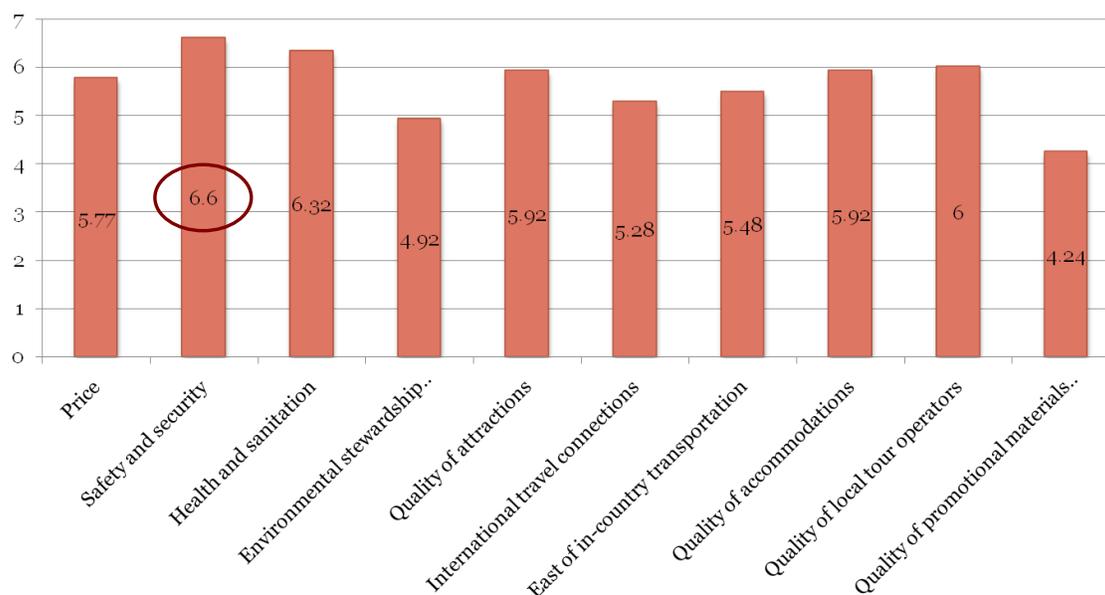


Source: U.S. / Canada Outbound Tour Operators Survey Results, April 2012

Poor road infrastructure makes land transportation unsafe and inhibits tourists from traveling beyond their primary point of stay. Inferior water and sanitation quality often makes tourists sick, even deterring potential tourists from visiting the region due to health concerns.

Poor security deters travelers. Except for very adventure-driven travelers, the perception of inadequate security is one of the greatest deterrents to leisure travel in Central America. Safety and security is the most important factor for tour operators when considering the introduction of a new tour offering. News of robberies, theft, and narco-based violence brands the region poorly and makes it difficult sell the country as an attractive destination. This challenge appears to be particularly acute in El Salvador.

Figure 12: IMPORTANCE OF SELECT FACTORS WHEN OFFERING A TOUR PACKAGE (WHERE 1=NOT AT ALL IMPORTANT AND 7=VERY IMPORTANT).

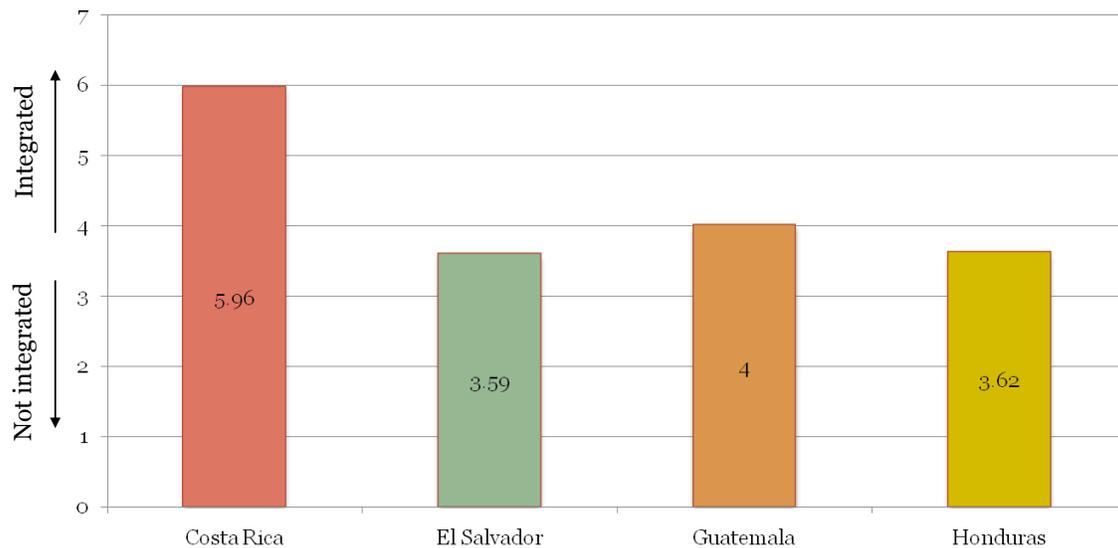


Source: U.S. / Canada Outbound Tour Operators Survey Results, April 2012

Government policies are muted and inconsistent. In El Salvador, Honduras, and Guatemala, there are no clear and coherent government institutional arrangements to oversee and promote the tourism market. Outside investors find navigating government bureaucracies frustrating and there is little consistency in tourism development strategies. Government prioritization of Travel & Tourism is deemed by the World Economic Forum to be relatively weak in El Salvador, Honduras, and Guatemala. WEF ranks Guatemala 112 out of 139 countries on this performance measure; El Salvador is ranked 91st and Honduras 88th. The lack of government commitment to the industry may also explain the somewhat indifferent attitude the local populations have toward foreign visitors. Again, all three countries scored low on the WEF ranking of local attitudes towards foreign visitors.

Coordination failures between industry stakeholders. Stakeholder coordination is particularly important in tourism given the nature of the industry where an array of service providers must align their activities to deliver a seamless experience to the tourist (e.g. the customs official, taxi driver, hotel reception desk, tour guide, and gift shop operator). Survey respondents do not consider local stakeholders in El Salvador and Honduras to be well integrated. The level of stakeholder integration in Guatemala is considered average.

Figure 13: HOW INTEGRATED (I.E. COORDINATED) ARE THE LOCAL SERVICE PROVIDERS IN THE FOLLOWING COUNTRIES (WHERE = NOT AT ALL AND 7= HIGHLY INTEGRATED)



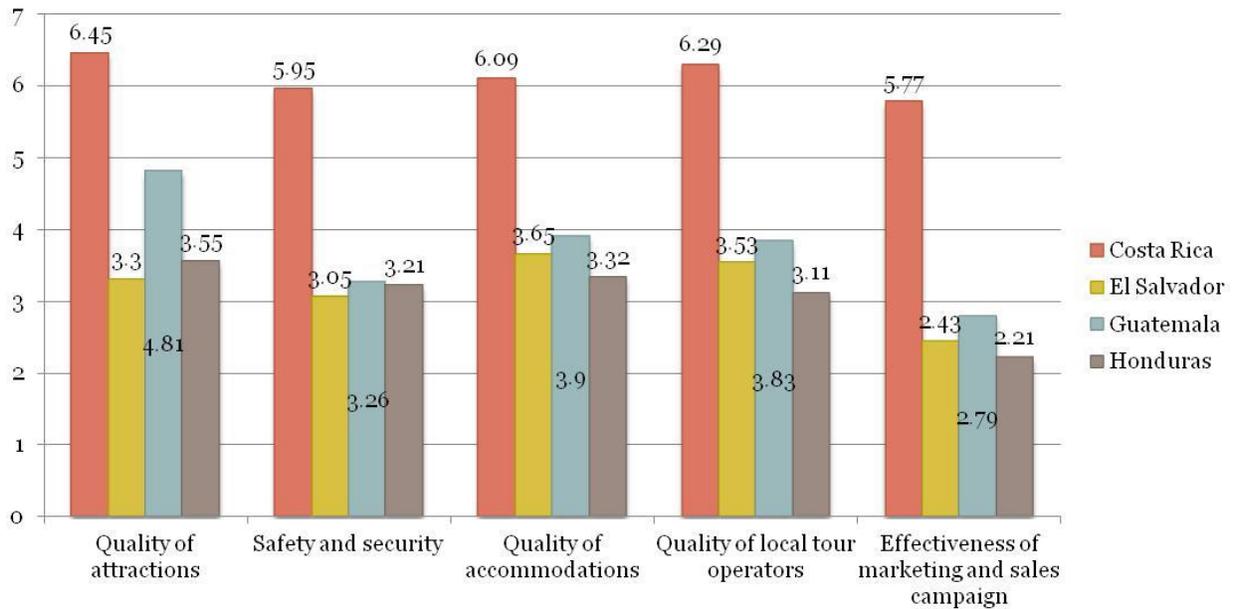
Source: U.S. / Canada Outbound Tour Operators Survey Results, April 2012

Costa Rica provides a useful case study in this regard. *Costa Rica* has consistently maintained the highest rates of leisure tourist arrivals in Central America, and the second-highest rate of spending per arrival (only exceeded by Panama over a significantly smaller, though fast-growing base). *Costa Rica*'s advantages in the industry have largely been the result of the country's focus on developing a highly integrated tourism product. In the 1980's, *Costa Rica*'s tourism development board, the *Instituto Costarricense de Turismo* (ICT) participated in an inter-agency initiative to establish standards for their maritime-specific locations such as beaches and marinas, but also the associated roads, hotels, restaurants and other infrastructure, which are affected by or involved in the tourist's interaction with the sea.

Improvements are needed in the business enabling environment. Honduras suffers from an underdeveloped legal and regulatory environment, especially related to land titling and registration. This is particularly important for hotel and resort owners looking to franchise in-country, expand operations, or invest in a new facility. Permit procedures and administrative issues are also constraints expressed by the smaller hotels and establishments in Guatemala and even in *Costa Rica*.

Need to prioritize investments. The tourism sectors in El Salvador, Guatemala, and Honduras are facing a number of challenges as illustrated in Figure 14; however any strategic plan designed to effectively address these challenges must begin with a thorough understanding of tourist needs and preferences. Ultimately a lack of market intelligence impedes the ability to develop a demand-driven sustainable growth plan for the sector. Strategic initiatives are therefore difficult to identify and prioritize, which can significantly reduce the effectiveness of investments in the sector.

Figure 14. PERFORMANCE BY COUNTRY ALONG KEY DIMENSIONS (WHERE 1= VERY WEAK AND 7=VERY STRONG)



Source: U.S. / Canada Outbound Tour Operators Survey Results, April 2012

Recommendations

Central America is in a position to combine the coastline advantages of the Caribbean islands with additional “depth” in terms of unexplored wilderness, extensive ecological preserves, and unique and fascinating cultures. The region offers an unparalleled richness of languages, ethnicities, microclimates and landscapes. To develop this rich array of assets into competitive tourism products, the tourism value chains in El Salvador, Guatemala and Honduras must be strengthened starting with improved market intelligence to inform the improvement or amelioration of country level value chains and the development of more comprehensive regional tourism product(s). The success of the tourism sector in Costa Rica provides a relevant case study for the wider region to learn from.

Costa Rica

For Costa Rica, the most viable option for expansion is establishing or growing related tourism products that complement the activities that are already popular and identifiable with Costa Rica (such as certified tropical handicrafts). Another potential industry that garners world-wide interest is organic agriculture, from which ‘experience eco-tours’ can be built using an already established organic farming community such as Zacero. Additionally, the growing industry of volunteer tourism (or “voluntourism”) has been very popular among 18-35 year olds and has potential to be expanded to other areas of the country, building off conservation principles that are central to Costa Rica’s tourism model. Costa Rica is also looking to expand into four market

segments that complement its competitive advantages and cater to growing tourist demands; these include: business tourism, such as conventions; medical and health tourism; rural tourism, which is Costa Rica’s version of the cultural tourism segment and has important potential for growth; and social tourism.

El Salvador, Guatemala, and Honduras

Overall, the path forward for El Salvador, Guatemala, and Honduras must involve deep and significant investments in institutional strengthening, at the national and sub-national level. In Costa Rica, successful development of the eco-tourism segment was championed, in large part, by the ICT. In Guatemala, and to a lesser extent in Honduras, this appears to be less of a realistic option due to institutional capacity issues. A second-best solution is to strengthen the capacity of tourism chambers and associations so they may achieve what the tourism boards should be doing: establishing a focus on what the tourist wants, by segment, in terms that he/she understands about the market (i.e. market research, and then promotion and product improvement to match that research). One mechanism to address such institutional issues would be a cluster approach, maximizing the degree to which infrastructure and capacity strengthening helps a group (or small ecosystem) of firms rather than just one single company. As a first step, in-depth market research should be conducted to prioritize activities and to project investment requirements.

Table 11: RECOMMENDATIONS FOR TOURISM, REGIONAL

Recommendation	Synthesis of Evidence
Build on “Crime and Violence in Central America” WB 2010 study (see regional implications section) to develop a regional tourism security strategy (harmonized with country-specific local security plans)	Insecurity is hurting the tourism industry in Central America. While there is no easy fix, coordinated efforts should be made across all countries in Central America to develop a common security strategy to address the issues and to reassure potential tourists.
Identify pipeline of national and regional infrastructure initiatives that could impact tourism, with a particular focus on intra-regional travel	Infrastructure constraints make accessibility difficult for new travelers considering visiting the country. Similarly, poor infrastructure prevents the integration of multiple trip segments, an increasingly important trend in leisure tourism in Central America. An assessment of the key regional infrastructure initiatives will help prioritize investment, scope the feasibility of leveraging the private sector, and respond to the infrastructure bottlenecks that surfaced from firm owners during this analysis. These should include airports, cross-border roads, feeder roads, ICT investments, and ports (for cruise ship docking).
Improve health and sanitation in tourist areas	Health and sanitation issues are one of the top factors for tour operators considering offering a tour package, since illness caused by unclean food and water can ruin a tourist’s vacation. Costa Rica performs well in this regard.

Invest in market research (including surveys and focus groups) to tighten focus on promotion and product development	Better, more consistent, and timely information on consumer preferences and purchasing patterns should be collected, analyzed, and disseminated to industry stakeholders. This will help policy makers, private sector organizations, and firms prioritize investments and activities based on market demand.
Establish (or strengthen) dedicated and independent regional tourism agency (building off existing tourism boards) with key focus on research and data collection, policy development and harmonization, as well as the development and promotion of a regional product.	Survey results indicate that the national tourist boards are relatively ineffective. Lack of public sector coordination and lack of consistent government commitment and identification of policies were expressed by key stakeholders and industry experts as impeding tourism growth. In countries such as Honduras and Guatemala, there is poor promotion and scattered institutional activities for tourism promotion.
Improve the enabling environment	Unclear policies, repeat permits, and lengthy registration processes for SMEs in the tourism industry makes it difficult for new businesses to start-up and for international businesses to invest.
Develop national awareness campaigns to highlight the economic importance of the tourism sector and the importance of welcoming tourists.	The World Economic Forum's 2011 Tourism Competitiveness Report scored all three countries low on their receptivity to foreign visitors.
Strengthen clustering and public-private dialogue (PPD) capabilities in all three countries	Clustering and PPD initiatives can address the lack of coordination between value chain actors. This can lead to more efficient service delivery that leverages economies of scale and resources to offer a better package of products to the tourist.
Pursue PPPs in tourism-related concessions	PPPs can be useful tools in leveraging the private sector to invest in tourism assets and develop the industry. A review of the PPP enabling environment and an assessment of areas where PPPs could be commercially viable is the first step towards crowding-in the private sector in support of developing the tourism market.

FRUIT JUICE

The global fruit juice industry is highly competitive and differentiated, accounting for over US\$13 billion of world trade in 2010 and growing. Due to economies of scale in production and transportation, the industry is dominated by large fruit producing countries such as Brazil, China, the US, and Thailand, in orange, apple, grapefruit, and pineapple juice production respectively. These producers, as well as India, Mexico, and Colombia—the leading competitors in mango juice and puree—produce at high volumes that Central American producers outside Costa Rica are not able to match.

Internationally, a major driver of the juice market is the growing consumer emphasis on health and nutrition. Although overall consumption of fruit juices has been stagnant or declining in both the US and Europe, the premium “not-from-concentrate” and fresh single strength juice segments have been growing. The strongest competition to juices in those increasingly health conscious consumer markets is expected to come from sports and energy drinks as well as bottled water. Regionally, consumption is still dominated by lower-quality juice flavored drinks. As such, most regional producers limit themselves to low-priced juice products, which cannot be exported beyond the regional market due to their high weight-to-value ratios.

Throughout the region, fruit is grown primarily by smallholders for the fresh fruit market, and only the surplus or lower quality fruit makes its way into juice production. This market structure results in a highly uncertain supply of raw material which limits the size of the fruit juice industry.

Juice processing technologies are of three types:

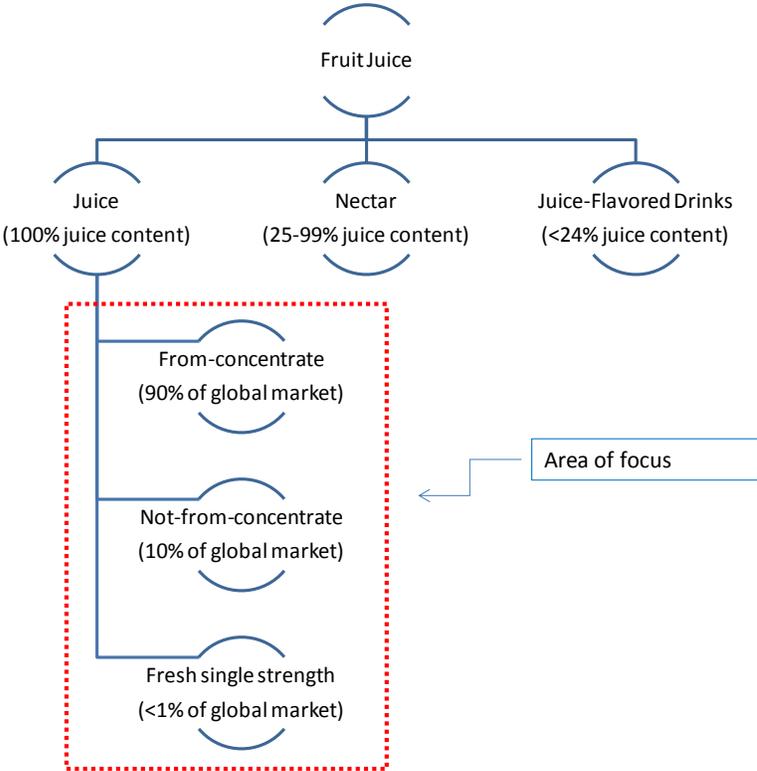
- **Evaporator** – transforms raw fruit into concentrate; high consumption of electricity for evaporation and cooling; uses more labor than other operations
- **Mixer** – combines concentrate with water, sugar and other ingredients to make juice-flavored drinks; capital intensive, with far lower electricity and labor requirements
- **Press** – transforms raw fruit into juice via mechanical pressing and filtering, sometimes with pasteurization; can be low-tech or high-tech depending on quality

Costa Rica has established itself as Central America’s only major exporter beyond the region, with the bulk of the region’s large scale evaporators. In Costa Rica, most of the fruit used in juice is grown on large estates, so that although sales to juice processors is still a secondary market with fluctuating volumes, economies of scale allow for sufficient productivity to operate this technology with acceptable profit margins. As a result, Costa Rica has been able to access the large US and EU markets in a substantial way, particularly in the pineapple segment where Costa Rica’s raw material is the world leader in quality. Nevertheless, Costa Rican fruit growers are wary of overinvesting in production of fruit juice given that the margins for fresh fruit are significantly higher.

Meanwhile, Mexico drives the market for juice consumed in Central America, based on its access to less expensive raw materials and the presence of regionally competitive firms with access to large home (Mexico) and export (U.S.) markets. Until recently Mexican juice products were imported as final packaged products, but in 2009 Jumex opened a mixing plant in El Salvador as a base from which to serve the regional market more efficiently. Without land for local fruit production, El Salvador’s main advantages are its central geographic location and favorable business environment, having attractive tax and incentive schemes for businesses.

The major market segments for juice are broken into three components as shown in Figure 15, with the area of focus for this analysis demarcated with a dotted-line box.

Figure 15: JUICE MARKET SEGMENTATIONS



Market trends in fruit juice show that consumers are shifting to higher quality, naturally sweetened juices, and unique tasting fruit juice products. Slowly, the EU and US markets are moving away from higher consumption of from-concentrate products towards not-from-concentrate (NFC) drinks. There is a growing demand for convenient on-the-go drinks that are both inexpensive and healthy.

Also, industry experts indicate that processed fruit juices are increasingly indistinguishable from one another, especially when their main flavor component is sugar. Improved new packaging alone no longer constitutes innovation in the industry, as more demanding consumers expect a

combination of unique taste and flavor, convenient and easy-to-handle packaging, and juice that is 100% natural without artificial ingredients.

Despite the promising trends for consumer behavior, the analysis of the fruit juice industry in Central America reveals a less clear short-term market growth potential than industries like coffee. Overall, the largest constraint to fruit juice production in Central America, and in Costa Rica and El Salvador specifically, is the unreliable supply of affordable fruit raw material. Below, this and other constraints in the value chain are detailed.

Key Constraints in Costa Rica

Fruit juice production is tied directly to the supply of raw fruit. In Central America, most fruit is grown by smallholders who target the fresh and flash-frozen market as it correlates to higher margins. Juice processors are usually considered as a secondary source of sales.

Costa Rica is an exception, having large estates (50 ha and above) that are either owned by large orange and pineapple processors, or under contract to grow fruit specifically for the juice market. This larger-scale, dedicated production system is the only way to compete successfully in lucrative markets such as the US and EU. However, within this supply chain and cost structure, there remain bottlenecks that are preventing Costa Rica from producing more fruit in the international market as well as the regional market.

Agribusiness planting and harvesting techniques are uncompetitive. Compared to Mexico, Costa Rica's production techniques are outdated, less efficient and more expensive. This is partially due to Costa Rica's smaller fruit production industry and facilities capacity.

Inadequate cold chain facilities. Costa Rica invested substantially in a network of government-run cold chain facilities in the 1980s. Although this system worked well initially, the facilities remained under government operation and have not been properly maintained; as a result, users often choose to avoid these facilities. Cold chain investment is needed, but must be done by bringing in the private sector to leverage efficiency, and proper operations and management.

Business enabling environment reform is needed. Costa Rican corporations face the highest tax rates in the region and labor is expensive. Higher industrial tax rates dissuade greater investments in larger processing facilities that are required to increase volume.

A lack of local demand for high quality juice products and the inability of Central American processors to compete in the high volume market mean that strategic options are limited. Juice concentrate and not-from-concentrate (NFC) producers in Costa Rica are exporting high quality products to Europe and the United States for processing. However, there is limited demand within Central America for higher quality/higher cost juice concentrate and fresh single strength. On a similar note, Brazil – the world's largest orange juice concentrate and NFC producer – is simply too large and too cost effective for Central American processors to compete in the same mass market segments.

Lack of consistent supply of raw fruit. Fruit juice production is tied closely to raw material supply. Given the current price structure of fruit juice in Costa Rica, farmers selling their crops prefer to sell as fresh fruit, which commands a higher price level than selling for fruit products such as juice. This creates difficulties for the fruit processor to manage a consistent supply of raw materials.

Key Constraints in El Salvador

The nature of the fruit juice industry – tying juice production to areas of high fruit production – inherently limits El Salvador from having a constant supply of raw fruit material. This is its greatest constraint and explains, in large part, why the evaporators (large plants making concentrate) in El Salvador are running far below capacity, while the mixers – importing concentrate from Mexico for local and regional sales – can operate locally but generate relatively little value added. That said, there is room for El Salvador to leverage its comparative advantages to strengthen its role as a value-added processing and distribution focal point for the region. To do so, El Salvador must address its top constraints:

Lack of industry-specific data for analysis and understanding. As encountered in researching this report, there is little to no reliable data on the fruit juice industry, costs of production, and market information. This makes it difficult for both potential investors and existing value chain actors to access information and analysis that will help them strengthen market supply to suit demand.

Lack of consistent supply of raw fruit. The lack of domestic juice concentrate production, due to the lack of domestic supply of raw material, means that all juice concentrate for the production of fruit juices must be imported. This causes the price of inputs for juice production in El Salvador to be higher and thus less competitive.

Cold chain facilities. A strong dependence on imports also requires better cold chain facilities to store and transport the raw material once it has landed in El Salvador and thereafter once it is processed.

Weak promotion for investment in El Salvador. El Salvador could do a better job promoting its competitive advantages as a location for investment – its labor wages as well as competitive tax and tariff rates. A more effective promotion campaign, showcasing other companies who have already invested such as Jumex, could deepen the interest of others and help attract additional investment.

Recommendations

The nature of the fruit juice industry – dependent on a fluctuating supply of raw fruit surplus from the primary fresh fruit market for which they are grown – renders it more difficult for Central American countries to compete internationally. Major producers such as Thailand are

able to grow fruit in much larger quantities and adjust production to grow fruit exclusively for processing. Neither El Salvador nor Costa Rica has the natural resources or capacity to compete. This does not render this industry in Costa Rica and El Salvador insignificant, but rather means that interventions to grow the sector must be nuanced, recognizing that the fruit juice industry likely will not be a one of the larger drivers of the domestic economy.

For Costa Rica, focus should be given to supporting research and development of new technologies to increase the overall fruit production and varieties grown in Costa Rica. This will increase the supply of raw materials for fruit juice but also leverage Costa Rica’s quality products to continue to increase its market share in fruit juice through new mixes and higher quality. Related to this is the need to increase market research and data collection to better understand the end markets and the costs associated with production. This will help producers to adjust their methods and adapt with greater precision to demand trends. A scoping of cold chain network investments will be the first step towards addressing the constraints with refrigeration and the transport and storage of raw fruit/frozen fruit. Finally, a targeted look at the business enabling environment through the lens of supporting the fruit juice industry will help pinpoint areas of reform Costa Rica can undertake to compete better in the region.

Table 12: RECOMMENDATIONS FOR FRUIT JUICE, COSTA RICA

Recommendations	Synthesis of Evidence
Support R&D and new technologies in agribusiness to increase growth of fruit production and variety diversification	Costa Rica’s already prominent fresh & frozen fruit production industry will continue to drive a large part of the fruit juice industry, regionally and internationally. Continued investment in better harvesting systems and crop diversification will boost Costa Rica’s production and export of raw fruit, thus indirectly generating additional raw material for fruit processing.
Support deeper market research and data collection to understand consumer preference within region and associated costs	Firms shared their frustrations with not having access to data on consumer trends, market transactions, and costs associated with investments in the fruit juice industry. The challenges of obtaining such data was verified by the team’s experience with data collection. Efforts to strengthen the industry through data collection at a government level would be useful in assisting future firm investment and marketing practices.
Scope feasibility of stronger cold chain network	Costa Rica could increase fruit juice exports if it had better capacity to refrigerate and/or freeze these products for storage and during transport. A well-integrated cold chain storage and transport network should be considered as a regional priority given that refrigerated and frozen goods must be distributed all the way to the end consumer.
Review enabling and tax environment to identify ways to stimulate private investment	Costa Rican firms face relatively high taxes, which can potentially dissuade investment in new technologies and capital investments. A closer look at industry-specific tax policies can help address areas of inefficiencies and determine proper ways to crowd-in investment.

In El Salvador, public policy decisions on whether and how to promote the fruit juice industry should be analyzed as part of a larger competitiveness strategy, which could include, for example, promoting the country as a hub for value-added agro-processing. If promoting the fruit juice industry is part of that strategy, the following recommendations could be considered.

First, El Salvador needs better data on its fruit juice industry in order to analyze the costs of production better and address key constraints. Promotion could also help crowd-in additional private investment from international companies, like Jumex, and brand El Salvador as a preferred location for value-added processing, logistics and distribution to Central American markets. Finally, the cost competitiveness of many firms would be improved by addressing physical and administrative bottlenecks affecting imports and exports. These include port logistics inefficiencies, transport infrastructure, and cold chain storage facilities.

Table 13: RECOMMENDATIONS FOR FRUIT JUICE, EL SALVADOR

Recommendations	Synthesis of Evidence
Support stronger data collection and industry analysis at a national level	Support to the Government to understand the costs associated with cost of production of fruit juice products as well as the potential of the market, which will help firms invest and new firms enter the market. Likewise, this can lead the government to provide incentives for international investment in plant development and production.
Decrease supply bottlenecks impacting imported fruit	Firms in El Salvador are running below capacity usually due to the lack of supply of inputs. Bottlenecks at the port, transport infrastructure, and cold chain storage accounts for a portion of these constraints. Reducing these will smooth the flow of imported fruit from which fruit juice processing can take place.
Strengthen promotion of El Salvador as a prime location for value added agro-processing production	Firms evaluating the Central American fruit juice market have concluded that El Salvador is a promising agro-processing hub. As evidence, the Mexico-based fruit juice firm Jumex invested in a processing plant in 2009. Greater promotion of El Salvador could attract additional investment.

The experience with the fruit juice industry in Costa Rica and El Salvador surfaced issues that need to be addressed for the fruit juice industry across the region. These could be particularly relevant in other Central American countries such as Panama, where the fruit juice industry is receiving attention from investors and conditions look promising for growth.

Table 14: RECOMMENDATIONS FOR FRUIT JUICE, REGIONAL

Recommendations	Synthesis of Evidence
Assess regional private sector-led cold chain integration initiatives and initiate pilot investments	The lack of a cold chain infrastructure hinders business not only in the fruit juice industry but also in meat, seafood, dairy, and fresh fruit and vegetables. Assessing the feasibility of a private sector-led cross-border cold storage chain could lead to pilot investments in port facilities, air transport and overland transport logistics/distribution warehouses.
Reduce time and cost of trans-border overland shipments to facilitate increased trade	A streamlined transportation network reduces costs for the producer and exporter and increases profit margins. This could be facilitated by improving border crossing times and costs.
Provide regional standards of measures, quality, coding, and safety	Across the fruit juice industry in Central America, there is little standardization of packaging, measuring, coding, quality, and safety. This often results in misaligned expectations between producer and consumer, occasionally facilitates fraudulent activities, and reduces the region's reputation as a reliable place of business. Regional initiatives aimed at addressing these issues could help signal to the international market the quality of products originating from Central America as well as attract additional outside investment.

AQUACULTURE

Aquaculture is the fastest growing food production sector in the world. Over the 20 year period 1990-2010 global production grew by 530%. During the same period the total value of the industry grew by 389% to approximately US \$27.5 billion. FAO estimates that aquaculture currently accounts for 50% percent of global seafood consumption. With stagnating global capture fishery production and an increasing population, aquaculture is perceived as having the greatest potential to satisfy the growing demand for seafood.

The growth in aquaculture production has been driven by developing countries. In 2010, nine of the top ten producers were developing countries. The top-ten aquaculture producers are listed in Table 15 below along with Honduras and Nicaragua for comparison purposes.

Table 15: TOP TEN AQUACULTURE PRODUCERS

Rank	Country	Production (in tons)
1	China	36,734,000
2	India	4,600,000
3	Vietnam	2,672,000
4	Indonesia	2,300,000
5	Bangladesh	1,400,000
6	Thailand	1,300,000
7	Norway	1,000,000
8	Egypt	919,600
9	Myanmar	850,700
10	Philippines	744,700
-	Honduras	28,858
-	Nicaragua	18,943
Total 10 as a % of world production		87.6%

Source: FAO (Some figures rounded depending on national statistics)

Approximately 76 percent of total fisheries imports in value were in developed countries. Imports by the European Union (EU) represented a share of 40 percent of total world imports with the United States of America and Japan accounting for 14% and 13% of the global market respectively.

The largest segment of the aquaculture sector in terms of value is the white legged shrimp, which was valued at US \$11.3 billion in 2010. Latin America and the Caribbean dominated the white legged shrimp segment of the market up until 2000 when Asian producers (mainly Vietnam, Indonesia, India, China, Myanmar, Taiwan, and the Philippines) began to diversify away from their dependence on the giant tiger prawn. By 2005–2007, Asia had overtaken all other shrimp

producing regions with over 1.6 million tons produced per year, compared with 390,000 tons in the LAC Region. This dramatic increase in production from Asia has resulted in a precipitous decline in prices. The average global price of the white legged shrimp fell from \$11.3/lb in 1984-86 to \$3.7/lb in 2005-2007. Between 2000 and 2010 prices in the key U.S. market dropped even more dramatically by approximately 80.5%. In effect the white legged shrimp market has become highly commoditized – i.e. a widely available and relatively undifferentiated product.

Given the commoditization of the white legged shrimp market, profitability is primarily determined by five factors: (a) economies of scale through production efficiencies and technical management of the crop (e.g. seed quality, feed, stocks densities and water quality); (b) efficient use of infrastructure, equipment and materials and labour; (c) efficient use of financial capital; (d) developing strong relationships with end-market buyers as demand has become highly elastic to prices (even a small change in price (cents per pound) can have a significant impact on sales volumes); and (e) the production of more value added products to differentiate the product offering.

The value chain analysis outlined below indicates that both Honduras and Nicaragua are still struggling to respond to the challenge from Asia. In the face of stiff competition from Asia both countries continue to compete in the commoditized end of the shrimp market i.e. minimal product processing and packaging. As a result, Honduras and Nicaragua have experienced price declines of 31% and 43% respectively. Smaller producers in both countries have been particularly hard hit and slow to respond either in terms of improved efficiencies and/or more differentiated products.

Honduras

Honduras is the largest producer of farmed shrimp in Central America. Between 2000 and 2007 Honduras produced 44% of the region's total volume, followed by Nicaragua (14%), Belize (12%), Guatemala (11%), Panama (10%), Costa Rica (8%) and El Salvador (1%). The industry is well established in Honduras having taken root in the 1980's when Honduras sought to leverage its favourable climatic conditions, political stability, and legal framework by offering a range of financial incentives to attract foreign direct investment. The response was very favourable particularly from Europe. For this reason, the industry is made-up of a mix of foreign and domestic firms. The shrimp aquaculture industry (encompassing producers, processors, transportation, and marketing) accounts for approximately 27,000 direct jobs, and 120,000 indirect jobs.

Box 2: Regional Public Goods as a Competitive Asset

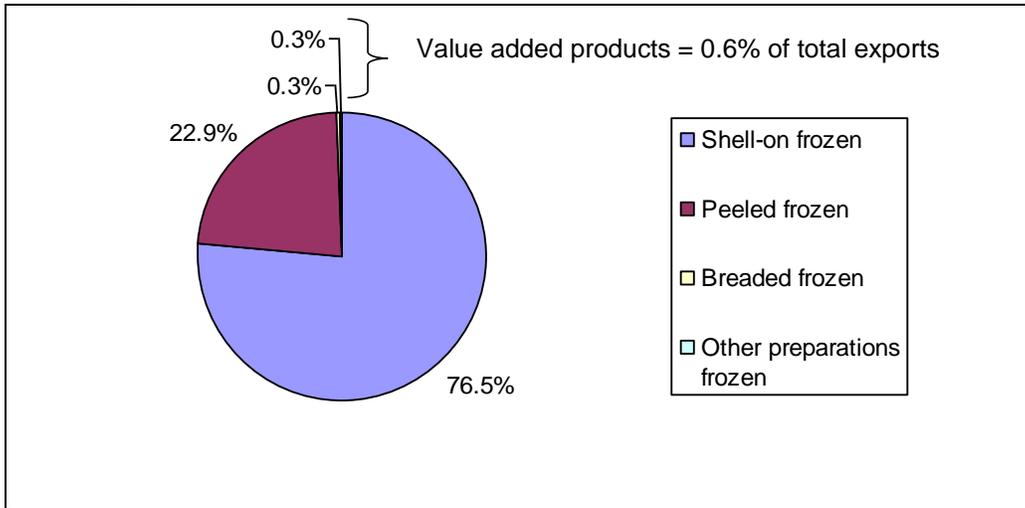
Honduras has effectively leveraged the assistance of the International Regional Organization for Agricultural Health (OIRSA), which was constituted by the governments of Mexico, Guatemala, El Salvador, Honduras, Nicaragua, Costa Rica, Panama and Dominican Republic, to become a leader in traceability and safety standards for seafood products. In Honduras, OIRSA works with the National Agricultural Health Service (SENASA), which is the national authority in charge of monitoring animal health and safety of foods. SENASA advisors have been trained through OIRSA to advise the entire aquaculture production process per global best practices and standards.

Food safety and traceability controls start from the capture phase (on board) or culture (in the farms) until loading on airplanes or ships that transport to the goods to the end market. All aquaculture products for export are produced in processing plants that implement Good Manufacturing Practice (GMPs) and Hazard Analysis and Critical Control Points (HACCP), which are required to access the U.S. and EU markets. Thanks to the work of SENASA Honduras's traceability and safety standards have become a strategic asset. In 2010 a Honduran producer of tilapia was certified as the worldwide leading producer of tilapia due to its compliance with ISTRA standards (International Standards for Responsible Tilapia Aquaculture), which are the most rigorous in the world.

According to the National Aquaculture Association of Honduras (ANDAH), approximately 65% of available water surface for aquaculture is operated by large-scale enterprises while the other 35% is operated by small to medium sized enterprises. Farms bigger than 151 ha are classified as industrial, from 51 to 150 ha are considered medium-scale and less than 50 ha are small-scale. The industry in Honduras is dominated by a small number of large vertically integrated firms, which do the vast majority of their production, processing and exporting in-house. Smaller producers have little access to global value chains due to lack of technical support and market intelligence. The linkages between larger and smaller enterprises are effectively non-existent. Moreover, small-scale producers are almost entirely dependent on third parties for the timely provision of larvae, seed, and feed stock.

Honduras's export product range includes: shell-on frozen, peeled frozen, peeled and deveining, butterfly or ¾ butterfly, Individual Quick Frozen - IQF, pre-cooked (ready to cook), and more recently has included shrimp skewers IQF. The American market buys frozen tails (shelled and shell-on) and value-added products (breaded frozen shrimp and other frozen preparations). As illustrated in Figure 16 below, the vast majority of Honduran exports of white legged shrimp products are basic with minimal processing conducted in-country.

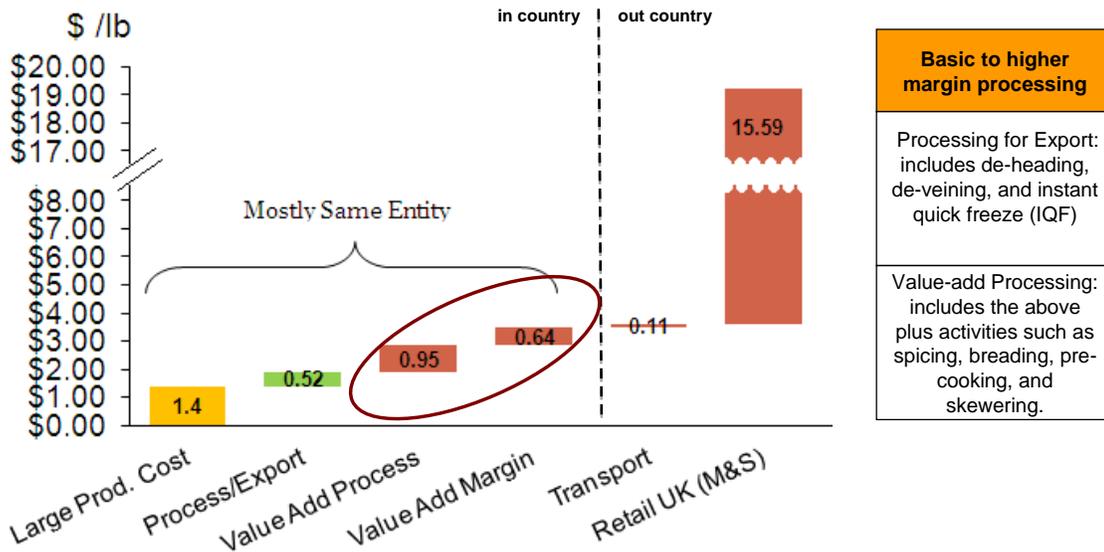
Figure 16: COMPOSITION OF HONDURAN SHRIMP EXPORTS (2010)



Source: FAO

The lack of valued-added processing limits Honduras to the buyer segment of the market in the United States and the EU that prefers their shrimp in a more natural state suitable for additional processing. As illustrated in Figure 17 below, value added products could be much more profitable; however, the required investments in market research and adaptations to the production line would affect profitability over the short to medium term so only few producers have pursued a strategy of product diversification/differentiation.

Figure 17: VALUE ADDED AQUACULTURE PRODUCTS (HONDURAS)



Source: stakeholder interviews

Nicaragua

Aquaculture is a well-established industry in Nicaragua. The sector began to emerge in the 1980s and has since grown to account for 4.5% of exports and 1.3% of GDP. Over the last 15 years (1995-2010) the volume produced has increased by 735% to 18,942 tons. During that same period the total value of the industry has grown by 422%. Aquaculture in Nicaragua is estimated to generate 25,000 jobs directly.

The development of the sector has benefited from a strong institutional underpinning. As the sector began to grow in the early 1990s Nicaragua's national universities began to offer aquaculture-related training programs to producers and professionals. The University of Central America (Universidad Centroamericana/UCA) led the way followed by the University of Mobile (Alabama, US) and the Nicaragua National Autonomous University of Leon (UNAN, Leon) joined in the effort to offer coursework in aquaculture. In addition to their training programs and technical assistance to cooperatives, these institutions offers research and development services to the sector. Through an inter-institutional agreement between the National Administration of Fisheries and Aquaculture (AdPESCA) and the Center for Shrimp Research (CIDEA-UCA), CIDEA has a research farm located in Puerto Morazán to carry out research and training projects. This high level of institutional support has helped the industry in Nicaragua to successfully adapt to international food safety and quality standards. HACCP programs have also been implemented, facilitating market access to the European Union, Japan, and the United States.

The rapid development of the shrimp industry created great expectations at the beginning of the 1990s; however, a number of shocks both natural and man-made have dramatically altered the growth trajectory of the industry. Many small producers and shrimp production cooperative groups were severely affected by Hurricane Mitch in 1998. Many producers went out of business, while others spent years trying to recover. The following year, the White Spot Viral Syndrome appeared causing considerable losses, which further weakened the financial health of the country's shrimp producers. In 2000 competition from Asia began to intensify, resulting in dramatic falls in world shrimp prices and prompting more farmers to abandon production altogether.

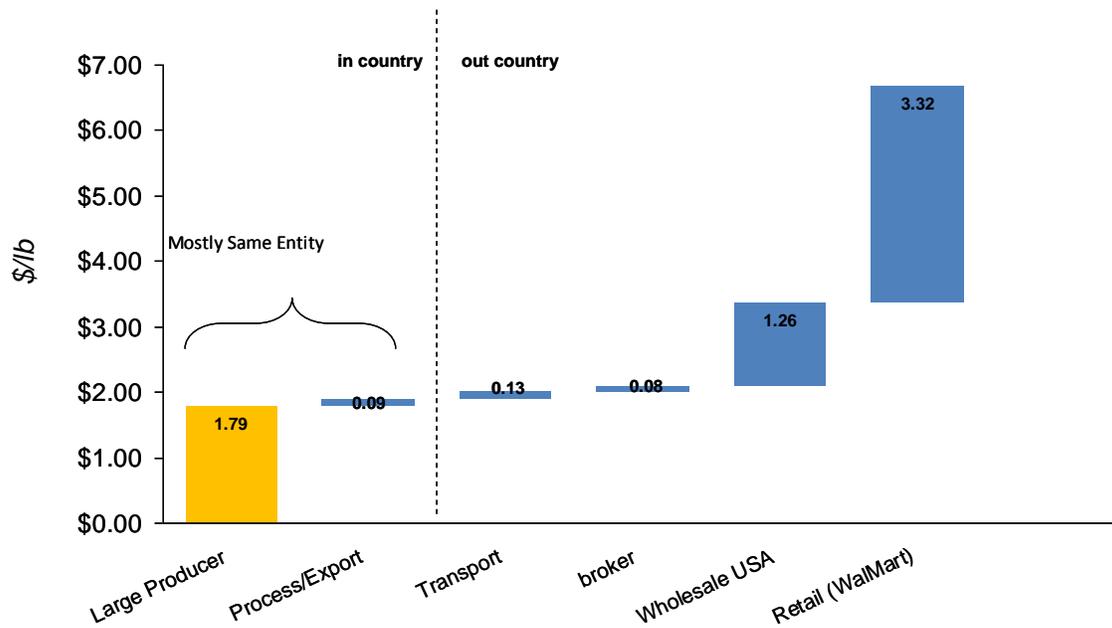
Key Constraints in Honduras and Nicaragua

Similar to the situation in Honduras, the sector in Nicaragua is bifurcated between large, vertically-integrated firms and smaller, more atomized producers. Most of the constraints outlined below are particularly acute for smaller producers.

Linkages to end markets are weak. Market intelligence and export promotion are limited. Weak end-market linkages lead to a poor understanding of customer needs resulting in missed product development, value-addition, and branding opportunities. As illustrated in Figure 18 below the export value chain in Nicaragua (and Honduras albeit to a lesser extent) is “short” –

i.e. relatively few activities performed beyond production and with the majority of activities performed “in-house” by relatively large fully integrated producers. The focus on minimally processed shrimp continue to make up the bulk of Nicaragua And Honduras’s exports exposing the sector to direct competition from the more efficient Asian produces like Vietnam (see Figures 19 and 20 at the end of this section).

Figure 18: NICARAGUA VALUE CHAIN FOR INDIVIDUAL QUICK FROZEN SHRIMP



Source: stakeholder interviews

Industry data is limited. Robust, reliable data is difficult to come by and generally either incomplete or highly proprietary. Comprehensive data regarding production costs, market demand, sales, investments would be a valuable resource for business owners, investors, and industry advisors, to guide their decision making. This type of data could also help to better define the bottlenecks and constraints that exist, so that the private and public sectors can jointly set priorities at some level and promote the improvements in overall regional competitiveness.

Limited access to financing. Smaller producers frequently lack the working capital required to source key production inputs like feed and fuel. In some cases farmers will harvest the shrimp early as they can no longer afford to feed them. The smaller shrimp fetch a smaller per pound price and are often sold at a discount for cash on delivery (or pick-up as the case may be). The lack of longer-term financing limits the ability of farmers to invest in new technologies and product development.

Security. There are instances of praedial larceny whereby live shrimp are stolen from farms for consumption or sale. Producers in Nicaragua will sometimes harvest their shrimp below peak size and price to reduce the risk of theft. This results in a loss of income compared to what would have been received had the shrimp been sold at their optimal size.

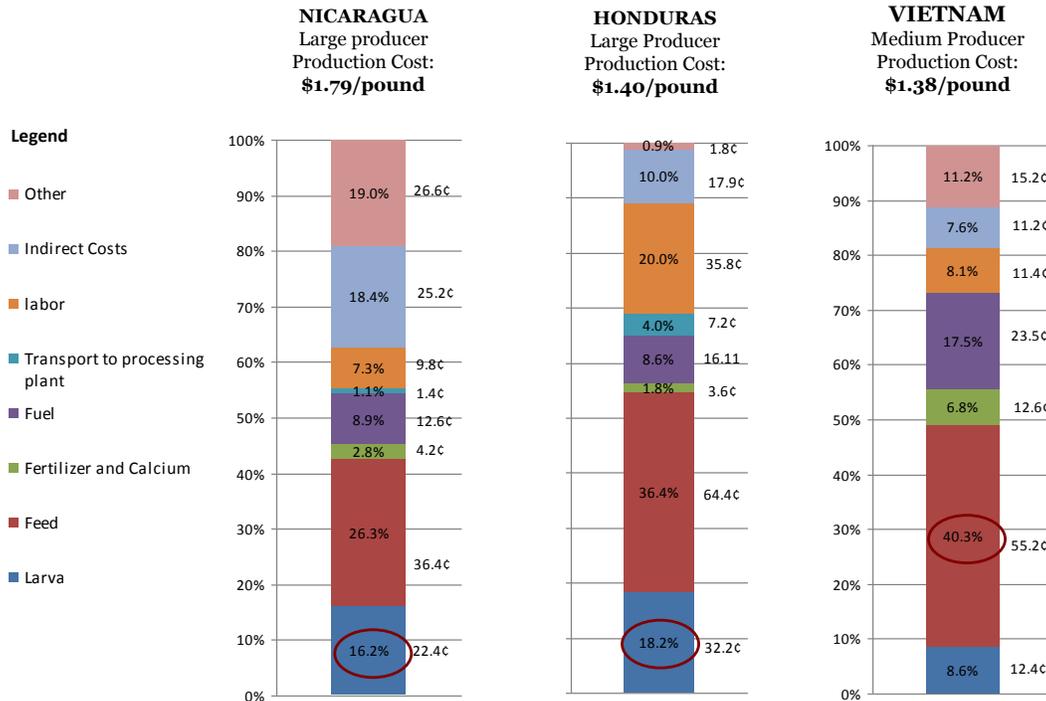
Weak links across the value chain. Whereas in many industries an anchor firm will support an entire value chain, in Nicaragua there is very limited coordination and cooperation between large and small producers. Information is seldom exchanged and joint marketing or R&D initiatives are basically non-existent.

Competitive Positioning of Nicaragua and Honduras versus Vietnam

The challenges outlined above have positioned the industry in Honduras and Nicaragua in the commodity segment of the industry – i.e. an undifferentiated product where global demand is driven overwhelmingly by price and the reliability of the supplier. As illustrated in Figure 19 below Vietnam is a lower cost producer of shrimp. Larva costs are significantly lower in Vietnam as larva is sourced locally whereas both Honduras and Nicaragua must import their larva (usually from Peru or Ecuador). The cost of larva can be as high as \$0.25/lb for smaller producers. Feed costs are higher in Vietnam due to the intensive production process employed by most producers.¹⁰

¹⁰ Intensive farming is a production system characterized by relatively large amounts of inputs (i.e. feed) relative to the size of the production area (land or water). Vietnamese producers practice intensive farming due to land/water constraints. Extensive production is the dominant model in Honduras, Nicaragua and the broader region.

Figure 19: SHRIMP COST ANALYSIS

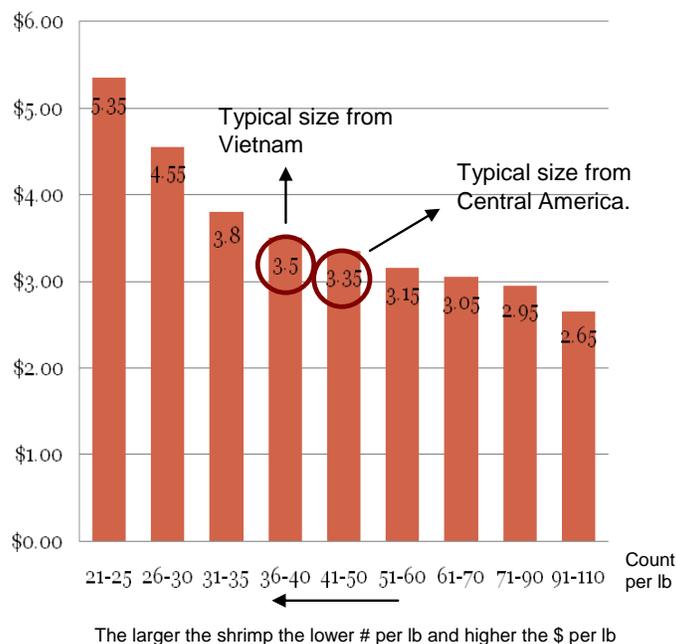


Source: Stakeholder interviews; The Network of Aquaculture Centres in Asia-Pacific (NACA), Vietnam, Indonesia and Bangladesh, Shrimp Price Study Phase 3, November 2011; and Gender Analysis of Aquaculture Value Chain in Northeast Vietnam and Nigeria, World Bank, 2009.

Vietnam’s cost advantage over Honduras and Nicaragua is even more pronounced when you factor in that its shrimp are typically larger and therefore earn a higher wholesale price.¹¹ As depicted in Figure 20 below Vietnamese harvests yield shrimp counts of 36-40 per pound versus 41-50 shrimp per pound from Nicaragua and Honduras denoting larger individual shrimp than its competitors in Central America. In this instance the premium paid amount for the larger shrimp from Vietnam amounted to \$0.15 per pound.

¹¹ The larger the shrimp the fewer number of shrimp required to make-up a pound. Thus the lower the shrimp count per pound the higher the per pound price.

Figure 20: U.S. WHOLESALE PRICE (\$/LB) FOR FARM RAISED WHITE LEGGED SHRIMP (SEPT 2011)



Source: Stakeholder interviews and the Seafood Price-Current (trade publication for the seafood industry).

Lastly, growing conditions and production techniques in Vietnam allow for farmers to obtain two harvests per year i.e. two production cycles versus one in Nicaragua and Honduras. This allows Vietnam to produce larger volumes of shrimp year round making it a reliable supplier of product.

Recommendations

Table 16: RECOMMENDATIONS FOR AQUACULTURE, NICARAGUA AND HONDURAS

Recommendation	Rationale
Improve linkages to end market to inform and catalyze new product development. Market intelligence and export promotion activities should be strengthened. Retail buyers who seek to work directly with producers should be identified and targeted for joint new product development initiatives. Where necessary and where a retail buyer exists, financing could be provided to producers/exporters to develop more value-added, higher margin products.	Larger producers in Honduras and Nicaragua spend relatively little on marketing and product development (less than 1% of sales). Significantly higher margins could be achieved if larger producers invested the time and resources in cultivating partnerships with end-market retailers. Successful examples of such partnerships already exist in the region (e.g. with Marks & Spencer).
Pilot new production models for smaller producers that are more profitable and sustainable. Successful pilots should then be scaled-up. New production models should be comprehensive in nature, taking into account financial, logistical, and commercial aspects to ensure the model is	Many support programs to the sector have been paternalistic and have steered farmers to focus on the most basic of production activities.

Recommendation	Rationale
self-sustaining.	
Support public private sector dialogue to strengthen the ties between public and private sector stakeholders and amongst private sector stakeholders, principally between large and small producers.	Governments in Honduras and Nicaragua could develop new and long-term national growth strategies for aquaculture that reflects the commoditization of the industry and support large, medium, and small-scale producers. The private sector should play an active role in the strategy development process via a public-private dialogue.
Deepen research and development efforts to improve feed conversion ratios and yields. Extension services should be strengthened to support commercial up-take of new production technologies.	Both Honduras and Nicaragua under perform Asian competitors in key areas such as feed conversion ratios and overall yields.

MEDICAL DEVICES

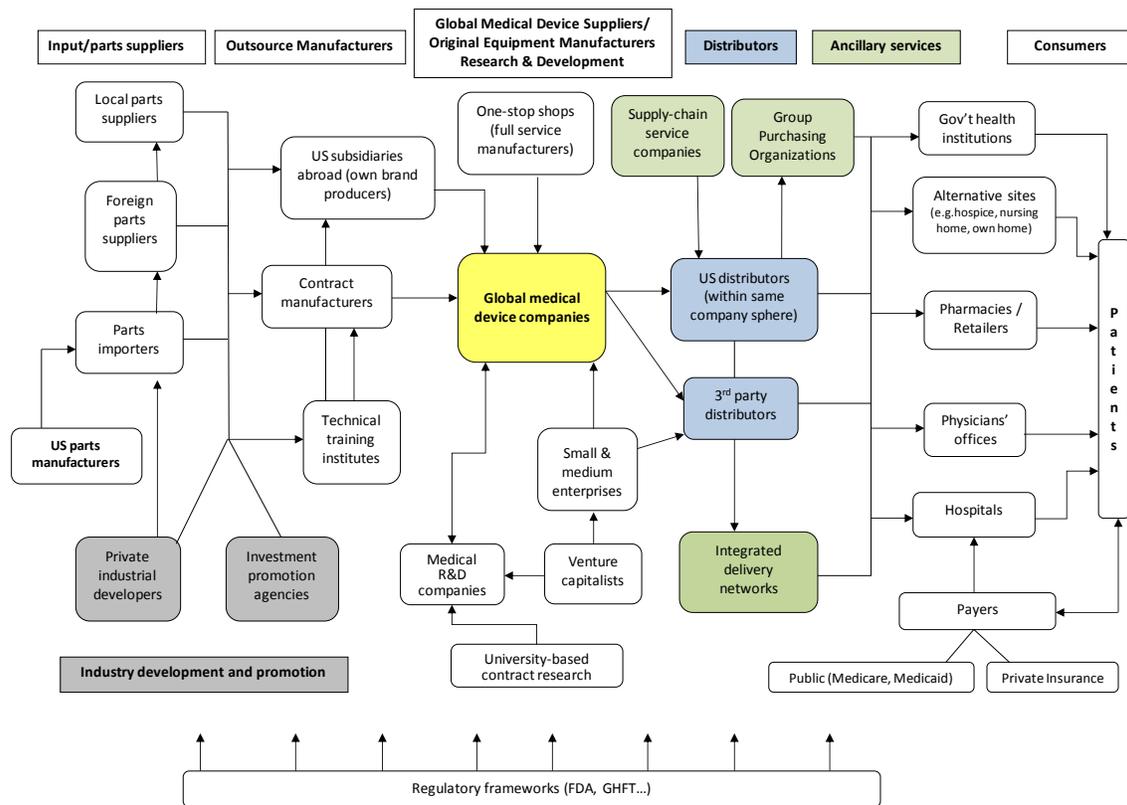
Within the light manufacturing sector, this study focused on *medical devices*. The global medical device industry is characterized by a rapid rate of growth, stringent quality requirements, and increasing cost pressures. International markets are growing due to aging populations, increasing incomes in emerging markets, and investment in ever more effective products. Strict regulations due to the grave consequences of potential product failure drive quality standards, and cost pressures stem from the changing requirements of health insurance companies and governments. Demand in this industry is relatively price inelastic, however, and while the structure of the industry is changing in response to cost pressures, the industry is expected to grow at five percent per year over the next five years globally, approaching \$350 billion.

The US market for medical devices is the world's largest, reaching approximately \$106 billion in 2011. Imports—or re-exports from lower cost outsourcing locations overseas—make up an increasingly significant portion of the US market, accounting for approximately 24% of the total. Central American markets differ in size and requirements from the US market, such that companies producing for the US market allocate 100% of their output to exports. The region's first export-oriented medical device plant opened in Costa Rica in 1987, with investment activity accelerating sharply since 2004.

Central America's most direct competitors for US outsourcing of medical devices—Mexico, Ireland, and Puerto Rico—are countries with comparatively well-educated populations for both production and middle management and slightly lower labor costs than the US. Mexico has a successful investment promotion strategy targeting medical device manufacturing, and now exports \$5 billion per year from more than 130 plants. China is emerging as a competitor as well, although due to concerns about intellectual property protection, China is not expected to gain a major market share as quickly as it has in other manufacturing industries.

The global supply chain for medical devices includes the following channels: research and development (R&D), input suppliers, manufacturers (outsourced or domestic), distributors, ancillary services, and end consumers. Original equipment manufacturers (OEMs) are the main drivers of the medical device value chain and the global medical devices industry is dominated by ten large OEM companies, most of which are of US origin.

Figure 21: MEDICAL DEVICES GLOBAL VALUE CHAIN



Responding to recent price pressures, the industry has seen consolidation and outsourcing of many production activities, while strategic activities such as design R&D, branding, and business development are retained in-house. Production decisions, which determine what is manufactured in offshore factories, are all taken in OEM corporate offices in the US and Europe. Their primary customers are hospitals and the alternate site market for home and clinic care, including physicians, nurses, respiratory therapists, physical therapists and pharmacists.

The medical device industries in both the US and EU devote considerable resources toward product approval processes, clinical trials, user fees and plant audits/inspections. The US Food & Drug Administration (FDA) and the Center for Devices and Radiological Health (CDRH) govern the regulatory oversight of medical devices for all goods that enter the US market. The requirements developed by these agencies are essential factors in the industry's R&D and quality control operations.

Segmentation within the value chain is highly influenced by regulation, especially from the FDA. For regulatory purposes products are categorized into three classes, which are defined according to the technological sophistication of the product. Medical device manufacturers with Class II or III devices registered by the FDA must undergo regular inspections and certifications.

- *Class I* – Class I products present the minimal potential harm for the user. Examples of Class I products are examination gloves and hand-held surgical instruments. 47% of medical devices are categorized as Class I with 95% of these being exempt from the regulatory process.
- *Class II* – Class II products require stricter levels of regulation. These products pose potential danger to the user. Examples include powered wheelchairs, infusion pumps and surgical drapes. 43% of medical devices are considered Class II.
- *Class III* – Class III devices are stringently regulated given they support or sustain human life, e.g. heart pacemakers. 10% of all medical devices are considered Class III.

Central America is an attractive location for US-based companies due to its proximity to the US, lower costs of production and middle management labor, investment incentives, and low/no tariffs under DR-CAFTA. Additionally, each country under study has specific comparative advantages in this industry:

- *Costa Rica*: Costa Rica benefits from a world class investment promotion, a strong supplier network and cluster development process, high labor capacity, specialized free zones in the medical devices clusters, and a strong logistics network for the movement of raw materials and processed goods.
- *Guatemala*: Guatemala has low labor costs (direct wage rates for semi-skilled labor are US\$1.60 per hour) and relatively high labor productivity—based on information from one medical device manufacturer, on a per-unit basis labor productivity is 20-30% higher compared to the US or Costa Rica. Guatemala has a relatively strong supplier base in the plastics industry which can be leveraged for deeper industry investment in new products.
- *El Salvador*: El Salvador has high availability and low cost of labor, better logistics and access to air and sea transport, and developed free trade zones.

Key Constraints in Costa Rica

Medical device manufacturing in Central America began in Costa Rica with Class I, or conventional hospital supply products. However, Costa Rica has increasingly moved into production of Class II and Class III devices in recent years as the industry has developed. Costa Rica's investment promotion agency – *Coalición Costarricense de Iniciativas de Desarrollo*, or CINDE – has helped to establish a vibrant cluster of medical device manufacturers and the supplier base necessary to make the manufacturing subsidiaries efficient. There are 38 medical device companies operating in Costa Rica today, employing nearly 12,000 people. This industry has grown faster than all other free trade zone industries to become the fourth most important export industry in the country.

Despite its success in the industry, Costa Rica faces certain obstacles to remain competitive:

Weak sterilization procedures. Improvements are needed in the types and quantities of sterilization procedures required to make the industry more efficient and improve the quality of new goods.

Rising labor costs. According to the cost analysis summarized in Table 17, Costa Rica faces high labor costs, accounting for nearly 70% of the cost of production. The detailed comparison in the table shows that Costa Rica has higher labor costs than plants producing similar products in Mexico.

Table 17: MEDICAL DEVICES DETAILED MONTHLY COST BENCHMARKING FOR COSTA RICA VS. MEXICO

Cost Category	Mexico		Costa Rica	
	USD/mo	Hourly ¹²	USD/mo	Hourly
Direct Labor Operators	150		150	
Direct Labor Hours per Month	28,463		28,463	
1. Operating Expenses	57,034	2.00	50,776	1.78
Utilities & Insurance	26,311	0.92	17,911	0.63
Rent	19,773	0.69	19,413	0.68
Miscellaneous costs	10,950	0.38	13,452	0.47
2. Labor	174,731	6.14	188,826	6.63
Direct	137,869	4.84	151,566	5.33
Indirect	19,677	0.69	19,060	0.67
Administrative	17,184	0.60	18,200	0.64
3. Shipping	14,480	0.51	33,600	1.18
By Road ¹³	11,712	0.41	5,600	0.20
Sea Freight			22,400	0.79
Fees, Taxes & Handling	2,768	0.10	5,600	0.20
TOTAL	246,245	8.65	273,202	9.60

Source: Cost model based on interviews by DAI, Boyd Report, KPMG study.¹⁴

High shipping costs. Transportation is more than twice as costly for plants located in Costa Rica as compared with Mexico. Where Mexican plants usually can transport the products overland to the US, Costa Rica must pay the added cost of sea freight. Table 18 depicts the case of a plant whose product mix is concentrated in low volume, high-value goods (four containers per week) – and even in this case, Costa Rica’s overall costs are 11% higher than a corresponding Mexican

¹² Hourly cost (cost per hour of labor) is used as a proxy for unit costs, since unit costs are not available for medical devices.

¹³ For Mexico, products travel to U.S. via truck only. For Costa Rica, trucking cost from plant to port.

¹⁴ “Competitive Alternatives: KPMG Guide to International Business Location”, 2010 and “Comparative Annual Operating Cost Simulation for Medical Device Manufacturing in 55 Cities”, The Boyd Company, Princeton, NJ, May 2011.

plant. For plants producing high volumes of low-value goods (twenty containers per week, summarized in Table 19) Costa Rica’s overall costs rise to 34% above Mexico’s.

Table 18: BREAKOUT OF COSTS FOR HIGH VOLUME PRODUCTION

Cost Category	Mexico		Costa Rica	
	USD/mo	Hourly	USD/mo	Hourly
3. Shipping	72,400	2.54	168,000	5.90
By Road	58,559	2.06	28,000	0.98
Sea Freight			112,000	3.94
Fees, Taxes & Handling	13,841	0.49	28,000	0.98
TOTAL	304,165	10.69	407,602	14.32

Source: Cost model based on interviews by DAL, Boyd Report, KPMG study

Key Constraints in Guatemala and El Salvador

In contrast to Costa Rica’s success to date in creating a medical device manufacturing cluster, Nicaragua has one medical device contract manufacturer (Command Medical), Guatemala has one successful manufacturing operation (De Royal), and El Salvador has two operations related to the medical devices industry initiated by local entrepreneurs. In this section, the constraints facing Guatemala and El Salvador are described.

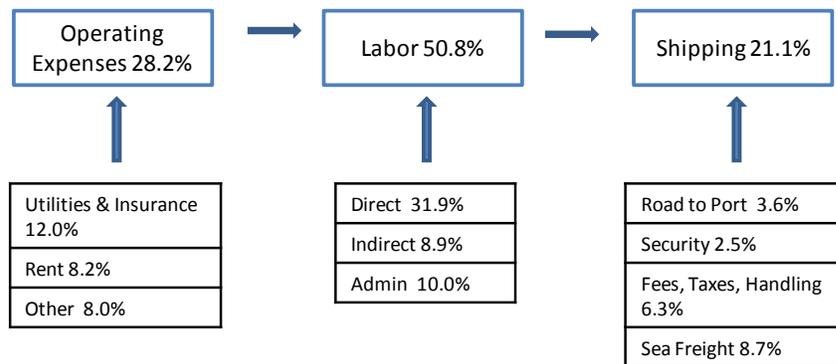
Weak investment promotion. As with many FDI-driven industries, it is clear that future growth can be positively influenced by the development of increasingly sophisticated investment promotion agencies in each country. However, neither El Salvador nor Guatemala has been able to develop an effective industrial investment promotion strategy and approach. Potential investors cannot easily obtain the specific information and assurances needed to open up plants in these countries.

Low levels of human capacity in language and management skills. Guatemala and El Salvador lack a critical mass of middle-level and senior-level managers capable of managing production processes and firm activity.

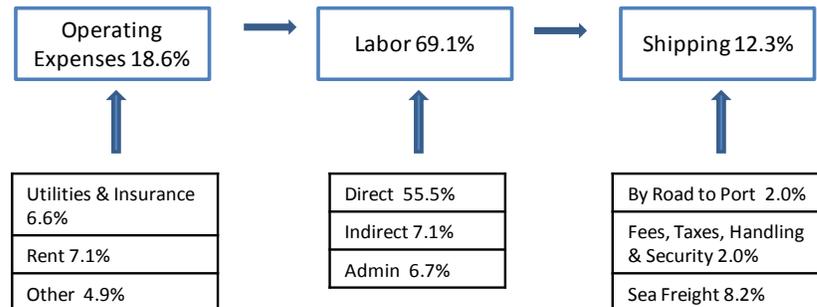
Inefficient import/export procedures drive up costs. Guatemala’s and El Salvador’s labor cost advantages evaporate when moving from low to high volume production (four to 20 containers per week) – at which point Guatemala’s overall costs rise from 29% below to 7% above Mexico’s. Figure 22 shows that shipping costs as a share of total costs for a plant located in Guatemala is twice that of Costa Rica, and even higher for El Salvador. Shipping costs for Guatemala in absolute terms are only 10.1% higher than Costa Rica, but since labor costs are less than half those of Costa Rica, transportation costs as a share of total costs loom large.

Figure 22: COST BREAKDOWN MEDICAL DEVICES PRODUCTION

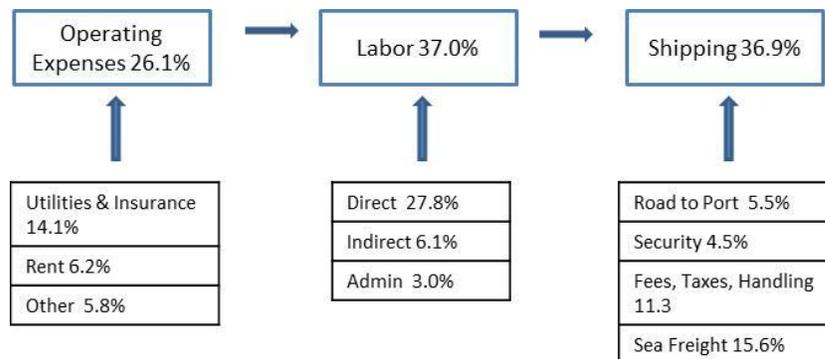
Guatemala



Costa Rica



El Salvador



Source: Calculations based on research by DAI.

Lack of an industrial park in Guatemala. Guatemala has attracted one investor in this industry, and the high levels of productivity in that one plant speak well for Guatemala's potential in the medical devices industry. However, Guatemala lacks a well-planned free zone that could act as an incentive to crowd-in private sector investment and offset some of the other disadvantages for operating a medical devices firm in Guatemala.

Recommendations

An analysis of the medical device industry provides strategic insights that apply to many industries in the light manufacturing sector in Central America. To become more attractive for FDI, each of these countries needs to work on improved security, more reliable electricity supply, better transportation infrastructure, and streamlined regulatory environments, with special emphasis on border-crossing procedures. CINDE in Costa Rica has had major, visible successes, but the industrial promotion agencies in other countries in the region need improved technical capabilities and greater autonomy in order to generate confidence in their ability to follow up on commitments made as conditions of the investment.

Notwithstanding the presence of some important precursor industries in El Salvador and Guatemala that suggest some potential for medical device manufacturing, it remains to be seen whether the medical device industry will spread to other countries in Central America in the medium term. Costa Rica is a proven outsourcing location for the global medical devices industry and it continues to evolve toward production of higher value added production. Given Costa Rica's increasing labor costs the transition to higher value added production will be critical to maintain the competitiveness of its industry. If some key security, transportation and institutional concerns can be addressed, the industry could branch out within Central America in the near future, forming new clusters of concentrated production that can serve as magnets for continued investment and the development of self-sustaining competitive advantages. Under this scenario, Costa Rica could serve as a regional manufacturing hub from which lower value or specialized activities could be outsourced as appropriate.

Either way, Costa Rica should continue to seek out ways to bolster its medical device value chain, proactively looking for opportunities to improve linkages and information sharing among multinationals and local SMEs in supplier industries.

Another potential upgrading pathway for Costa Rica involves attraction of labor-intensive computer programming tasks to Costa Rica, so that design R&D is co-located with production facilities. This model worked well for automotive component design in Mexico, which followed component manufacturing by a few years. There are potential cost savings for OEMs and Costa Rica would be "exporting" a service with high value-added and zero transportation cost. Product design services could represent a new frontier for Costa Rica, taking some companies in the industry to a higher level of specialized, high value added labor. There may also exist related opportunities for Costa Rica's information technology industry to act as a supplier for IT-intensive components of medical devices.

Table 19: RECOMMENDATIONS FOR MEDICAL DEVICES, COSTA RICA

Recommendations	Synthesis of Evidence
Diversify sterilization infrastructure	Three sterilization companies have been established but greater variety of sterilization and packaging services is needed to make operations more efficient, especially for small and medium-sized manufacturers.
Look for opportunities for regional outsourcing	Costa Rica may be able to remain an FDI destination of choice if it can offset rising costs of labor with savings in nearby countries for some Class I products.
Evaluate requirements to upgrade local capabilities to attract CAD design of medical device components	Costa Rica’s biggest handicap vis-à-vis Mexico is high cost of shipping. Design R&D is a service export with high value-added and zero transportation cost.

The investment promotion and cluster development approaches taken by Costa Rica can serve as a model for the other countries of the region. Guatemala and El Salvador have made limited inroads into the industry at the Class I level, but can offer more extensive experience in related industries such as textiles/garments, plastics, and pharmaceuticals.

Table 20: RECOMMENDATIONS FOR MEDICAL DEVICES, GUATEMALA AND EL SALVADOR

Recommendations	Synthesis of Evidence
Increase capacity of PROESA (El Salvador) & Invest in Guatemala to develop pro-active marketing strategies	Gap analysis shows Invest in Guatemala and PROESA both underperform compared with Mexico’s investment promotion agency. A credible strategy to attract a critical mass of OEMs & suppliers requires a strong investment promotion agency that can better link multinational OEM production operations with local SME providers.
Improved training in English language and industry-specific management skills	Lack of high quality middle management and senior technicians.
Streamline import & export procedures for medical equipment and supplies	Cost surveys show that handling fees and taxes are around 6% of total costs in El Salvador and Guatemala, while such costs are only 2% in Costa Rica and 1.1% in Mexico.
Guatemala: Develop one or more higher level industrial parks with reliable port access, utilities, & security	Guatemala lacks high quality free zones that could draw industry concentrations.
Improve security	Both El Salvador and Guatemala show gaps on “quality of life” for expats associated with FDI. Anecdotally, much of this differential is attributed to political stability and lack of security

PROFESSIONAL SERVICES

To complement the value chains analyses above, a separate analysis was undertaken of two professional services sectors: accounting/auditing and engineering services. The purpose was slightly different: shed light on the potential to increase intra-regional services exports. The analysis is based on primary research: over 50 interviews were conducted with high level authorities from professional associations, small and medium enterprises, multinationals, and large companies related to accounting, auditing, and engineering services in Central America. Also completed was an analysis of relevant legislation and treaties related to hiring of foreign professionals. Finally, examples from other regions on successful integration of professional services were examined.

Professional services are important because they are a fast growing service sector and they provide services necessary for the proper functioning of other industries. For example, no business can operate soundly without proper accounting services. Also, engineering services are needed to build and maintain a country's physical infrastructure, which is necessary to sustain any economic operations. Among the market failures that professional services face is economies of scale, especially in smaller Central American countries where the domestic market may not be large enough to create a diversified skill base.¹⁵ The integration of professional services in the region would address the economies of scale issue and result in the increased mobility of qualified professionals and the ability of firms to operate in multiple countries. The expectation is that such increased mobility would increase the quality and competitiveness of services offered. However, increased integration of professional services requires interventions in national policies, trans-national border issues (with labor market mobility), and regional coordination.

Interview Results

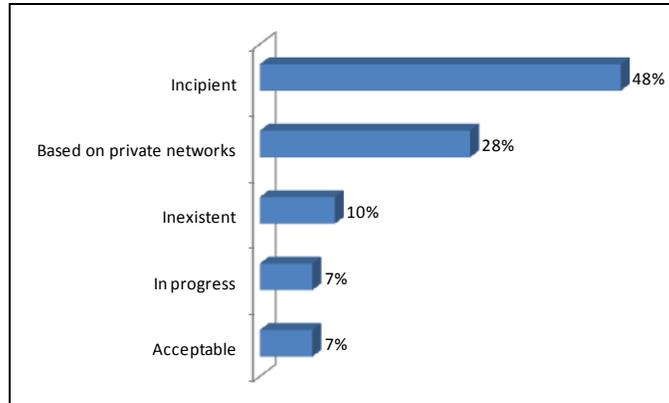
Of the 53 interviews, 10 were conducted of participants in Costa Rica, 8 in El Salvador, 8 in Guatemala, 8 in Honduras, 9 in Nicaragua, and 10 in Panama. 12 interviews were conducted with authorities of professional associations, 8 multinationals, 9 large firms, 9 medium firms, 10 small firms, and 5 other related institutions.

During the interviews, participants provided their perception about the current level of integration of professional services as well as their thoughts about adequate scenarios of integration, barriers to reach those scenarios, and the potential benefits for achieving a greater level of integration within the region. Furthermore, participants provided valuable recommendations on how to promote and achieve a greater level of integration.

¹⁵ World Bank. "Reform and Regional Integration of Professional Services in East Africa." October 2010.

On the level of integration, about half of the participants identified this as incipient (see 23). Although there have been several initiatives to advance this agenda, few have made much visible progress. More than a quarter of respondents think that the level of integration is based on private networks. For example, employees of international franchises can provide their services abroad.

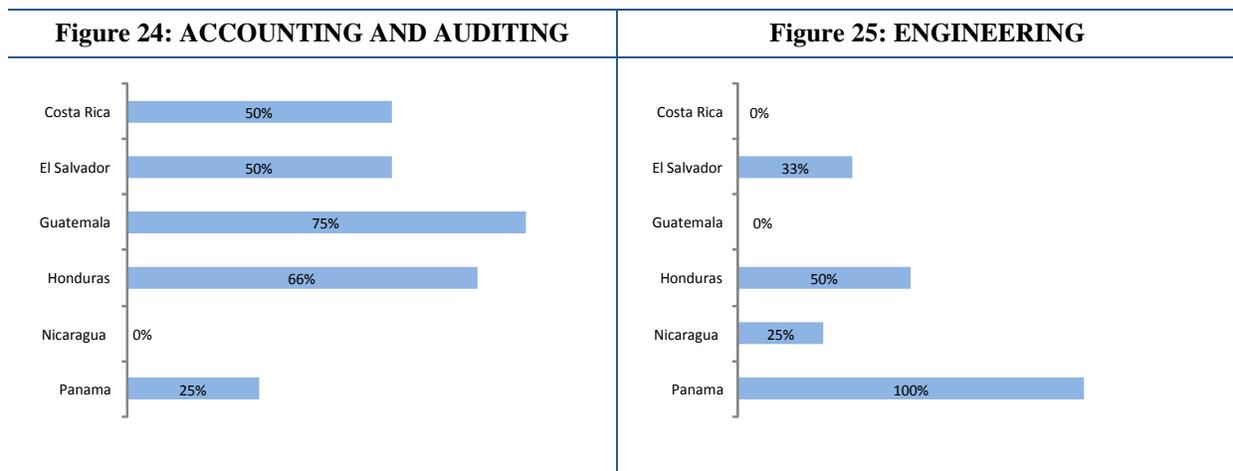
Figure 23: RECIPIENTS' RESPONSES ON LEVEL OF INTEGRATION



Source: Authors' interviews, May 2011

When it comes to finding qualified professionals in engineering and accounting in general, most respondents said it is often difficult. In Costa Rica, Panama, and Guatemala, all respondents stated that engineers trained in these countries have adequate training and skills levels, but less than 50 percent in Honduras and Nicaragua thought so. With accounting and auditing, 60 percent of the participants in El Salvador think local accountants and auditors have sufficient training and skills levels while 50 percent in Nicaragua and Honduras, 40 percent in Panama, and 20 percent in Guatemala think so. In Costa Rica, all participants thought the skills levels and training were not fully adequate.

DIFFICULTIES IN HIRING QUALIFIED PROFESSIONALS*



*Percentage of Firms responding “yes” to the question about whether they have difficulties hiring qualified professionals.

Source: Authors’ interviews, May 2011

Weaknesses in the higher education systems are recognized as the main constraint to finding qualified employees. Among the problems identified with higher education were: i) no or little connection between what students learn in class and what the market requires, ii) the rapid growth of private universities offering poor quality education with minimal exposure to rigorous coursework, and iii) low salaries and limited benefits offered to professors which keep qualified professionals away from the academic field. Outdated curriculums and lack of real or recent experience of professors exacerbate these problems.

Given the weaknesses in the higher education systems, most firms stated they are generally prepared to invest in training and capacity building of professionals. This training often takes more than a year to complete and can be quite costly for firms. The investment does not always yield much in returns especially for small firms where the rotation of employees is high and trained employees are likely to leave for larger companies or the public sector that offer better salaries or benefits.

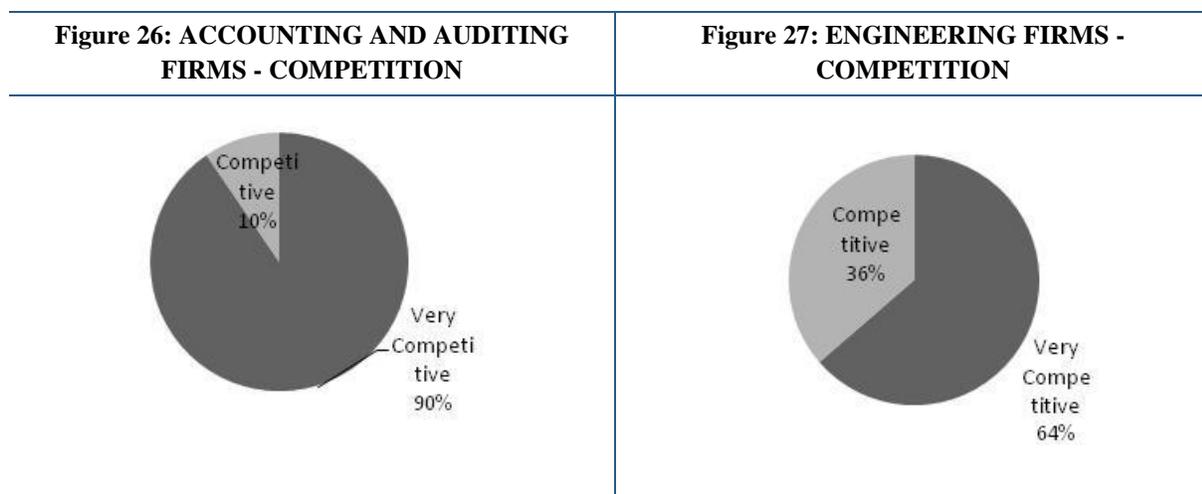
Respondents also stated that they are concerned about the future prospects of finding qualified professionals particularly with the proliferation of new universities. These universities, as stated, are not developing rigorous curricula and their spread makes it easier for students to be accepted to these higher education programs. It is expected that there will be an oversupply of professionals and few will be adequately trained.

One way many universities improve their professional degree programs is to incorporate the inputs of professionals operating in the field in the curricula. Of the accounting and auditing professionals interviewed, 70 percent said they have never provided inputs into defining curricula. 80 percent of the engineering professionals said the same. Those that provided inputs

did so only indirectly, through questionnaires from their professional associations or through feedback given to interns.

With regards to market competition, the respondents cited a high degree of competition in the market for services, with almost all calling them competitive and very competitive. 90 percent of the accounting and auditing firms, and 64 percent of the engineering firms find the market very competitive, the rest perceive the market as competitive (See Figure 26 and 27). In terms of integration, firms believe that it would be even harder for small and medium firms to compete in a more integrated market; however, they think it would be also a good opportunity to make strategic alliances that would allow national professionals to acquire new knowledge and skills from foreign professionals.

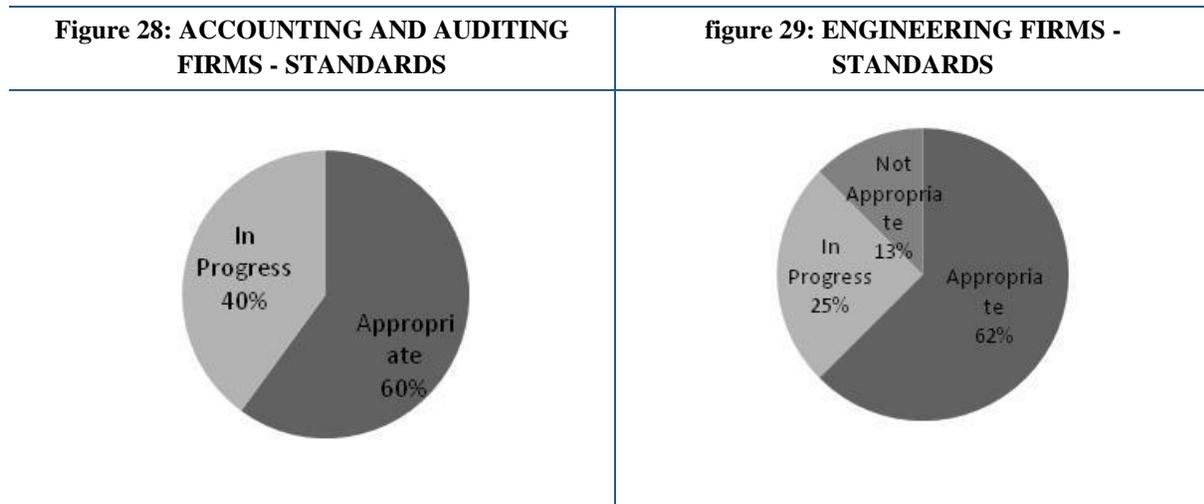
DEGREE OF COMPETITION IN THE MARKET



Source: Authors' Interviews, May 2011

For quality, overall, it is believed that the accounting and engineering standards are appropriately applied in the region. 60 percent of the accounting and auditing professionals interviewed agreed the standards were appropriately applied while 40 percent think they are in progress. Progress has been reflected in countries such as Nicaragua and Honduras that are adopting the International Financial Reporting Standards. In the case of engineering, 62 percent of firms find that engineering standards are appropriately applied, 25 percent think they are in progress, and 13 percent believe they are not appropriately applied. The last group thinks that countries do not have the capacity to control the application of engineering standards in contracts that are small; therefore, its application depends on each professional.

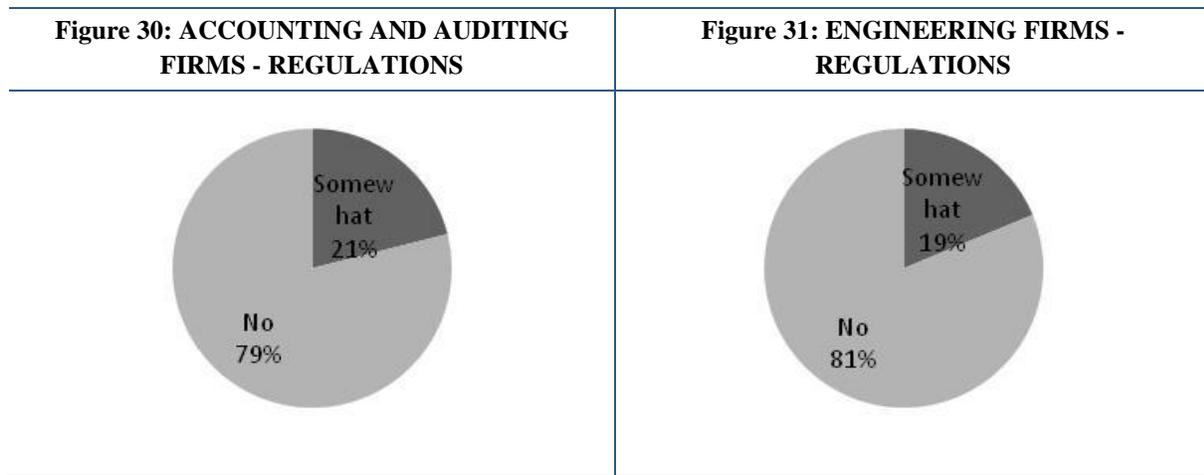
APPLICATION OF STANDARDS



Source: Authors' Interviews, May 2011

Interview respondents did not find that domestic regulations applicable to accounting and engineering services in Central American countries were generally an obstacle to the operations and growth of their firms. 79 percent of the accounting and auditing firms, and 81 percent of the engineering firms find that domestic regulation is not an obstacle to their firms.

PERCEPTION OF DOMESTIC REGULATION AS AN OBSTACLE TO FIRMS



Source: Authors' Interviews, May 2011

The rest of participants believe that domestic regulations could somewhat affect their operations and growth, especially when its application is not enforced or its lack of application is not sanctioned. This creates, according to participants, an environment of unfair competition where some professional service providers are not punished for not applying regulations. Although domestic regulations were not noted as a major obstacle to firms' growth, they can hinder competition and, therefore, regional coordination. This report does not detail specific domestic

regulations, such as country-level price controls, that may hurt competition, but the next section details legislation relevant at a regional level.

Progress Toward Professional Services Integration

Initiatives to integrate professional services date back to the original efforts at regional integration in the 1960s. In 1962, Costa Rica, El Salvador, Guatemala, Honduras, and Nicaragua signed an agreement related to the mutual recognition of university degrees obtained in any of the countries.¹⁶ At that time, a provision was also agreed upon indicating that universities in Central America would provide one another information on their schools and institutes, the diplomas and degrees they awarded, and on whether those diplomas and degrees enabled those who possessed them to work or whether other academic or legal requirements were necessary. The extent to which this agreement was put into practice in the three decades that followed is unclear.

In 1993, the General Treaty for Economic Integration and the Guatemala Protocol, established the general principle of reciprocity and a generic objective that member states would strive for free movement of labor and capital in the region and would therefore approve of necessary policies to reach that objective (Article 18). Regarding professional services, Central American countries again agreed to harmonize their legislations to allow for the recognition of university degrees by other countries in the region as described in the 1962 agreement.¹⁷ Again, the extent to which the Guatemala Protocol led to harmonization in legislations and the recognition of university degrees in the region is unclear.

In 2002, a Treaty on Investment and Trade in Services was signed by Costa Rica, El Salvador, Guatemala, Honduras, and Nicaragua and represented a major step forward toward liberalizing trade in services and foreign investment. The treaty covers foreign investments, trade in services, and the temporary movement of business people in Central America. The treaty was updated in 2007 by the Protocol to the Treaty on Investment and Trade in Services to take into account the commitments made under DR-CAFTA.

The 2007 Protocol is the latest regional operating framework for trade in services and the movement of professionals. The Protocol holds reciprocity as a key guiding principle and allows for a series of exceptions, some of which are detailed below. Some provisions in the 2007 Protocol that are particularly relevant for professional services relate to mutual recognition. Article 4.12 indicates that a member state *may* recognize the education, experience, requirements, licenses, or certifications obtained in a given country - *a member state or a non-member state* - for the purposes of authorization or certification of service providers or for the concession of licenses to services providers. Such recognition may be done through

¹⁶ Panama remained free to adhere to this agreement at any time in the future.

¹⁷ Through the Guatemala Protocol, Central American countries also committed to harmonizing their financial sector, intellectual property, and industrial property and registrations laws (Article 30).

harmonization or other means and may be based on an agreement with the country in question or may be granted in autonomous form. Also, Article 4.12 indicates that no member state will grant recognition in a way that constitutes: (i) a means to discriminate across countries in the application of its criteria for the authorization, certification or concession of licenses to services providers or (ii) a disguised restriction to trade in services. Article 4.15 and Annex 4.15 indicate that member states will *encourage* the relevant institutions in their territories to develop professional norms and criteria that are mutually acceptable for the award of licenses and certificates to providers of professional services. The norms and criteria may cover education, exams, experience, conduct and ethics, and consumer protection (e.g., professional indemnity insurance).

The national treatment and most favored nation treatment provisions in chapters 3 and 4 of the 2007 Protocol are ambitious in the sense that they provide for unrestricted market access rights for Central American investors and individual service providers throughout the region. Moreover, the local presence provision in Chapter 4 guarantees the right of service providers in all sectors from all member states to provide services in the other countries. In principle, these provisions constitute substantial progress in reducing the barriers to investment and imply an important degree of openness in professional services in the region. However, the provisions are not applicable across the board. In most regional trade agreements (RTAs), there are exceptions to that clause that often undermine its reach (Fink, 2008). The reservations differ across countries due to different political economy sensitivities and regulatory frameworks.

Some important reservations are:

- Costa Rica, Honduras and Nicaragua allow individuals from other countries to provide accounting, engineering, and legal services in their territories conditional on reciprocity. A subtle difference across countries is that reciprocity in Honduras refers to professionals from other Central American countries while in Costa Rica and Nicaragua, it refers to professionals from any country.
- Foreign-licensed professionals need to meet a residency requirement in order to practice in Costa Rica (accountants, engineers, and lawyers) and in El Salvador (public accountants and auditors and engineers).
- A contractual relation between a foreign investor and a local company is required for the provision of services in El Salvador (construction and engineering) and Guatemala (all professional services).
- El Salvador and Guatemala impose additional restrictions (e.g., minimum revenue size or bonds) for a foreign investor wishing to establish professional services in their territories.

The provisions on mutual recognition would seem to constitute important progress towards mutual recognition of qualifications and licenses for professional services providers in Central

America but this progress is counter-balanced with the exceptions. Interestingly the provisions on mutual recognition apply commitments in a non-discriminatory way, i.e., Central American member states are not treated differently than any other country in the world. But at the same time the provisions on mutual recognition are not of a prescriptive nature but rather member states *can if they wish* recognize the education, experience, requirements, licenses, or certifications of a professional obtained in another country. Also, the exceptions indicate that Costa Rica, Honduras and Nicaragua will only recognize credentials on a reciprocal basis.

International Experience in Professional Services Integration

To put the Central American experience in integration of professional services into perspective, it is worth considering the experiences from other regions in the world. We discuss in detail the experience of the East Africa regional bloc¹⁸, since this is where the most progress has been made recently in this area. The Treaty for the Establishment of the East African Community (EAC) was signed by Kenya, Tanzania, and Uganda and entered into force in 2000; it was later extended to Burundi and Rwanda in 2007. The Treaty aims at a comprehensive process of trade, economic, and political integration starting with a customs union, then a common market, a monetary union, and eventually a political federation. The East African Common Market came into force in 2010 following the signing of the Common Market Protocol by the five East African member states in 2009. The objectives of the Common Market Protocol (CMP) are to accelerate economic growth and development of the member states through the attainment of the free movement of goods, persons and labor; the right of establishment and residence; and the free movement of services and capital.

The principles of the CMP are similar to those of Central America's 2007 Protocol: national treatment and most favored nation treatment are provided to services suppliers from other member states. However, many specific disciplines of the CMP with regards to integration are stronger than those of Central America's 2007 Protocol. The CMP guarantees the free movement of persons and workers who are citizens of the other member states within the EAC territory without visas or other restrictions, although work permits are required.¹⁹ More crucial for professional services is the fact that the CMP indicates that to ensure the free movement of labor, member states undertake to mutually recognize the academic and professional qualifications granted, experience obtained, requirements met, licenses or certifications granted in other

¹⁸ World Bank. "Reform and Regional Integration in Professional Services in East Africa: Time for Action." Washington, DC. 2010.

¹⁹ The CMP guarantees the non-discrimination of workers of other member states, based on their nationalities, regarding employment, remuneration, and other conditions of work and employment. Regarding work permits required for workers from other member states, the CMP states that they need to be processed swiftly (within less than 30 working days).

member states as well as to harmonize their curricula, examinations, standards, certification and accreditation of educational and training institutions.

The key requirements are that: (1) each EAC member state will recognize the equivalence of certificates obtained in other member states required for admission into higher education institutions; (2) regulatory bodies in EAC member states will agree on minimum entry criteria for higher education institutions; (3) EAC member states will recognize the qualifications from recognized or accredited higher education institutions from other member states.²⁰ The other less developed requirements regarding the mutual recognition of professional qualifications are that: (1) EAC member states will establish a publicly accessible database of regulated professions and non-regulated professions; (2) member states will facilitate the establishment of nationally regulated professional bodies; (3) the EAC Council will facilitate the formation of a regional professional framework to establish minimum acceptable standards and criteria for recognition of professionals; and (4) EAC member states will undertake to establish the mechanism for recognition of prior learning and experience.

Overall, we would argue that *on paper* the EAC CMP is stronger, in the sense of leading to a more integrated market for professional services, than Central America's 2007 Protocol. The clauses on mutual recognition in the EAC CMP are prescriptive as opposed to voluntary in the 2007 Protocol. Also, the exceptions to the national treatment and most favored nation treatment principles in the EAC CMP are few. Interestingly, the CMP includes a provision indicating that member states may regulate their services sectors in accordance with national policy objectives provided that those regulations do not constitute barriers to trade in services in the EAC region. This is clearly different from the 2007 Protocol which includes a specific clause stating that its provisions have no consequences for countries' national policies in the area of migration.

Despite the recent nature of the CMP, the EAC has made some progress in accounting services: a draft Mutual Recognition Agreement (MRA) was signed in 2010 between the professional accountancy bodies of Kenya, Rwanda, and Tanzania and the agreement is currently being extended to the accountancy body in Uganda. Some of the features included in the MRA are listed in **Box 1**.

²⁰ A database of recognized or accredited university qualifications will be established by the regional body Inter University Council for East Africa based on information provided by EAC member states.

Box 1: Mutual Recognition Agreement in Accountancy – Main Features

- It establishes the East African Community Institutes of Accountants (EACIA);
- The EACIA is empowered to issue Certified Public Accountant (CPA) designation to qualified candidates;
- CPAs from an EAC member state are exempted from re-examination of professional competence in order to practice in another EAC member state;
- A mutual recognition of practical experience waiver is given if accountants gained their experience in an EAC country in 3 out of the previous 5 years;
- Provides for reciprocal eligibility for membership of EAC Institutes/bodies subject to CPA certificate, 3 years of professional experience, and no misconduct;
- Promotes member education development and institutional strength;
- Works on standardizing process of Audit Quality Reviews.

Although relatively new, the CMP provides an important framework for promoting and encouraging regional integration of professional services. More time is needed though to fully assess the implementation of the CMP in the EAC region.

Recommendations

Several steps can be taken to improve professional services integration in Central America. They include: (1) stronger provisions requiring the recognition of academic and professional qualifications; (2) capacity building of professional associations; (3) implementing a mechanism for a professional services integration dialogue; and (4) promotion of small and medium professional service providers. The following details each of the recommendations.

1. Recognition of academic and professional qualifications. Although the 2007 Protocol suggests countries recognize qualifications and degrees from other countries, it does not require this. Similar to the EAC, Central America could consider strengthening these provisions to require that other countries recognize qualifications obtained in neighboring countries. To make this happen, besides the legal requirements, stronger accreditation of professional development and academic programs is necessary. The Central American Council for Accreditation of Higher Education (CCA) was created to harmonize, coordinate, and integrate the efforts of various institutions and organizations in Central America, and to validate international quality accreditation of higher education. The CCA could be strengthened to accredit and assist national accreditation agencies in each country. As stated, the quality of higher education in Central America is variable and the recent growth in new universities does not help to ensure quality. A method for recognizing valid credentials – i.e. through accrediting universities – is an important step for allowing professionals to work in other countries. Furthermore, when it is clear students prefer attending accredited universities, more will have an incentive to obtain accreditation.

For professional qualifications, lessons learned from the accountancy example in the EAC could be applied to specific professions in Central America. The framework was arranged by professional accountancy associations in each of the countries, which also exist in Central America. The MRA also establishes the criteria for when an accountant should be recognized in

another signatory country and will not be re-examined for competence if they meet this criteria. The mechanisms and frameworks are already available in Central America to establish this type of agreement in accounting and in other professional fields.

2. Strengthening of Professional Associations. According to the survey, professional associations are key actors in the professional integration process since they could and should act as quality control institutions as well as a bridge between professionals from Central American countries. For instance, respondents agreed that professional associations should be directly involved in the definition of the curriculum of academic programs. As part of this activity associations should carry out an ongoing analysis of the curriculum and provide recommendations for matching what students learn with what the market needs. In addition, professional associations could play a key role in another important aspect in terms of quality - continuing education. In this regard, it is essential for professionals to have ongoing access to training about new standards, new technologies, or new software, among others. Furthermore, professional associations are the appropriate bridge for coordination between Central American professionals. For instance, professional associations can lead the process of finding consensus about aspects such as harmonization of professional degrees, harmonization of professional licensing requirements, or the use of international standards.

Professional associations need capacity-building in order to play a greater leadership role in the integration process. Associations could be strengthened to allow them to: define a continuing professional education strategy so they can provide valuable training to their members; develop an analysis about the curriculum of academic program; and develop an analysis about the benefits that members can receive as a result of more integration.

3. Mechanism for Professional Services Integration Dialogue. A result of this analysis is that there seems to be a disconnect between what the regional policies say and their application by firms, as indicated by the survey. The main reason identified is insufficient information for professionals to know, discuss and understand the benefits of integration. Instead, lack of information creates fears and doubts about integration and consequently, professionals are opposed to integration initiatives and support protectionist measures.

In order to change this reality, a champion is needed to lead and coordinate the implementation of professional service integration initiatives and to implement a dialogue mechanism between key stakeholders. The General Secretariat of the Central American Integration System could potentially play this role, given that it was created to provide services and technical and executive capabilities in support of regional integration efforts. Among the activities that could help establish a professional services integration dialogue are:

- Organize a series of workshops to analyze professional service providers integration initiatives coordinated with the participation of professional associations, regional entities, universities, private sector, customers, and government representatives.

- Create a strategy to obtain political support for the application of the agreements.
- Analyze national laws that increase the use of professional service providers and evaluate their potential replication in other Central American countries.
- Analyze national laws that could be affecting the integration process and identify potential measures that could be applied to facilitate the process.²¹

4. Support to Small and Medium Service Providers. According to the survey, there are limited opportunities for small and medium professional service providers. For instance, survey respondents state that government entities and international organizations are part of this problem because their selection processes require that providers have several years of experience which, according to small and medium providers, is difficult to obtain since the contracts are always given to large companies supported by recognized brands. Furthermore, as stated, it is difficult for small firms to keep qualified professionals since they often move to larger firms once they have sufficient experience. Integration could potentially exacerbate these problems since smaller firms would face greater competition with increased integration. It will be important to ensure small providers are not disproportionately hurt by integration. Methods for doing this include: (1) designing, in coordination with public sector entities and international organizations, a strategy to let small and medium professional service providers participate in selection processes; (2) designing a strategy to encourage the creation of partnerships between large companies that need additional support and small and medium providers that are looking for job opportunities; and (3) providing technical assistance to professional service providers looking to improve their services.

²¹ In Panama for instance, Law No. 57 establishes that one of the requirements to obtain an accountant license is Panamanian citizenship.