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VALUE CHAIN ASSESSMENT REPORT: MANGOES

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Submitted to: Brinton Bohling, Chief, Office of Trade and Investment
(+233) 30-274-1317
No. 24 Fourth Circular Rd, Cantonments
Accra, Ghana

Abt Associates Inc. | 4550 Montgomery Avenue | Suite 800 North |
Bethesda, Maryland 20814 | T. 301.347.5000 | F. 301.913.9061 |
www.abtassociates.com

With:

Banyan Global
J.E. Austin Associates
Kanava International
SSG Advisors

TRADE HUB AND AFRICAN PARTNERS NETWORK

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ACRONYMS

ACTE	Africa Competitiveness and Trade Expansion Initiative
ADB	African Development Bank
APROMA- B	Association des Professionelles de la Mangue de Burkina Faso
CFAHS	Cooperativa Federative de l'Horticulture de Senegal
COLEACP	Europe-Africa-Caribbean-Pacific Liaison Committee
ECOWAS	Economic Community of West African States
EMQAP	Export Marketing Quality Awareness Project
EU	European Union
FAO	Food and Agriculture Organization
FOB	Free on Board
FTF	Feed the Future
GHS	Ghana Cedis
GIZ	German Society for International Development
IFAD	International Fund for Agriculture Development
ITFC	Integrated Tamale Fruits Company
ITC	International Trade Centre
LBAs	Local Buying Agents
MSME	Micro, small or medium enterprise
MT	metric ton
NGO	Non-Governmental Organizations
PAMPEAG	Papaya and Mango Producers and Exporters Association of Ghana
PSDA	Projet de la Productivité Agricole –Mali
R&D	Research and development
SME	Small or medium enterprise
SNV	Netherlands Development Organization
TIPCEE	Trade and Investment Program for a Competitive Export Economy
UNCTAD	United Nations Conference on Trade and Development
USA	United States
USAID	United States Agency for International Development
USDA	United States Department of Agriculture
WTO	World Trade Organization

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1. INTRODUCTION AND BACKGROUND

1.1 MANGO VALUE CHAIN

This report focuses on the mango value chain in the West Africa region, within the framework of the newly launched West Africa Trade Hub and African Partners Network (Trade Hub) project, supported by the United States Agency for International Development (USAID). This report summarizes, primarily, the current status, socio-economic importance, and dynamics of the mango value chain in the region. Based on this information, the Trade Hub will identify the key opportunities, challenges, and growth options of the value chain as well as appropriate strategic interventions that the industry stakeholders, together with the Trade Hub, could implement to support sustainable growth of the value chain in order to position West Africa as a leading global mango producer, processor, and exporter.

1.2 VALUE CHAIN ASSESSMENT

Following the submission of a Value Chain Selection Report, the Trade Hub is producing a set of Value Chain Assessment Reports. During May 2014, the project carried out assessments of each value chain that the selection report recommended for targeted support from the Trade Hub.[1] The assessments are the second step in planning activities for the project.

The Value Chain Selection Report provides a brief overview of each value chain; the assessment reports offer deeper perspectives about the current status, structure, performance, and challenges of the value chain. They update previously available information where possible. Based on this information and analysis, they recommend a vision and upgrading strategy for each value chain, and outline possible support roles for the Trade Hub in helping value chain stakeholders achieve their strategy.

As the first opportunity for the Trade Hub team to resume interacting with industry stakeholders and to begin identifying lead firms and areas where the project can have a positive impact, the value chain selection and assessment process also provides an initial basis for dialogue, brainstorming, and planning with key sector and value chain stakeholders. Nonetheless, this phase, provides only a brief glimpse of each value chain and serves as a vehicle to commence discussion and idea-sharing with partners. Given the very limited time that was available for this process, the assessments do not constitute detailed value chain analyses.

1.3 ABOUT THE TRADE HUB AND AFRICAN PARTNERS NETWORK

USAID/West Africa's strategic goal is to support the emergence of a politically stable and economically prosperous West Africa. The Trade Hub's goals are to promote increased regional trade in key

agricultural commodities (a goal of Feed the Future, or FTF) and to reduce poverty through value-added exports (a goal of the Africa Competitiveness and Trade Expansion Initiative, known as ACTE).

The overall objective of the Trade Hub is to increase Africa's share of world trade by increasing exports at a faster rate than the rate of growth in overall trade, and by improving West Africa's international private sector competitiveness in targeted value chains other than extractive industries.

The project will achieve two intermediate results: 1) improve the private sector capacity of the region's farmers and firms by addressing constraints to targeted value chains; and 2) improve the business enabling environment by addressing economy-wide constraints such as the transport and trade barriers that affect the efficiency of the region's ports, corridors, and borders.

At its heart, USAID/West Africa's Trade Hub and African Partners Network is a capacity building effort that will entail working with several key groups of African partners. The project's focus will be on developing associations and regional alliances that can act independently from donor support and take on a greater leadership role in promoting reforms, attracting buyers and investors, and adopting improved practices. The project will also work with individual companies that have a regional scope and could serve as lead firms in targeted value chains.

The Trade Hub will achieve its objectives by improving the private sector competitiveness of certain value chains. Based on the initial assessments made in USAID/West Africa's FTF Multi-Year Strategic Plan, five value chains were pre-selected for the project: rice, maize, millet/sorghum, livestock (cattle and), and sheep and goats). These value chains were selected based on the following criteria: importance to intra-regional trade, high potential for value addition, production by a large number of stakeholders, and synergies with other supported value chains.

The Trade Hub team also examined the development potential of a number of value-added value chains and selected several for possible inclusion in the project's portfolio. This selection was based on six high-level criteria:

1. Potential to increase trade
2. Potential to create jobs
3. Potential to attract investments (including from the United States)
4. Number of households participating
5. Extent of geographic dispersal in West Africa
6. Current level of exports to global markets

The assessment phase thus focuses on the following short list of value chains:

FTF Regional value chains:

- Maize
- Millet-Sorghum
- Rice
- Cattle
- Small ruminants

Value-added Global value chains:[2]

- Apparel
- Cashew
- Honey
- Mango (and possibly other cut fruits/vegetables)
- Sesame
- Shea

West Africa is on the verge of a transformative change – if it can create a new dynamic for intra-regional and export trade. At present, intra-regional trade is inefficient, characterized by unpredictable distortions and uncompetitive practices, and subject to overly restrictive regulatory regimes. West African exports have limited success in the global marketplace due to poor quality, inconsistent supply, and high delivery prices, which can be traced back to the absence of economies of scale, high transaction costs, and a poor enabling environment.

The Trade Hub aims to promote broader, more sustainable growth by improving private sector capacity and the policies, rules, and practices that govern regional and external trade. This will achieve sustainable and measurable increases in regional and international exports, jobs, and investments by strengthening vertical and horizontal integration within value chains, assisting representative associations to become more effective and inclusive, and improving the enabling environment for trade. The project will also mount a cross-cutting effort to increase the professionalism of all major participants by providing role-specific competency training, facilitating access to modern technologies, and improving market linkages. The Trade Hub will:

- **Leverage and strengthen already-identified or new private sector and public sector partnerships for commercial and development activities.**
- **Target the highest-impact opportunities in the value chains and policy regimes, to alleviate specific constraints hindering private sector growth.** The cornerstone of the Trade Hub's structured approach to value chain development is identifying, in collaboration with our for-profit value chain partners and our public and nongovernmental organization (NGO) partners, where high-impact change can be achieved to maximize the return on project resources. Trade and transport enabling environment staff will target specific policy and regulatory constraints which, once changed, will open up regional and external markets, reduce seasonal blockages, lower supply chain friction, and encourage trade-based investment and growth. They will work closely with stakeholders to advocate and enforce reforms.

The Trade Hub's higher-level results targets are summarized in

Table 1 below.

2 The home décor value and fashion chain was handled differently. Only a limited Trade Hub initiative is recommended for home décor and fashion. An assessment was not conducted for this value chain, since it was no longer considered for a core Trade Hub focus.

Table 1: Highest Outcome-Level Results

Results	Through Year 3	Through Year 5
Increase in the value of global and regional transactions, on average, in targeted sectors of livestock, grains, and value-added products in West Africa	30%	50%
Creation of new jobs in Trade Hub-assisted West African firms	15,000	23,000
Facilitation of new investment in targeted sectors	$62.5m	$102.5m

Because different partners have different needs and levels of maturity, the project will tailor upgrading activities to each partner. We have recommended and will select value chains that offer opportunities to substantially contribute to achieving these objectives. We will choose value chains that can benefit from Trade Hub-supported activities such as:

- Improved buyer-seller intermediation
- Expanded use of grades and standards
- Increased access to and use of market information
- Increased access to and use of financial services
- More competitive transport and logistics enabling environment
- Reduced legal and regulatory barriers to trade.

2. METHODOLOGY

The value chain assessment is the second of three phases that will lead to agreement on the Trade Hub's targeted value chains:

1. Phase I: Select (recommend) value-added value chains
2. Phase II: Assess selected value chains
3. Phase III: Vet and obtain feedback, leading to confirmed selection

Eleven separate Value Chain Assessment Reports—one for each value chain—present the results of the project's assessments.

As part of the research for the assessment reports, subject matter experts collected and updated data and trend information relevant to each of the value chains. The value chain assessments use a common set of criteria to describe the short-listed value chains and update information about them. In contrast to the selection process, which used subjective measures of only certain criteria based on expert opinion, the assessment process utilized the full set of criteria, quantifying them as much as possible. Based on this analysis, the reports discuss strategic approaches that could be supported by the Trade Hub to achieve the value chain's vision.

Existing value chain studies and their conclusions were strongly considered in the assessments. The Trade Hub team held meetings and phone/internet discussions with knowledgeable stakeholders.[3] The assessment team also began to analyze and discuss with stakeholders the opportunities and challenges facing each value chain and to make initial proposals for an upgrading strategy. If the stakeholders and the Trade Hub are able to identify a clear path for upgrading the value chain, it is more likely that the value chain will be ultimately included in the project's set of focus value chains.

2.1 VALUE CHAIN ASSESSMENT PROCESS AND SUBSEQUENT STEPS

Table 2: Steps in Value Chain Assessment and Final Selection

Task	Method
Assess short-listed value chains	Assess the five preselected value chains and the other short-listed value chains against a full set of criteria through desk studies, review of existing value chains studies, and key informant interviews with members of partner network
Obtain USAID/West Africa's feedback on Value Chain Selection Report	Review Value Chain Selection Report; meet with Value Chain Development Specialist and value chain team
Submit Value Chain Assessment Reports	Assess all value chains, obtaining data and information through value chain studies, desk research, and key informant interviews; include discussion of potential value chain vision, upgrading strategy, and

3 Given time constraints, the team did not collect primary market data from the field or hold extensive interviews with a full roster of key informants.

Task	Method
	Trade Hub interventions
Prepare facilitation guide for value chain stakeholder vetting	Based on the assessments, prepare summary presentation and process for vetting value chains
Vet value chain selection and assessment with stakeholders	Hold session within Project Partners Kick-off Workshop with Trade Hub stakeholders
Refine value chain selection and assessment, based on stakeholder feedback and suggestions	Continue interacting with key stakeholders and USAID as needed

The final selection will only take place after the official Project Launch event, which will take place on or shortly after July 15, 2014. Immediately following the Launch the Project will engage individual value chain partners to discuss and vet the Assessments and come to a common vision of the value chain and how the Project will work with them. The final action plans for each value chain will be set after the engagement meetings, and will take into account the stakeholder feedback.

2.2 SOURCES OF INFORMATION

The team obtained data and information for this value chain assessment through:

- Desk research of value chain analyses, studies, reports, and web-based material.
- Meetings and interviews with key stakeholders in Ghana (farmers, farmer organizations, processors, end-users, consultants, and partner organizations) from April 30 to May 17, 2014.
- Phone calls, Skype conversations, and interviews with members of the partner network and other stakeholders in Senegal, Gambia, Benin, Nigeria, and Burkina Faso (See Annex 2).
- Quick email surveys with value chain players in several countries.

2.3 SOURCES OF INFORMATION

The team obtained data and information for this value chain assessment through:

- Desk research of value chain analyses, studies, reports, and web-based material (Annex 1), including documents prepared by the author in Senegal.
- Review of specific documents and reports available on the problem of fruit flies, prepared for the Europe-Africa-Caribbean-Pacific Liaison Committee (COLEACP)[4] and other projects.
- Identification of and meetings and Skype/phone discussions with several key stakeholders in the mango value chain in Ghana, Burkina Faso, and Mali. (Annex 2).
- Meetings and interviews in Ghana with farmers, farmer organizations, processors, end users, and institutions during April - May 2014.
- Filling the gaps of information through communications and conversations knowledgeable experts and players of the sector in the region.

4 COLEACP is a non-profit inter-professional association, representing and defending the collective interests of ACP producers/exporters and EU importers of fruits, vegetables, flowers and plants.

2.4 DATA LIMITATIONS

The assessment was carried out within a very short period with limited field visits in Ghana only. Given the time constraints, it was not planned to collect primary detailed market data from the field or to hold extensive interviews with key informants.

The 13 mango producing countries in West Africa comprise a vast region with a population of around 300 million and about 1.5 million households who directly or indirectly earn income from the connected to mango value chain. The specifics of the chain and information on production practices, prices and factor costs, characteristics of markets, and distribution channels vary from country to country. Therefore, completion of even a robust value chain assessment is a challenge. The findings presented in this report are based on information collected during short period and the personal experience of the author. This value chain assessment puts together a summary of the most essential information, which needs to be updated and deepened as needed for appropriate planning and decision-making.

3. DESCRIPTION OF THE VALUE CHAIN

The mango (*Manguifera Indica*) is a tropical horticulture crop that originates from India and Burma and is now grown in more than in 100 countries throughout Asia, Africa, and Latin America. It is grown for large-scale local consumption and for export either in fresh or processed form. Next to banana, mango is the second most consumed and commercialized tropical fruit throughout most of the world.

World mango production is reported to have doubled over the past 10 years. The United Nations Conference on Trade and Development (UNCTAD) data sources report that the world production of mangoes reached 35 million metric tons (MT). The Food and Agriculture Organization of the United Nations (FAO) statistics (which aggregate mango with two other crops, mangosteens and guavas - two tropical fruits with relatively small volumes) indicate that world production was of 42 million MT in 2012. Taking the UNCTAD figure for 2010, present world production in 2014 can be estimated at about 44 million MT. The major part of the world production of mangoes is from Asia (64%). The two major African producer countries (both in the world's overall top 10) are Kenya (7%) and Nigeria (2%). The largest exporters to Europe such as Brazil and Peru represent only 3 % of the world production.

In West Africa, 13 countries produced 1.5 million MT in 2012, about 3 to 4% of world production. Nigeria is the main producer with more than 860,000 MT, or 57% of total West African production. Niger, Guinea, Senegal, Ghana, Mali, Côte d'Ivoire, Burkina Faso, Benin, Guinea Bissau, Gambia and Sierra Leone each produce 8,000 to 22,000 MT of mangoes annually[5]. Some of these countries are exporters of fresh and processed mangoes to Europe, North African, and Middle Eastern countries. Though the mangoes are abundantly produced in the West African countries, there is still more untapped economic potential. Several of these countries do not or are not yet prepared to realize the potential export markets, and also do not achieve local value addition potential. Others, such as Ghana and Senegal, continue to expand their production and export aggressively. The mango sector records large post-harvest losses in all countries during the harvesting seasons; turning this around could otherwise to generate wealth within the country or through exports.

3.1 PRODUCTS INCLUDED IN THE VALUE CHAIN

West Africa offers a range of varieties of mangoes. Some are local varieties of low commercial value but used for processing of value added products by informal or small enterprises. The major economic value varieties are mainly two types:

I. Kent, which represents more than 80 to 90% of exported mangoes. A larger size fruit with more reddish outer skin and yellow inside. No fibers and resist better sea transport.

II. Keitt, which is smaller in size. The color is slightly light red, skin is fine and sensitive. The fruit matures slowly while in transport.

5 Cape Verde is a small producer, but with high productivity.

There are other varieties in smaller quantities: Valencia Pride, Tommy Atkins, Palmer, Springfield, and Amelie (for niche markets). Zill and Haden varieties are in demand for processing for other value-added products. In Burkina Faso, the Lippens and Brooks[6] mango varieties are popular for the processing industry and also for their high yields. These produce 20 - 25 MT/HA.

The main products of the sector are fresh fruits. Fresh fruits are largely consumed within the region first. Less than 5% of production is exported as fresh fruit to Europe and Middle East countries. However, there is substantial formal and informal export within the region.

The processed, value added mango products include:

- Dried mangoes, pieces and powdered - for exports and local market (Burkina Faso, Ghana, Senegal, and Nigeria produce several products based on dried mangoes)
- Juices, pulp and jams (Burkina Faso, Ghana, Nigeria, Senegal, and Côte d'Ivoire)
- Fresh cut mango pieces for exports to Europe (Ghana, also planned in Senegal)

3.2 VALUE CHAIN MAP

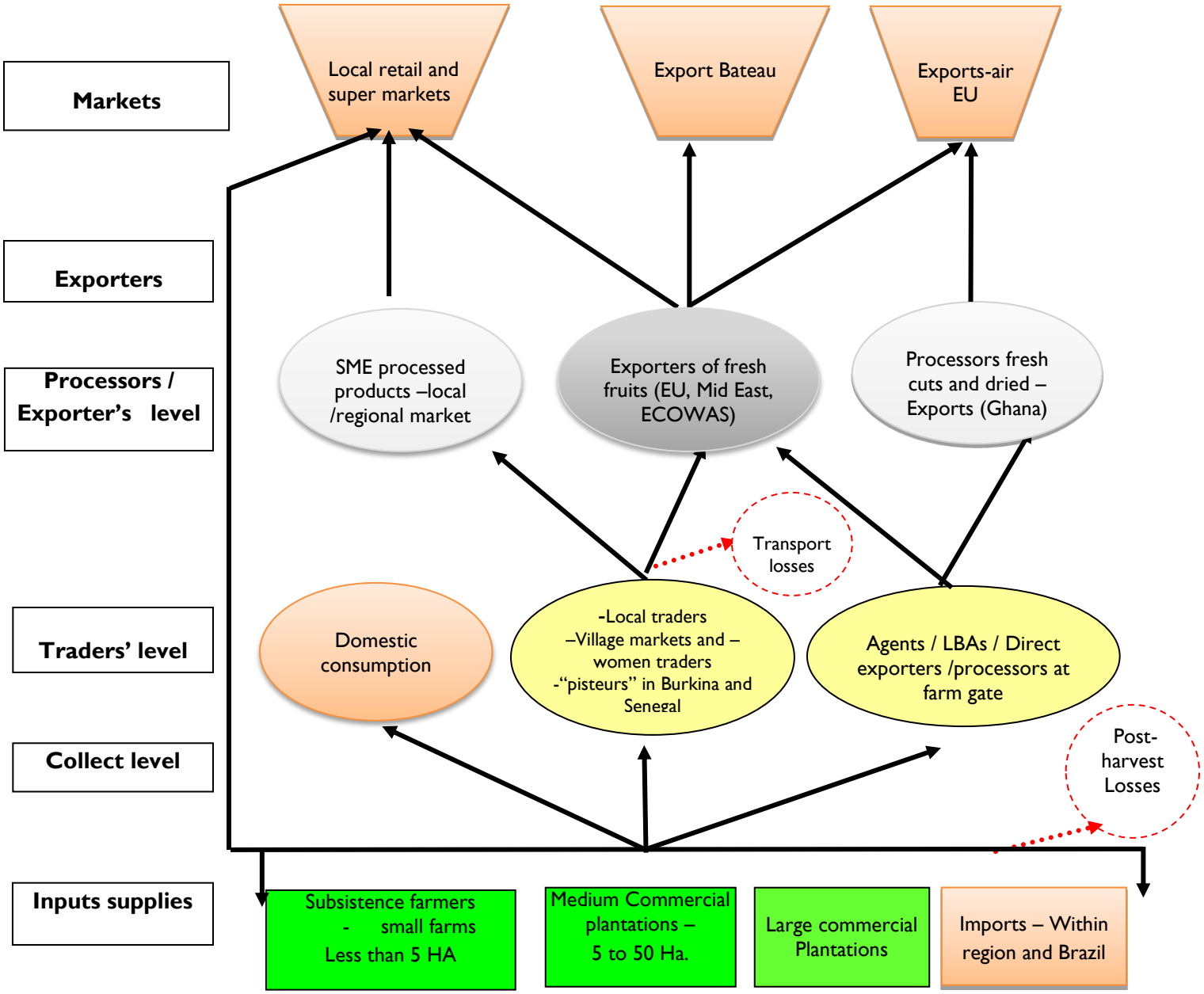
The mango value chain is simple as few intermediary levels transactions take place. The vertical operations of the mangoes value chain from primary production to end markets include:

Primary Production Level / Supply Level	→	Production of subsistence and commercial farmers Imports from neighboring countries
Selling mangoes in the local market	→	Through LBAs / "pisteurs" or wholesalers To exporters / processors directly or through agents
Direct supplies to exporters	→	Exporters of fresh contact directly farmers or through their agents, some have own production and buy also from farmers depending on orders
Suppliers to Processors	→	Farmers / suppliers directly go to processors Some processors go to farmgate
Wholesale and retail markets	→	Farmers / traders, processors directly to local market
Imports from the region and Brazil	→	To processing industries – Ghana, Nigeria

The value chain map, describing the operations and transactions mentioned above is presented below.

6 'Brooks' mango is a late-season commercial mango. Lippens mango originated in southern Florida. These are parents of several varieties.

Figure 1: Mango Value Chain - West Africa[7]



7 Mango value chain map developed based on the work carried out by the author in Senegal and Ghana

3.3 PRODUCT FLOW

Interviews confirmed that post-harvest losses are more than one-third of production, and in some countries even 50% due to pests, fruit flies, and poor handling and transport of mangoes. In this context, economically usable quantity of mangoes available is about 1million MT. Of this, the regional market for local consumption is estimated to be around 600,000 MT, or 40% of total production. The remaining 60%, 400,000 MT, go for fresh fruit exports (30,000 MT) and to the growing processing industry (370,000 MT).

Products flow from farmer to market in a simple chain. High grade exportable mangoes from selected plantations go from producers directly to the exporters, while some exporters have agents appointed to supply. Some exporters have their own plantations and buy only the additional quantities from farmers depending on orders. During peak orders, some exporters buy export quality mangoes more broadly from the region. Exporters at present sell in the European, Middle East, and North African markets.

Processors in the region buy locally or from the region. During the off-season, fresh cut exporters from Ghana import from Brazil to fill the gaps in local supplies. Within the region, Senegal, Burkina Faso, Togo and Côte d'Ivoire supply mangoes to processing factories in Ghana. Niger imports mango from the region for local consumption. Nigeria consumes and processes large quantities of mangoes domestically, and the processing industries import from the region during the off-season. Producers of juices and other products buy from local markets or farmers and through suppliers, or import from within the region during off-season. The off-cuts from fresh cut export factories are sold to juice manufacturers.

Local markets are generally supplied by local wholesale buyers, local buying agents (LBAs) or directly by farmers. In many countries, women play a dominant role in supplying and selling in the local market.

3.4 MANGO DATA AND INFORMATION

ECOWAS Production Data

Thirteen out of the 15 ECOWAS countries produce mangoes. Total production is estimated by FAO data to be 1,580,500 MT. Nigeria produces 54% of the West Africa's production (860,000 MT). Niger, Guinea, Senegal, Ghana, Mali and Côte d'Ivoire, which are the main mango exporting countries in the region, account for 41% of the sub-region's production, producing more than 647,800 MT. Table 3 below summarizes production data of mangoes mainly for the period 2007 to 2012.

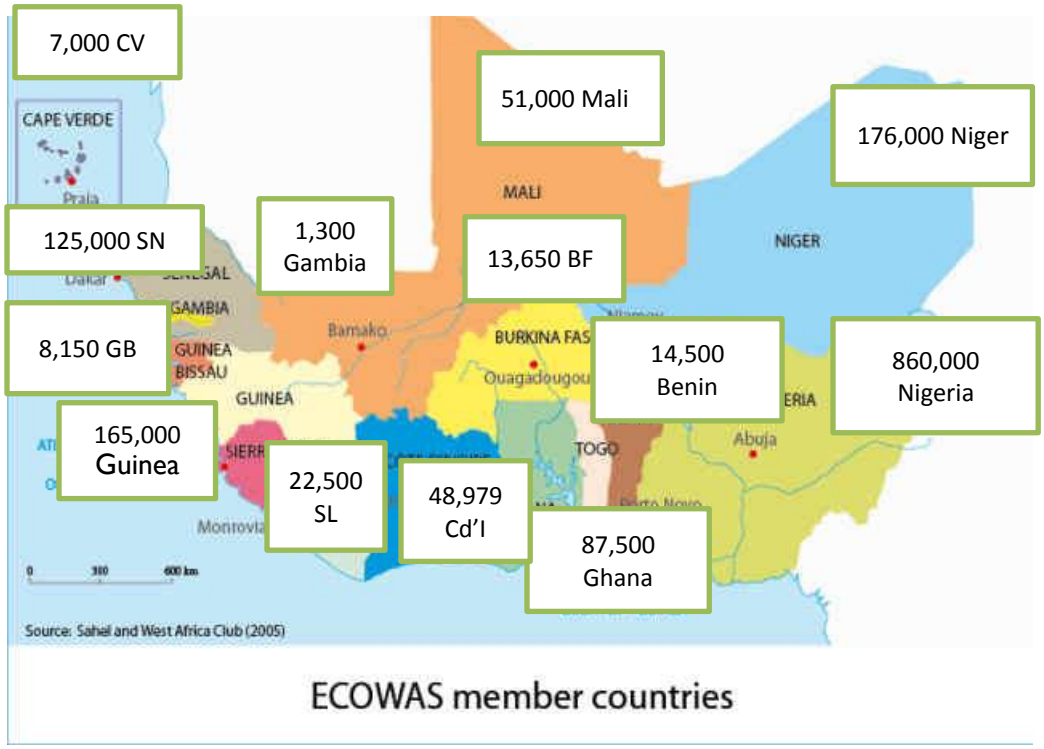
Table 3: Mango production in ECOWAS Countries

Mangoes, (mangosteens, guavas)[8] - ECOWAS - Production (MT)							2012 (%)
Countries	2007	2008	2009	2010	2011	2012	
Nigeria	734,000	800,000	835,000	850,000	850,000	860,000	54
Niger	110,000	112,508	170,572	175,000	169,179	176,000	11
Guinea	165,000	166,000	165,000	163,900	157,700	165,000	10
Senegal	95,000	100,000	100,000	100,000	120,000	125,000	8
Ghana	6,800	7,019	75,000	80,000	85,000	87,500	6

8 Mangosteens and guavas are considered as insignificant quantities in West Africa

Mali	69,277	48,943	47,392	47,800	50,000	51,000	3
Côte d'Ivoire	37,504	39,798	42,232	45,206	46,960	48,979	3
Sierra Leone	14,600	15,000	17,935	18,310	21,972	22,500	1
Benin	12,500	13,000	14,412	13,700	13,900	14,500	1
Burkina Faso	9,600	10,105	10,737	10,962	13,154	13,650	1
Guinea-Bissau	5,300	5,500	6,576	6,714	8,057	8,150	1
Cabo Verde	6,000	6,316	7,002	6,500	6,800	7,000	0
Gambia	1,050	1,160	1,200	1,200	1,300	1,300	0
Production Totals	**1,266,631**	**1,325,349**	**1,493,058**	**1,519,292**	**1,544,022**	**1,580,579**	**100**

Figure 2: ECOWAS Countries Producing mangos in 2012 (MT)



Source: FAO

These 13 West African countries have 376,625 ha under mango cultivation. Out of this, Nigeria's production accounts for 35%, Côte d'Ivoire 23%, Guinea 22%, Niger 10% and Senegal 5%.

Table 4: Mangoes - Area Harvested in ECOWAS Countries

Mangoes, (mangosteens, guavas) - ECOWAS - Area Harvested (Ha)							2012 (%)
Countries	**2007**	**2008**	**2009**	**2010**	**2011**	**2012**	
Nigeria	126,500	128,000	129,000	130,000	130,000	132,000	35
Côte	79,000	80,000	82,183	84,000	86,210	86,000	23

D'Ivoire							
Guinea	61,855	82,500	86,232	76,900	80,000	82,000	22
Niger	22,000	22,500	34,000	35,000	35,921	36,000	10
Senegal	14,000	16,000	16,724	14,900	17,700	18,500	5
Ghana	650	664	6,500	6,850	7,000	7,250	2
Sierra Leone	5,500	5,600	5,700	5,808	5,961	6,000	2
Benin	2,350	2,400	3,307	3,370	3,459	3,500	1
Mali	2,874	2,695	2,489	2,500	2,700	2,700	1
Burkina Faso	1,600	1,590	1,385	1,411	1,448	1,500	0
G.-Bissau	850	845	736	750	770	780	0
Gambia	205	210	216	220	226	230	0
Cabo Verde	150	149	156	160	162	165	0
Total	**317,534**	**343,153**	**368,628**	**361,869**	**371,557**	**376,625**	100

Yields

FAO data (See Annex 2) indicates yields per hectare in West Africa ranging from 1 to 9 MT for nine countries (Côte d'Ivoire, Sierra Leone, Benin, Niger, Gambia, Senegal and Burkina Faso). Yields for Mali, Ghana and Guinea Bissau range from 10 to 19MT/ha. Yields are below accepted standards in many of the West African countries. Some well managed plantations with higher yielding varieties, such as Senegal and Burkina, have much higher yields, exceeding 20 to 30 MT/ha.

Data on population numbers engaged in the mango sector was not available. However, discussions held with different stakeholders suggest that each hectare of mango provides a livelihood for at least four persons on average. During harvesting, more people are employed. Based on the four persons per hectare average, it can be estimated that 1.5 million people earn income from the mango sector (376,625 H's in West Africa. These figures suggest that every MT produced provides work for one person in the region.

Prices and margins to actors

Prices and margins to actors at different levels are highly volatile and vary between countries and even between zones. Table 5 below provides an idea of prices gathered in Ghana in May 2014 from some exporters and producers. Farmers receive about US$200 to US$315 per MT, or an average of US$260 per MT at farmgate. The LBA receives about US$340 to US$440 per MT or, an average of about US$390. His average cost is US$258/MT. This leaves the LBA with an average gross margin of over 25%, even after costs of transport, taxes, etc. Exporters who sell the fresh grade 1 mangoes obtained about a 62% margin after costs – a substantial margin that can be used to buffer price and cost fluctuations. Processors who purchase lower quality mangoes earn lower margins. Prices of lower-quality mangoes in Accra, Ghana average US$400/MT.

Table 5: Prices and Margins in Mango Value Chain 2014 (Ghana)

Actor	Role in the Value Chain	Ghana		
		Cost/Buy Price (US$ per MT)	Selling Price/ Income US$/MT[9]	Margin - Gross per/MT [10] US$ Includes costs
Harvesters	Harvesting		30 -35	30-35
Farmers	Production		200 -315	200-315 (Avg. 258)
LBAs/Traders	Transport, Aggregation	200-315 (Avg. 260)	340- 440 (Avg. 390)	125-140 (Avg.132)
Wholesale dealers	Suppliers to exporters (fresh mangoes)	340- 440 (Avg. 390)	800- 1,250 -FOB (Avg.1025)	$360- 440/MT (Avg. 400)
Arrivals in Ghana from Burkina Faso, Mali, Côte d'Ivoire, Ghana	Supplies to processors In Accra	350 - 450 (Avg.400)	Avg. 400	-------

Source: Author's surveys with selected actors in Ghana in April/May 2014.

The situation in more isolated regions of some countries such as Burkina Faso is somewhat different. Information obtained from some producers suggests that post-harvest losses in the mango sector can reach 50% in some areas. In areas where there are no roads, farmers cannot sell mangos at reasonable prices. Mangoes are generally sold by subsistence farmers (except high quality fruit for exporters) at a price of less than 90US$/MT. This is less than half the farmgate price from mango plantations in Ghana.

Burkina Faso and other countries could receive a better price if infrastructure problems and phytosanitary problems are addressed, since there is substantial and growing demand for processing in-country and in-region. Production in Benin and Mali is generally done by smallholdings of traditional farmers and are not systematically cultivated or maintained. Therefore, while production is limited, the crop is simply net income. In these countries, harvesting is generally done by persons known as "pisteurs" who work on contract with buyers, wholesale dealers or traders and receive a margin from the sales. Nigeria is the largest producers in the region, yet has a shortage of mangoes for processing during the Nigerian off-season. A processing factory in Ibadan in Nigeria, FUMMAN Group, appears to have difficulties in obtaining supply from within Nigeria, and plans to import from elsewhere in the region.[11]

Income to farmers and micro, small and medium enterprises (MSMEs)

The mango sector in most West African countries provides seasonal supplementary income to farmers. In addition, small and large traders are essential actors in the sector; they constitute thousands of micro and small enterprises around the value chain. In Ghana and Senegal, women play a vital role in the wholesale buying of the portion going to local market, and they sell the mangoes to retailers and street vendors. In Ghana they are known as "queen bees.", who work in several sectors of the local economy.

9 Prices depends on the season –high season /low season

10 Gross includes processing , transport costs

11 Ref. Discussions with FMSL GH LTD Chairman –Davies Korobo who provided technical assistance to this company

There are also many other small businesses that earn income within the chain – transporters, suppliers of bags and other logistics, small and large processors, street vendors and retail traders.

There is no reliable data on the value of mango sector production in West Africa. If one takes an average value of US$260/MT (the average in Ghana)[12], the 1million MT (after deducting one third of production for post-harvest losses) would have a total farmgate value of mango production that would be about US$260,000,000. This is not counting the incremental value of exports, processing and local value addition from farmgate to consumer.

Key indicators for the present status of the mango value chain in West Africa

Several key indicators data are summarized below.

Table 6: Key indicators of cashew sector in West African countries

Mango producing countries in West Africa	13 of the 15 ECOWAS countries[13] produce mangoes. 85 % comes from 7 countries: Nigeria , Côte d'Ivoire, Guinea Bissau, Ghana , Niger, Guinea, Senegal, and Mali
Regional production – volume	1.5 million MT (2012) (FAO, data adjusted
Sub Regional production - % of world total	3%
Exported from West Africa (fresh fruits only, excluding processed products).	30,000MT; 2% of West Africa production
Local market and local consumption with West Africa	600,000 MT + 40% of production
Post-harvest losses	33% est. - 500,000 MT
Processed fruit, including fresh cuts	370,00 MT – 25% of production (estimate)
Potential for processing	Growing sector
Yields	Vary from 1 to 20 MT/ha
Status and quality of Supply of Mangoes	Sustainable production for processing, exports and local market
Number of persons working in the sector	1.5 million persons
Value of West African mango sector	(farm gate) US$260,000,000 estimate after deducting post-harvest losses
Price received per MT	US$260/MT farm gate average in Ghana, May 2014

3.5 MAIN ACTORS IN THE VALUE CHAIN

Farmers /Producers

The key actors/players in the upstream of the mangos value chain are small holder farmers and medium and large commercial plantation owners. There are large numbers of small farmers, with mango trees that are not systematically planted or maintained.

12 During some seasons the farmgate price can reach US$1 per kilogram. In Ghana in May 2014, some producers noted that the price of 1 kilogram mangos has reached up to US$1.

13 Côte d'Ivoire, Benin, Guinea-Bissau, Nigeria, Burkina Faso, Senegal, Ghana, Gambia, Guinea, Togo, Mali,

Since the export market for mangoes started expanding, many large and medium scale farms have been started by private investors. Some examples of well managed commercial plantations directly linked to exports include:

- In Ghana, FMSL Ghana Ltd produces on more than 1000 hectares, Eve-Lyn Farms (in Oyarifa, near Accra) has 60 hectares; Dormuhsc Farm in Yilokrobo (30 hectares).
- In Senegal, Safina SARL, near Dakar (more than100 ha), Hortica SARL Senegal (more than 100 ha)

There are similar plantations in Côte d'Ivoire and Gambia.

Intermediary buyers - Vendors:

Several channels are in operation:

- Exporters who own farms, maintain, and harvest with hired or employed labor.
- Exporters who send agents to buy directly from linked farmers, who select and grade mangoes on the farms, and leave the rejects behind to farmers.
- Processors who arrange direct buying from farmers.
- Processors who also buy from suppliers. One processing factory confirmed that there are more than hundred suppliers who supply them fresh mangoes locally and from the region.
- Local vendors (in Senegal, known as "banabanas," in Ghana, "queen bees") who buy wholesale and sell to small venders in the market place for retail selling.
- In Burkina Faso, buyers contract local persons known as "pisteurs" who harvest the mangoes and get paid on commissions from sales.

Processors

There are several categories of processors:

- Small scale, informal sector processors – producers of juices, jams and dried mangoes for the local market. In Burkina Faso, the Mango Professional Association (APROMA-B) reported that there are more than 62 such SMEs. Senegal reported more than 35 SMEs processing mangoes in to various products.
- Producers of dried mangoes – formal SMEs that dry mangoes either in the sun or using gas/electric dryers. Dried mangoes are for the local market and for export to Europe.
- Industrial processors – Juice and pulp for export and for the local market (Ghana, Côte d'Ivoire, Burkina Faso, Nigeria).
- Larger processors of fresh cut fruits to European markets. In Ghana, for example, Blue Skies, HPW, BOMATE and ITFC are amongst the companies that process mangoes for export. There are similar established private companies in other countries of the region.

Exporters

- Every country has many 20 to 30 established exporters.
- Many of the exporters have their own plantations and also work with farmers and intermediate suppliers.

Local Marketers:

This level includes:

- Vendors in the market places; mostly women,
- Mobile/street vendors in large numbers; mostly women and youth,
- Retail dealers in the markets and often in the production areas,
- Retail shopkeepers, and
- Supermarket chains.

Other stakeholders

The mango value chain in the region continues to attract the attention of the public sector institutions, donors and professional associations. The following institutions are amongst those that have supported development of this value chain:

- Country governments, through ministries of agriculture, export promotion offices, phytosanitary services, etc.
- Subsector professional associations in all the countries – farmers, exporters, processor associations (such as ONAPES-CFAHS Senegal, PAMPEAG , Ghana, APROMA-B)
- Multilateral and bilateral technical assistance by several donor and lender supported initiatives – e.g. initiatives supported by USAID, USDA, World Bank, ADB, EU, FAO, WTO, ITC, GTZ, DFID, IFAD, SNV, several international NGOs; COLEACP, ECOWAS
- Universities and research and development institutions, particularly working on fruit fly control and eradication in Mali and Senegal.

3.5.1 DESCRIPTION OF THE VALUE CHAIN ACTORS

3.5.1.1 Lead Firms

There are number of lead firms in the region, exported products such as fresh mangoes to Europe, fresh cuts to Europe, and processed dried fruits to Europe.

Many of these exporters are reputable companies and members of associations such Cooperative Federative de l'Horticulture de Senegal (CFAHS), Papaya and Mango Producers and Exporters Association of Ghana (PAMPEAG) and National Mango Union – Ghana (NMU), and APROMA (Burkina Faso.

3.5.1.2 Processors of mangoes

There is number of small processors of mangoes across West Africa. In Burkina Faso enterprises such as DAFANI, SGTF and Ranch de Koba, are key processors while, there are 60-70 enterprises engaged in producing dried mango products that for the most part is exported to Europe. In Ghana, Blue Skies is well reputed for exports of fresh cuts mangoes, and also production of fresh juices. In addition there are companies such as ITFC, BOMATE, and HPW that process and export mangoes, including dried mango products. In Senegal, Société Africaine Industrielle et Agricole de Sebikotane (SAFINA) is notable.

In addition there are many hundreds of small scale processors in all the mango producing countries. Burkina has more than 60 registered enterprises, and Senegal records more than 30. These numbers are in the hundreds in Nigeria.

3.5.1.3 MSMEs

The mango value chain offers opportunities for thousands of MSMEs to operate and develop in a well-functioning value chain. The small farms themselves should be seen as agribusinesses. In addition, SMEs operate and develop in the following activities:

- Small scale processors of mangoes and other fruits
- LBAs – collectors or small traders, mostly women
- Transporters
- Traders – semi, wholesale, and suppliers of mangoes

3.4.1.1. Other Actors and Stakeholders

The mango value chain has increasingly become a key fruit sector that attracts the interest of private sector, public sector, donors, and international organizations due to its emerging importance as a cash crop, in livelihoods development, as an income generator.

- Private investment – There is flow of private investments seen in mango, production and processing activities in the West African countries.
- Programs supported by organizations such as USAID, GTZ, ITC, CIDA, GTZ, DFID, IFAD EU, USDA, FAO, World Bank. ECOWAS has launched the EXPECT program - Enterprising ECOWAS Business Actors for Sustainable Value Chains Development program.
- Public sector supporting institutions – ministries of agriculture, universities working on fruit flies
- Europe-Africa-Caribbean-Pacific Liaison Committee (COLEACP)
- Export Marketing Quality Awareness Project (EMQAP) in Ghana

3.4.2. RELATIONSHIPS BETWEEN KEY ACTORS

The mango sector has benefited from a value chain based approach for development in the region for some time. In Ghana, the former USAID project Trade and Investment Program for a Competitive Export Economy (TIPCEE) worked very closely with mango sector. Many stakeholders refer to TIPCEE's important influence in helping the mango value chain to progress. In Senegal, the USAID supported Economic Growth Project assisted stakeholders to organize the value chain and assisted in putting all the actors together to fight against fruit flies problem and to increase exports of mangoes. Relevant technical assistance programs are being implemented in all most all the countries. Therefore, value chain actors and stakeholders are well aware of the rules of the game and the role of each stakeholder. In Ghana several companies and working with the farmers to improve their supply chains. Supply and value chains cross borders, and so cross-border relationships are important amongst countries such as Burkina Faso, Mali, Senegal, Côte d'Ivoire, Niger and Nigeria.

3.4.3. OPPORTUNITIES AND ISSUES

Opportunities

West Africa's mango sector is a growing economic sector that operates in 13 of 15 ECOWAS countries. It has a production of 1.5 million MT and not even 5% is exported. EU imports in 2011 were 252,152 MT, mostly from Brazil and Peru. West Africa is also emerging as a supplier of processed mango products for both locally and international markets.[14]

Table 7: European Union Market for Mangoes, 2011

Origin	Quantity (MT)	% by source
Brazil	91,445	36
Peru	73,282	29
Israel	14,016	6
Pakistan	11,443	4
USA	6,475	3
West Africa	21,231	8
Others	33,260	13
Total	**251,152**	**100**

Source: ECOWAS, 2012

The primary opportunities therefore for the mango value chain are :

- Exports of fresh mangoes to Europe, Middle East and North Africa
- Exports within the region. Exports for processors in Ghana and Nigeria, and for consumption in Niger and other countries in the region
- Potential for local processing. Exports and local market. Regional and domestic market for fresh mangoes. Mangoes are extensively consumed in Africa. It is a market of more than 325million consumers.

Issues

The mango value chain has several key issues mentioned by the stakeholders in the course of meetings. These include

1. Phyto-sanitary problems:
    - Damages caused by fruit flies (Bactosera invedens): This is a major regional problem. This is an issue that needs to be addressed at the national and regional level. Losses of

14 This assessment did not examine in any depth the specific possibilities for exporting mangoes and mango products to U.S. market. There are restrictions on exporting fresh mangoes to the U.S. However, there are possibilities for exporting processed mango products. One company in Ghana confirmed that it is exporting processed mango products to the U.S.

mangoes due to fruit flies are reported to go as high as 50% in some countries in the region.

- Stone weevils attacks and fruit anthracnose.
- Phytosanitary issues are main case for heavy post-harvest losses – some confirm in Burkina Faso, Senegal, Benin that these losses can even go up to 50%.

2. Farm management:
    - Many farmers complain of poor yields, post-harvest losses and phytosanitary issues are also part of poor farm management.

3. **Inadequate infrastructure facilities**: These include poor access roads to producing areas, absence of sorting and collection centers, and absence of cold room facilities in producing areas. The mango farmers could be largely assisted by putting in place clusters based bulking sheds and pack houses. At present in Ghana for example – there are a few pack houses. But farmers have high costs on transport to bring products to processors. If there are collecting centers common, buyers can meet in these centers.
4. **Lack of access to finance**: This is a key issue mentioned by the actors all levels. Local interest rates are high for borrowing in the traditional banking system.
5. **Inadequate assistance for market promotion**: It is important for West African countries to diversify from nontraditional markets and search for new markets such as in North Africa and the Middle East.
6. **Organization and structuring of the value chain**: Many countries have organized subsector associations. Many of such associations still do not reach a level of sustainability and do not offer any services to the members. Nevertheless, they play a lead role in promoting the value chain.

4. DISCUSSION OF VALUE CHAIN ASSESSMENT CRITERIA

4.1 MARKET INFORMATION

Main products and markets

The main products of the mango value chain are: (a) fresh fruits and (b) processed mango products.

The present export market includes:

- Fresh fruits exports to EU countries, the Middle East and within the region.
- Processed products exports include:
  - Fresh cuts exported to Europe
  - Dried mango products exported to Europe and with potential to be exported to the Middle East and
  - Juices and jams sold in the regional market.

Data on processed products are not available, but at present West Africa exports about 30,000 MT's of fresh mangoes to Europe and Middle Eastern countries. A considerable amount of fresh mangoes are also exported formally and informally across borders, mainly from Burkina Faso, Mali, and Côte d'Ivoire to Ghana and Niger in particular. It is reported that large quantities are exported from neighboring countries to Niger as fruit crop consumed largely by the population.

Table 8: Imports of Mangoes – Fresh Fruits from West Africa to EU

Origin	Jan - June (MT)			Variations %
	2001	2012	%	
Côte d'Ivoire	10,108	15,280	69	51%
Mali	1,283	2,983	13	133%
Burkina Faso	1,664	1,755	8	5%
Guinea	93	655	3	606%
Gambia	783	649	3	-17%
Ghana	144	585	3	307%
Senegal	514	264	1	-49%
Togo	2	3	0	29%
Guinea Bissau	1	0	0	-70%
Totals	**14,592**	**22,174**	**100**	**52%**

Source: ECOWAS, October 2012

4.2 CONTRIBUTION TO ECONOMIC GROWTH

4.2.1 POTENTIAL TO INCREASE TRADE

The West African mango value chain offers enormous potential to increase trade in both the products areas of fresh fruits and processed products including fresh cuts.

At present fresh fruit exports are in the range of 30,000 MT. Using an average value/MT of $1770 based on ITC data for four countries exporting to Europe [15], the estimated value of mango exports to Europe is US$54 million/year. The sector is a growing, and some countries have commercial plantations that are young and have just started producing fruit (e.g. in Ghana, Côte d'Ivoire, and Senegal). The processing of mangoes is expanding in almost all the countries of the region.

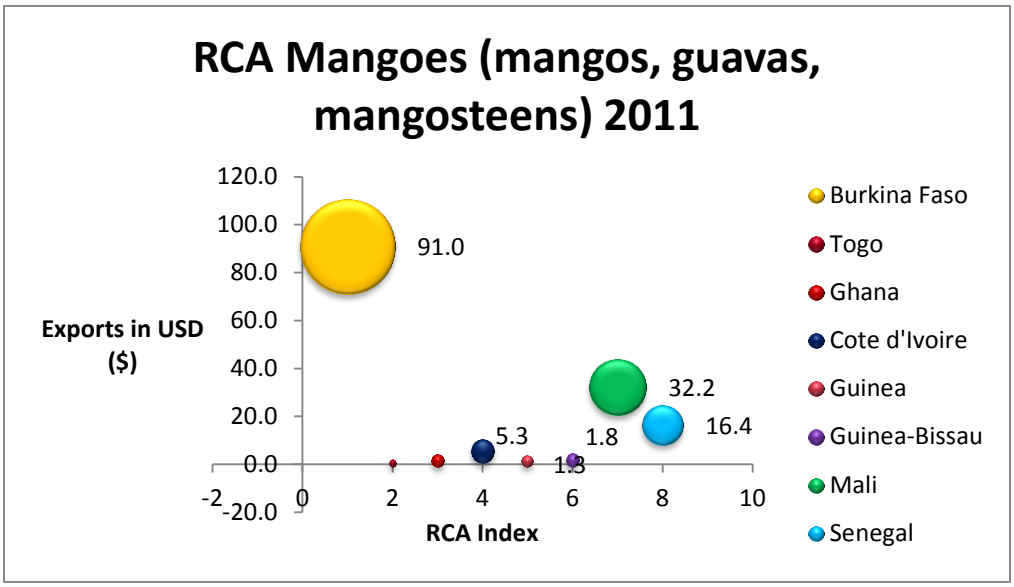
The present value of the mangoes value chain is not been estimated. Even if one estimates that a third of mango production from 1.5 million tons is lost due to post harvest losses, and if for the remaining an average of US$260US is estimated as farm gate prices (based on some countries value at farmgate) the present value of 1 million MT will amount to US$ 260 million.

The larger part of processed mangoes, mainly dried mangoes, are exported by countries such as Ghana and Burkina Faso to the EU. This market is growing and there are also possibilities of exporting processed products to United States and other countries.

Presented in Annex 5 is a Revealed Comparative Advantage for the mango sector. This presentation is based on data from 2011. The RCA index ranges from 0 to infinity with 1 as the break-even point. That is, a RCA value of less than 1 means that the product does not have export comparative advantage, while a value above 1 indicates that the product has a "revealed" comparative advantage. A graphic presentation of this data is presented below for the West Africa region.

15 ITC –COMTRAD Trade data

Figure 3: Revealed Comparative Advantage: Mangoes



For this commodity, mangoes were categorized with guavas and mangosteens. Our research shows that the proportion of guavas and mangosteens that comprise the category is small and insignificant; mangoes make up the bulk of this commodity classification for the West African region. The majority of countries show a revealed comparative advantage of mango exports. One of the smallest RCAs was from Guinea, where (1.3). The country in this sample with the largest RCA is Burkina Faso, with a score of 91 on the index. This means that Burkina Faso has the highest comparative advantage in the sample of mango exports.

4.2.2 POTENTIAL TO CREATE JOBS

The mango value chain is a sector that involves large local labor working on plantations, (an estimated 1.5 million people in West Africa). The types of employment include harvesting, marketing and annexed services such as retail buying, and transport and, processing activities. Local processing is an emerging activity and a high labor intensive activity. Fresh cuts and processing for juices and dried mangoes are very high labor intensive activities.

4.2.3 POTENTIAL TO ATTRACT INVESTMENTS

The investment potential in mangoes value chain is in the following areas:

a) Commercial farming for planting new varieties particularly for processing
b) Increase of exports of fresh mangoes – Europe, Middle East and North Africa (one exporter mentioned inquiries from India to import mango pulp in bulk frozen).
c) Local processing of mangoes – fresh cuts , jams and juices and dried products
d) Establishment of plant nurseries of existing and new varieties – Ghana has just exported mango seedlings to Nigeria.[16]

16 Based on discussions with FMSL GH Ltd.

4.2.4 POTENTIAL TO GENERATE VALUE ADDITION

Several levels of value additions are possible in the mango value chain in West Africa. These are captured as follows:

a) Fresh Fruits – improving quality of production free of fruit flies damages and other photosanitary problems. Introduction and training on best farm practices could largely reduce post-harvest losses, increase yields, and improved grade one quality mangoes available to export as fresh fruits and fresh cuts.

b) Processing – this is the second area of value addition, promoting processing industry. Very high value is added in fresh cuts and dried mango products.

4.2.5 POTENTIAL TO GENERATE MARKET-BASED IMPROVEMENTS IN PRODUCTION YIELDS

The level of yields in West African mango production can be increased by use of improved husbandry techniques. Large numbers of plantations owned by traditional farmers in Africa are left to grow without any maintenance. Therefore, there is a potential to increase production and yield without extending land area to be cultivated. There are also high yielding varieties specifically in demand for processing is grown in Burkina Faso.

4.3 IMPACT ON FOOD SECURITY

Mangoes are a food crop consumed extensively by the population throughout the season in all of West Africa. Discussions held with some producers in Burkina Faso and Senegal confirmed that mango is an important food crop and that the population, particularly in rural areas, consume mangoes on a daily basis during the season. Information from Burkina Faso further confirmed that a considerable amount of mangoes are exported across the borders to Niger, as mangoes are a highly demanded fruit and as a daily food item wanted by the Niger population.

The mango value chain generates annual local revenues of an estimated about US$260 million – more from the value of fresh fruits alone. This is an additional income for the population involved in mango production alone, which is estimated 1.5 million persons. This is an income that can be expanded through increasing exports of fresh fruits and processed products, that provides farmers with a cash income that contributes to their ability to purchase food requirements and improve livelihoods. This revenue can be substantially increased by better managing farms, reducing post-harvest losses, and increasing exports and processing.

4.4 SOCIAL IMPACT

Opportunities for women and youth in the mango sector are substantial in all the producing and processing countries. Job potential is also mainly for youth and women; many of the traders and retailers are young men and women. The National Mango of Ghana has about 1756 members, of which 17 - 20% are women farmers (See Annex 4). Most jobs in processing are held by women.

4.5 COMPETITIVENESS

There are several comparative advantages in the mango sector in West Africa that were revealed during the meetings with stakeholders.

Export market

- The specific taste color and keeping qualities of Kent and Keitt mangoes produced
- Availability in different sizes and weight demanded by importers from European and Middle markets – with weights ranging from300 grams to 3 kilograms available in the region
- Appropriate varieties for processing industries available in adequate quantities
- Relatively low supply costs and transport time - Senegal supply ships to Europe in 6 to 8 days
- Availability of mangoes for exports in off seasons of Asia and Latin America.
- Established systems in the region for phytosanitary controls and export procedures
- Potential to promote a West African brand of mango.

Processing Market

- Availability in large volumes at competitive prices and appropriate varieties
- Contribution to economic growth – potential to increase trade (beyond what is current)
- Potential to create jobs (e.g., by expanding volumes sold, expanding value added)
- Potential to attract investments
- Possibility of exporting processed and fresh cuts throughout the year, which is already happening.

Regional Market and local markets

- West Africa itself is a market, with a population of more than 325 million, and mangoes are extensively consumed
- For many countries, mango is daily food crop
- Already there are large transactions of imports and exports taking place within the region.

4.6 FACTORS THAT WOULD SUPPORT UPGRADING

The guiding principle for supporting the upgrading of the value chain is to facilitate the business growth at different critical points of the value chain. This is focused on expanding options or opportunities available and generating market outcomes that are most conducive to promoting sustainable growth and performance of the sector.

To achieve this purpose the interventions for upgrading should focus on:

- Improvement of the farm management and phytosanitary conditions of the mango value chain, this includes support to the sector by focusing on improving competitiveness , introducing new

plants varieties and reducing post-harvest losses

- Promoting markets for fresh fruits exports to Europe, Middle East, North Africa and within the West African region, including supplies to the processing industry. (At present, considerable quantities are imported from Brazil for fresh cuts market)
- Promoting local value addition (fresh cuts, dried products, juices, jams) and technical training by encouraging investments and partnerships with lead national and international firms in local processing for exports. Already international companies are in this business.
- Promoting production of high value seedlings for local and regional markets
- Promoting new business models in production and processing (e.g. use of dried mangoes with other industries – confectionary, juices, fruit bars, chocolate-coated products)
- Supporting promotion of the required infrastructure facilities, promoting common facility centers such as cluster-based bulking centers, pack houses and access roads, cold room facilities and access to services
- Strengthening national associations of sector actors to lead the growth of the value chain
- Facilitating access to finance for actors at all levels

4.6.1 CHAMPIONS FOR CHANGE

The West African mango value chain is become increasingly organized and aware of the potential and opportunities of the sector. There are several leading national and international fresh fruit exporters and processors. Several exporting companies and processors in several countries – including Gambia, Senegal, Ghana, Burkina Faso, and Côte d'Ivoire – have established strong marketing contacts with importers and supermarkets in Europe and exporting products. In addition, practically all the countries operating in the mango sector have organized sub-sector professional associations.

In view of the high potential of the mango value chain in West Africa, several actors contacted confirmed their interest to work together to upgrade and enhance the performance of the mangoes value chain.

4.6.2 ACCESS TO FINANCE

Access to finance is a constraint often mentioned by all the actors. Except for large processing companies, direct involvement of mango sector actors in the formal banking system is limited. At the local level access to finance is a limiting factor for engaging investments.

4.6.3 PRODUCTIVE INFRASTRUCTURE

Infrastructure facilities for the mango trade are often mentioned by actors as an area of significant inadequacy. The poor status of access roads, inadequate storage facilities, lack of packing and bulking facilities and the lack of cold chain management are main issues underlined by the actors.

4.6.4 SYNERGIES WITH EXISTING PROGRAMS

At present there not many technical assistance programs at a regional level to support the mango sector. At one time USAID supported the mango value chain through the TIPCEE project in Ghana, and

the Economic Growth Project in Senegal. The ITC project and Rural Hub information program in Senegal also had significant impact in upgrading the mango sector in the region.

New support and technical assistance programs are however needed. Assistance from the Trade Hub is much needed and will have a major impact, especially in collaboration with COLEACP and ECOWAS.

4.6.5 POLICY ENVIRONMENT

The details of policy environment in the context of this assessment were not sufficiently collected within the framework of this study due to the limited time available. Each country in the region has its own policy structure and issues related to the policy environment, and details of these need to be analyzed at a later stage.

4.7 CLIMATE RESILIENCE AND ENVIRONMENTAL SUSTAINABILITY

The mango value chain will not have serious negative impact on the environment. It is a tree crop, and in fact it will be a positive climatic factor. Further, mango production promotion will involve programs to fight against the fruit fly problem that has had a negative impact on many other fruits in the region. Therefore, any work done in these areas will also help to protect other crops.

Some mango processing factories have started recycling waste from processing factories in the production of biogas for own uses. This reduces use of electricity or diesel for energy and discharge from biogas generators can be used as good organic manure.

4.8 OTHER HURDLES TO SUCCESS

One of the key elements for success of the mango value chain is in the phytosanitary requirements at national and regional level. Fruit flies and other related pests have to be considered a priority program concern at national and regional levels.

Other hurdles to overcome are:

- Reduction of barriers and hazards that have a negative impact on cross border trade.
- Facilitation of specific incentives to encourage investments and access to finance to promote value chain.

4.9 SWOT ANALYSIS

The main strengths, weaknesses, opportunities and threats of promoting cashew value chain in West Africa are listed below:

Strengths

- Large production 1.5 million tons in the region

- Sustainable production of quality and competitive advantages for exports
- Competitive prices offered for supplies in different countries
- Access to shipping ports and air transport to Europe
- Increased awareness of producers on phytosanitary requirements
- Presence of large numbers of exporters and processors.

Weaknesses

- Quick perishability of the products
- Low level of local value addition through local processing
- Low yields per hectare
- Non-application of best agriculture practices in farming
- Weak national level value chain actors' associations
- Poor infrastructure and access roads, Examples of lacking infrastructure include common service facility centers such as bulking sheds and pack houses, in producing areas

Opportunities

- Potential export possibilities of fresh fruits to EU , Middle East , North Africa
- Potential market to promote processed products to EU and other countries
- Possibility of increased production
- Potential local and regional market for fresh fruits and processed fruits.
- Presence of a stakeholders and relationships with in the region.

Threats

- Phytosanitary problems specifically fruit flies , stone weevils and anthracnose
- Non –management of Small farms
- Possible inadequate commitment of public and private sector on the fight against fruit flies.

5. VISION AND UPGRADING STRATEGY

5.1 VISION

The vision in the promotion of the mango value chain in West Africa is to promote the image of West Africa as a world leading region in the mango trade, providing substantial and growing volumes of high quality, certified fresh whole mangoes , fresh cuts and processed mango products for global and regional export. This will enable millions of producers and their families in 13 countries to earn improved incomes from the mango sector.

5.2 UPGRADING STRATEGY

In order to achieve this vision, a collaborative, participative approach by private and public sector stakeholders is recommended. The strategy has eight pillars:

1. Improving farm management and phytosanitary conditions
2. Promoting markets for West African fresh fruit exports to Europe, Middle East and North Africa, and within the West African region, including supplies to the processing industry.
3. Promoting local value addition (fresh cut, dried products, juices , jams)
4. Promoting production of high-quality seedlings for local and regional markets
5. Promoting new business models in production and processing
6. Supporting development of required physical infrastructure, promoting common facility centers through a cluster-based approaches in the production regions
7. Strengthening national associations of sector actors to lead growth of the value chain
8. Facilitation of access to finance for actors at all levels in the value chain.

5.3 RISKS AND MITIGATION

While there are few true risks to supporting this value chain, several key challenges merit discussion:

Extent of the area to be covered under the mango sector development program
Thirteen out of 15 countries in the West Africa region produce mangoes, but the Trade Hub will be limited in its reach and resources. It is recommended that the Trade Hub plan to work with selected countries initially and direct its support through lead firms and investors, using tested business models.

Difficulty of controlling phytosanitary problems in the sector is a serious risk
This risk refers particularly to problems with fruit flies and high post-harvest losses. The Trade Hub can work closely with stakeholder associations and governments. The Trade Hub can as well as build close

partnerships with regional organizations such as ECOWAS and COLEACP, which are already working on these issues. With its strong business and market linkages and value chain-based reach, the Trade Hub should be able to play a catalytic role to support private and public partners in forming taskforces to develop appropriate strategies and interventions.

6. ADDITIONAL INFORMATION NEEDED

The mango value chain analysis carried out based on documents available, personal experience of the author in the region and limited meetings and contacts within a very short time.

Several information gaps remain:

1. Information about production, specific characteristics and challenges to growth and needs of assistance, and organizations of stakeholders and actors in each country.
2. Information about private sector firms present in each country ,
3. Precise information about the price structure at each levels of value chain throughout the region
4. Information about the relevant policy environment.
5. Details of specific interventions by donor assisted projects, NGOs and private and public sector entities.

ANNEX 1: PERSONS AND ORGANIZATIONS INTERVIEWED

	Organization	Name and Designation	Country and Contact Details
1	Association of Farmers	Lionel Guezo	Benin Email: guezolionel@yahoo.fr
2	Association des Professionneles de la mangue de Burkina Faso-APROMA-B	Paul Oudrago, President	Burkina Faso Phone: +226 20980989, +226 78822830 Email: apromabukina@yahoo.fr
	Blue Skies Juice Ghana Limited	Perpetual Ofasi Francisco Juliana Agyemang, Marketing Manger	Ghana Phone: +233 (0)244332913, Email: pep.ofasi@blueskies.com Phone: +233 (0)544341915 Email: juliana.agyemang@blueskies.com
4	Consultant	Kwame Nyamekye Boarman, Consultant – Mangoes	Ghana Phone: +233 (0)244317845 Email: commandergh@gmail.com
5	Consultant	Mamadu Dabo, Consultant – Mangoes	Senegal Email: dabokl@yahoo.ca
6	Consultant	Roland Adade, Consultant	Ghana Phone: +233 (0)266 000999
7	EVE–LYN Farms and Exporters	Bassam G.Aoum, Managing Director	Ghana Phone: +233 (0)244375131 Email: bef_farmevelyn99@yahoo.com
8	Juice Producer	Michel Odjeyem, Mango	Ghana Phone : +233(0)269889373
9	CFHS Cooperative Federative del'Horticulture de Senegal	Cheik Ngane, President	Senegal Phone: +221 776912952
10	FMSL Ghana Limited	Davies Korboe, CEO	Ghana Phone: +233 (0)24 4561122 Email: davieskoroboe@yahoo.com

11	GTT Fruits	Guigama Karim, Managing Director, Exporter of Mangos	Burkina Faso Phone: +22676514625 Email: gtprestation2013@gmail.com
12	HPW Fruits Processing Factory in Attohkrm	Michel Mawusime, Business Development Manager James Obeng, Administrator and Controls Manuesh Blaser, Quality Assurance	Ghana Phone: +233 (0)271934059/ +233(0)244974935 Email: michael.mawusime@hpwag.ch Phone: +233 (0)271934055 Email: james.obeng@hpwag, fd.sustainability@hpway.ch
13	Mango Farmers Association	Peter Sackey, Chairman	Ghana Phone: +233 (0)277602546
14	Producer/Farmer	Kouagre Mathieu	Benin Phone: +229 96224
15	National Mango Union of Ghana	Edward Amanor, Chairman	Ghana Email: sdwardkamanar@yahoo.com
16	Union Regional des Producteurs	Daba Idrissa, Coordinator	Benin Phone: +22997352540
17	Yiokrobo Mango Farmers Association in Somanya	Joseph Kwasi Odjem	Ghana Dokmeitsco Farm Phone: +233 (0)244562468 Email: odjeyem@yahoo.com

ANNEX 2: MANGOES –YIELDS IN WEST AFRICA

Mangoes, mangosteens, guavas - ECOWAS - Yield (Kgs/Ha)							
countries	**2007**	**2008**	**2009**	**2010**	**2011**	**2012**	Tons
Cabo Verde (Cape Verde)	40,000	42,389	44,885	40,625	41,975	42,424	42
Mali	24,105	18,161	19,041	19,120	18,519	18,889	19
Ghana	10,462	10,571	11,539	11,679	12,143	12,069	12
Guinea-Bissau	6,235	6,509	8,935	8,952	10,464	10,449	10
Burkina Faso	6,000	6,355	7,752	7,769	9,084	9,100	9
Senegal	6,786	6,250	5,979	6,711	6,780	6,757	7
Nigeria	5,802	6,250	6,473	6,539	6,539	6,515	7
Gambia	5,122	5,524	5,556	5,455	5,752	5,652	6
Niger	5,000	5,000	5,017	5,000	4,710	4,889	5
Benin	5,319	5,417	4,358	4,065	4,019	4,143	4
Sierra Leone	2,655	2,679	3,147	3,153	3,686	3,750	4
Guinea	2,668	2,012	1,913	2,131	1,971	2,012	2
Côte d'Ivoire	475	498	514	538	545	570	1
Yield Total	**120,627**	**117,614**	**125,107**	**121,737**	**126,185**	**127,219**	

***Source*: FAO statistics**

ANNEX 3: GHANA MANGO SECTOR ASSOCIATIONS

Name of FBO Apex body: NATIONAL MANGO FARMERS CO-OPERATIVE AND MARKETING UNION					
Location : Manya Krobo					
Contact details: Edward K. Amanor (President) Tel: 0244-238-289/0265-804-402, Email: edwardkamanor@yahoo.com					
Information on Constituent FBOs					
Name of FBO	Location		Membership		Agricultural Activity undertaken by FBO
	Region	District	Male	Female	
1. Manya Krobo District Mango Farmers Co-operative and Marketing Union	Eastern	Lower Manya Krobo	88	12	Mango
2. Yilo Krobo Mango Farmers Co-operative	Eastern	Yilo Krobo	114	21	Mango
3. Dangbe West Mango Union	Greater Accra	Dangbe West	97	15	Mango
4. Ketu South Mango Farmers Union	Volta	Ketu South	20	4	Mango
5. Norvisi Mango (Ketu North) Farmers Association	Volta	Abor	21	3	Mango
6. Vomega (North Tongu)	Volta	Juapong	18	4	Mango
7. Nkoranza Mango Farmers Sssociation	Brong Ahafo	Nkoranza	15	3	Mango
8. Atebubu Mango Farmers Association	Brong Ahafo	Atebubu	14	2	Mango
9. Kintampo Mango Farmers Association	Brong Ahafo	Kintampo	37	11	Mango
10. Greenfield Mango Growers and Marketing Union	Brong Ahafo	Sunyani	21	4	Mango
11. Techiman Mango Farmers Association	Brong Ahafo	Techiman	27	8	Mango
12. Wenchi Mango and Citrus Farmers Co-operative	Brong Ahafo	Wenchi	28	12	Mango & citrus
13. Ejura Mango Farmers Association	Ashanti	Ejura	21	9	Mango
Total			**521**	**100**	

In addition, the following associations are about to join:

- Zakpalsi Mango Farmers Association, Tamale: 78 men, 27 women

- Organic Mango Farmers Association Savelugu, N/R: 1060 men, 140 women
- Ho Mango Farmers Association, Ho, Volta Region: 48 men, 12 women
- Taimako Mango Farmers, Tamale, N/R: 67 men, 25 women
- Afadjato Valley Mango Farmers Association, North Dayi, V/R: 49 men, 12 women

ANNEX 4: BIBLIOGRAPHY

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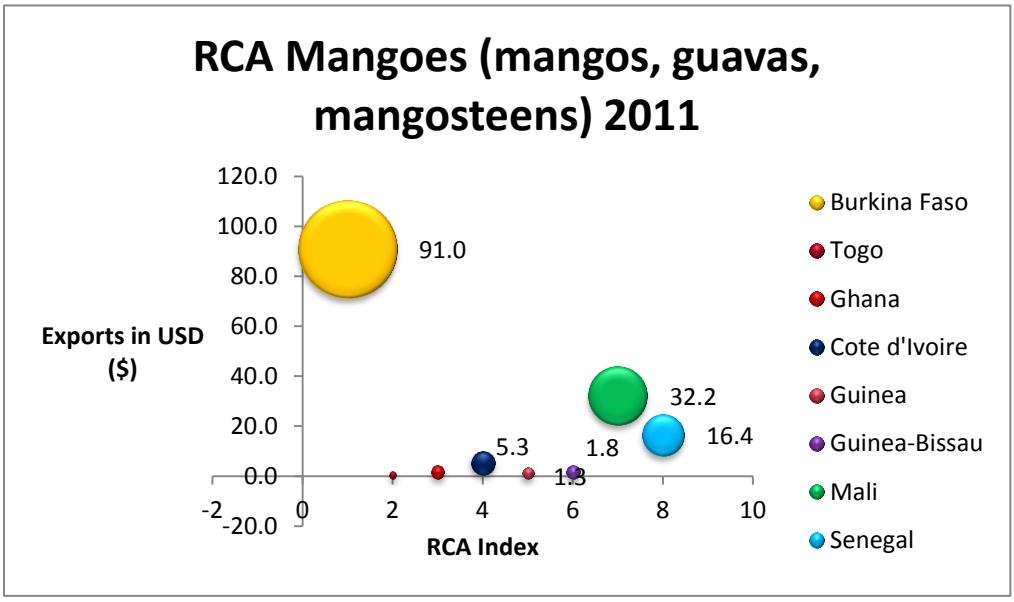
ANNEX 5: REVEALED COMPARATIVE ADVANTAGE

The Revealed Comparative Advantage (RCA) for Mangoes and its supporting data is shown below:

Export data from 2011 except Togo (2010)



Commodity exports from UN Comtrade, country totals from WTO.org, world exports from FAO 2011

	A	D	F	G	H	K	L	M	O	P
1	Product	Burkina Faso	Togo	Ghana	Cote d'Ivoire	Guinea	Guinea-Bissau	Mali	Senegal	World
2	Mangoes	$5,327,920	$41,029	$2,845,000	$7,931,248	$120,000	$31,000	$2,796,000	$5,305,922	$1,371,878,000
3	country total exports	768,000,000	$1,132,000,000	23,731,000,000	19,500,000,000	1,256,000,000	230,000,000	1,139,000,000	$4,251,000,000	
4	World Total Exports									17,999,547,615,000
5										
6	RCA Mangoes	91.0	0.5	1.6	5.3	1.3	1.8	32.2	16.4	

Explanation of Revealed Comparative Advantage

The idea to determine a country's 'strong' sectors by analyzing the actual export flows was pioneered by Liesner (1958).

The procedure was refined and popularized by Bela Balassa (1965, 1989) it is popularly known as the Balassa Index. Alternatively, as the actual export flows 'reveal' the country's strong sectors it is also known as Revealed Comparative Advantage.

Balassa defined the export performance of a specific product/industry from a country – as measured by revealed comparative advantage index – as the relative share of the country's export of the product in the world export of the same product, divided by the overall share of the country in world exports. More specifically, the revealed comparative advantage index of product j exported from country i (RCAji) can be expressed as follows:

RCAji = (Xji/Xjw) / (Xi/Xw), where:

Xji = exports of product j from country i Xjw = world exports of the product j Xi = exports of country i Xw = world exports

The RCA index ranges from 0 to infinity with 1 as the break-even point. That is, a RCA value of less than 1 means that the product does not have export comparative advantage, while a value above 1 indicates that the product has a "revealed" comparative advantage.

For the case of mangoes:

Export data (Xji) for each country are shown in row 2 under their respective country names; so the formula can be written as X (mangoes, Nigeria); X (mangoes, Burkino Faso), etc.

Xjw or X (mangoes, World) is in cell P2 = $1.3 Bil (rounded)

Xi, exports of the countries, are shown in row 3

Xw, world total exports, Cell P4 = $18Trillion

For this commodity, mangoes was categorized with guavas and mangosteens. Our research shows that the proportion of guavas and mangosteens that comprise the category is small and insignificant; mangoes make up the bulk of this commodity classification for the West African region. The majority of countries show a revealed comparative advantage of mango exports. One of the smallest RCAs was from Guinea, where (K2/P2)/(K3/P4) = 1.3. The country in this sample with the largest RCA is Burkina Faso, with a score of 91 on the index. This means that Burkina Faso has the highest comparative advantage in the sample of mango exports.

These calculations are limited to some degree by the availability of export data.