

WEST AFRICA TRADE HUB TECHNICAL REPORT NUMBER 8



West African Cashew Sector Study: Supply-chain Analysis and Needs Assessment

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Agenda

- Introduction
- Global industry context
- Kernel market standards
- Intervention identification

Study context and methodology

Background

- WATH/USAID, within AGOA Export Business Development Program, contracted TNS to perform study West African cashew industry study

Scope

- **Geographic:** West African cashew producing countries, focusing on the major producing countries of Guinea-Bissau, Benin and Nigeria, as well as a review of Ivory Coast and smaller producers (eg. Ghana and Senegal)
- **Industry:** entire value chain with particular focus on capabilities for processing and marketing of cashew kernels for/to markets in USA and Europe

Objectives

- Assess current West African cashew kernel processing and marketing capabilities for serving markets of USA and Europe
- Assess effectiveness and efficiency of cashew industry value chain within the region
- Develop and rank potential strategies for targeted WATH interventions, including list of candidates for possible strategic partnerships

Methodology

- Primary research regional visit (Nigeria, Benin, Senegal, Guinea-Bissau, Ghana)
- Primary research telephone interviews (Above countries and Ivory Coast)
- Secondary research

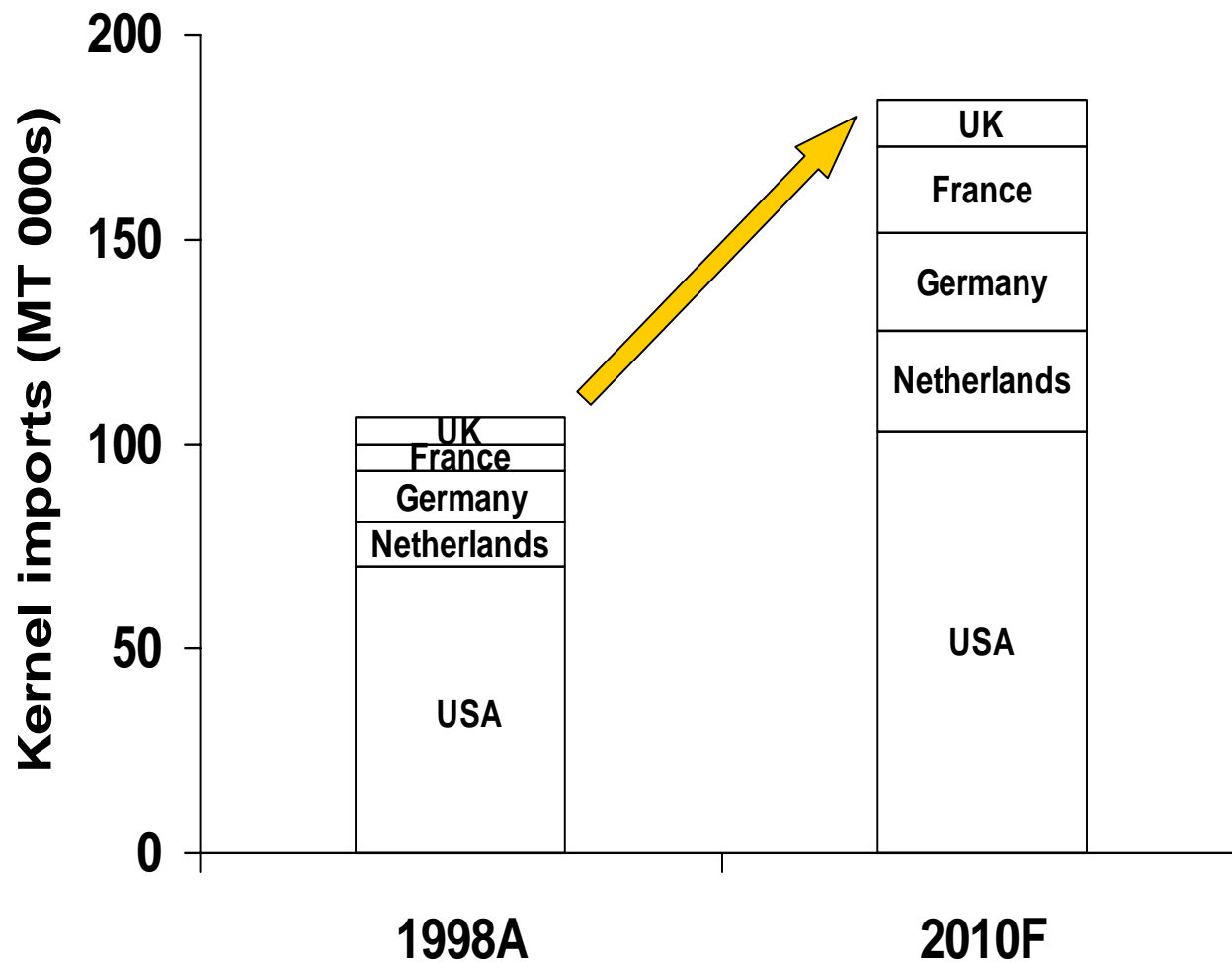
Executive summary

- Global market**
- Strong forecast growth in cashew kernel volumes with modest increase expected in prices
 - India dominates production and processing, being supplied by African producers
 - West Africa only processes only 1% of what it produces
- Kernel market standards**
- Standards either relate to cashew kernel output or production process
 - The key process standard of HACCP is not yet implemented in West Africa, however exports to the USA and Europe still occur
- Potential interventions**
- **Raw cashew nut (RCN) production**
 - **Kernel processing/marketing**
 - **Enabling environment**

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Forecast growth for the import of cashews is strong, with a 2004 World Bank report citing a “shortage of kernels”



Geography	Growth 98-10*
UK	4.6%
France	10.8%
Germany	5.5%
Netherlands	7.2%
USA	3.2%
Total	4.7%



* Cumulative annual growth rate

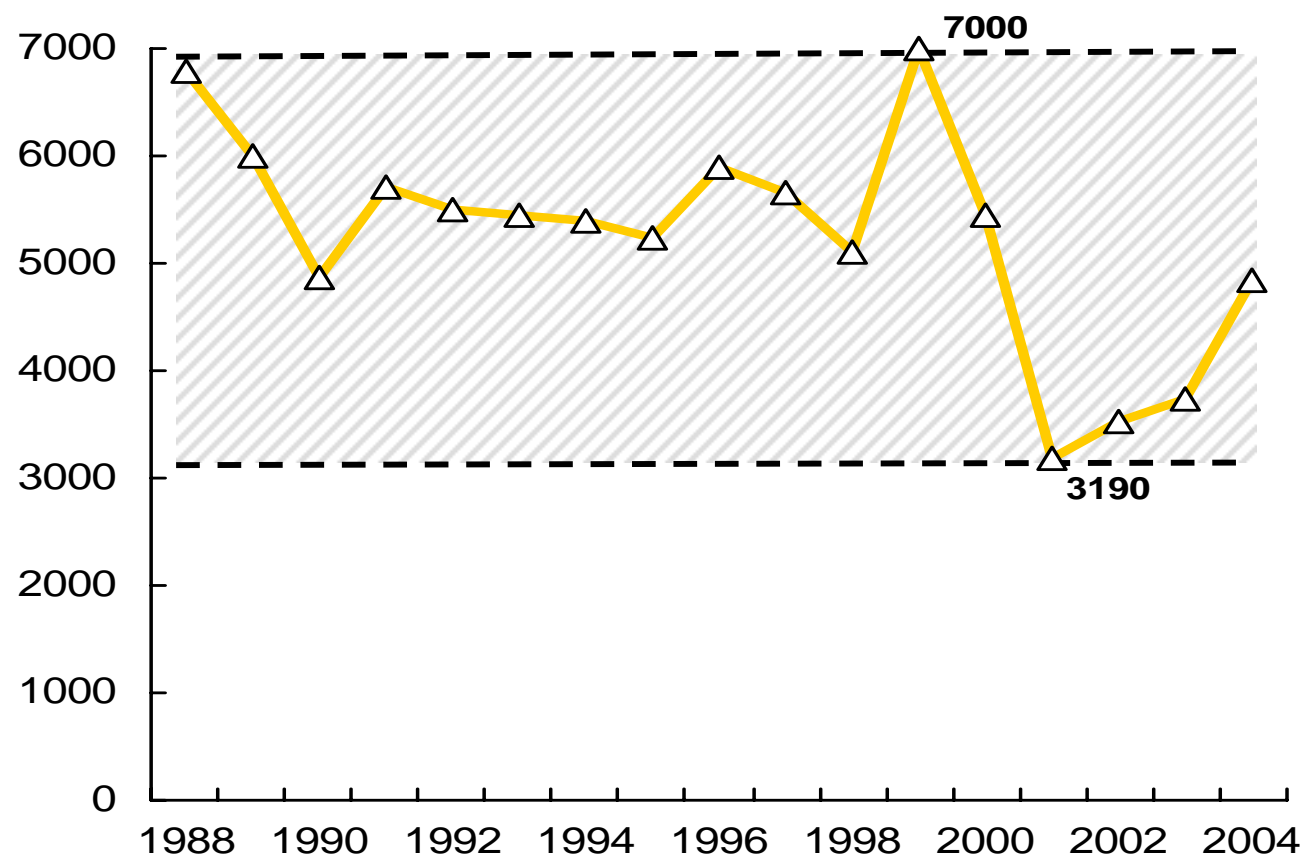
Source: World Bank, Global Cashew Markets (Ju 2004); ECI Africa (DAI-PESA), Cashew Nuts Sub-sector Study (Oct 2003)



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Kernel prices are near the middle of the roughly 10 year global price cycle, indicating near term modest price growth

WW320 Kernel Rotterdam
Price (USD/MT)



Price cycle drivers

- Final consumption
- Processing capacity in kernel exporting countries of India, Brazil and Vietnam
- Market manipulation by large buyers and brokers

Price decline 1999-2001

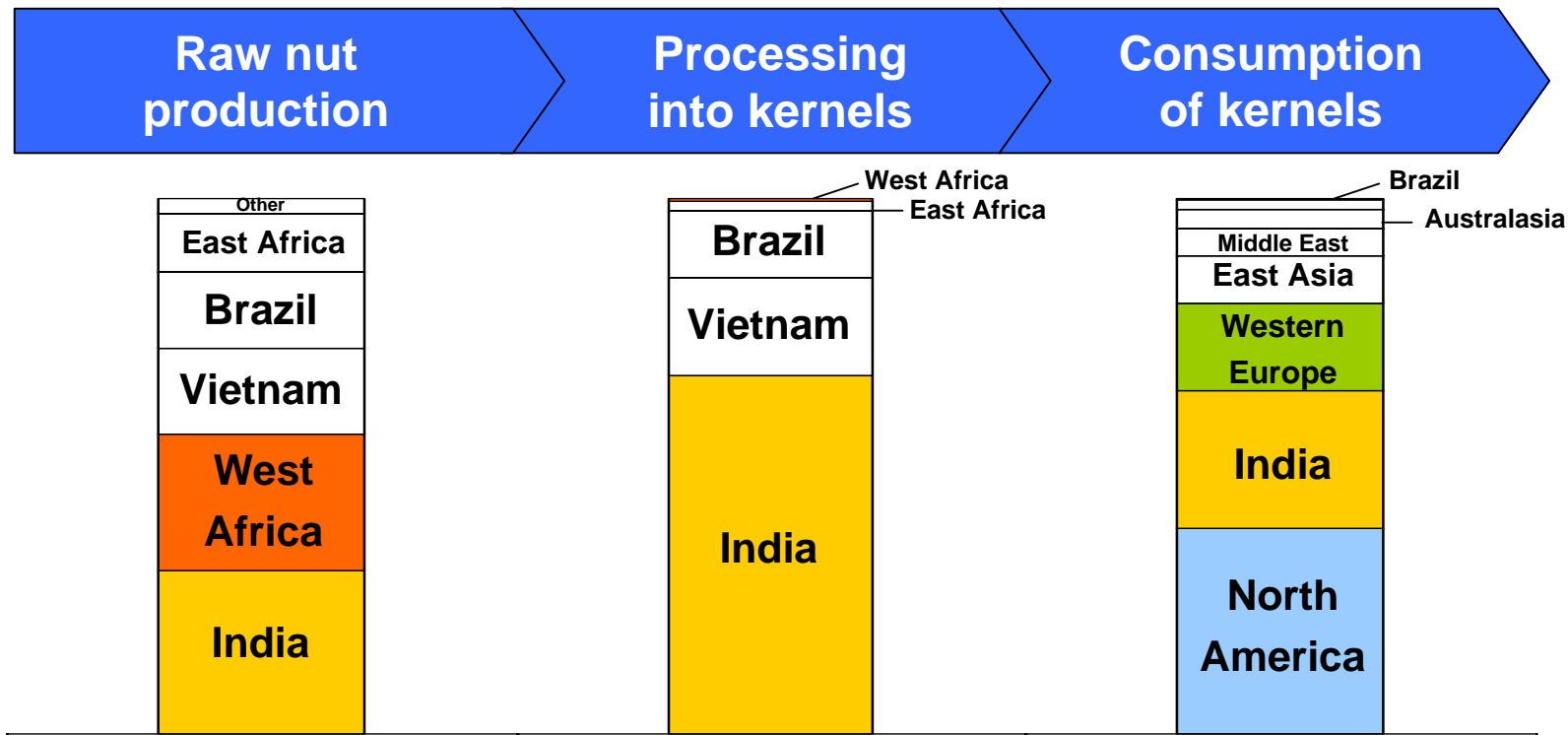
- Excess processing capacity in Vietnam and India

Expected 5 year price trend

- Expected modest increase in price owing to strong demand and fall in new plant investment in India and Vietnam (~3% pa)

Source: Man Producten – Edible Nut Market Report for 1998-2002 data; industry interviews

Tanzania is a relatively small player compared to India which dominates production and processing



- Output = 1,392,000MT
- Raw cashew nut is harvested annually from cashew tree
- Cashew farmers are typically small holders

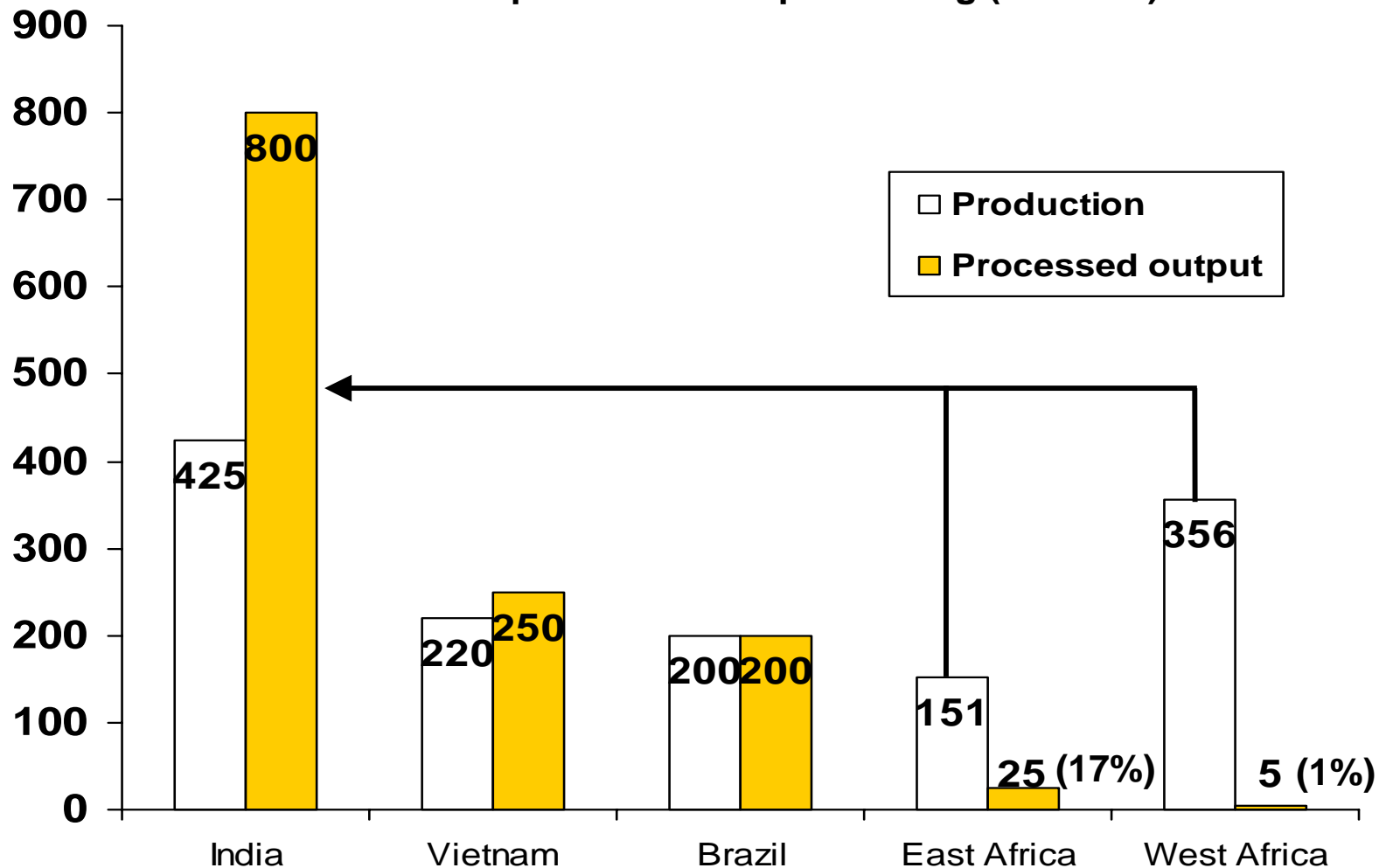
- Output = 287,000
- Basic processing of raw nuts into kernels (traditional, Indian, mechanized)
- Optional secondary processing to roast and flavour

- Consumption = 287,000
- 26+ different kernel grades
- High grades consumed as whole nut snack
- Low grades used in food production

Source: TechnoServe database; World Bank Cashew Report (2004)

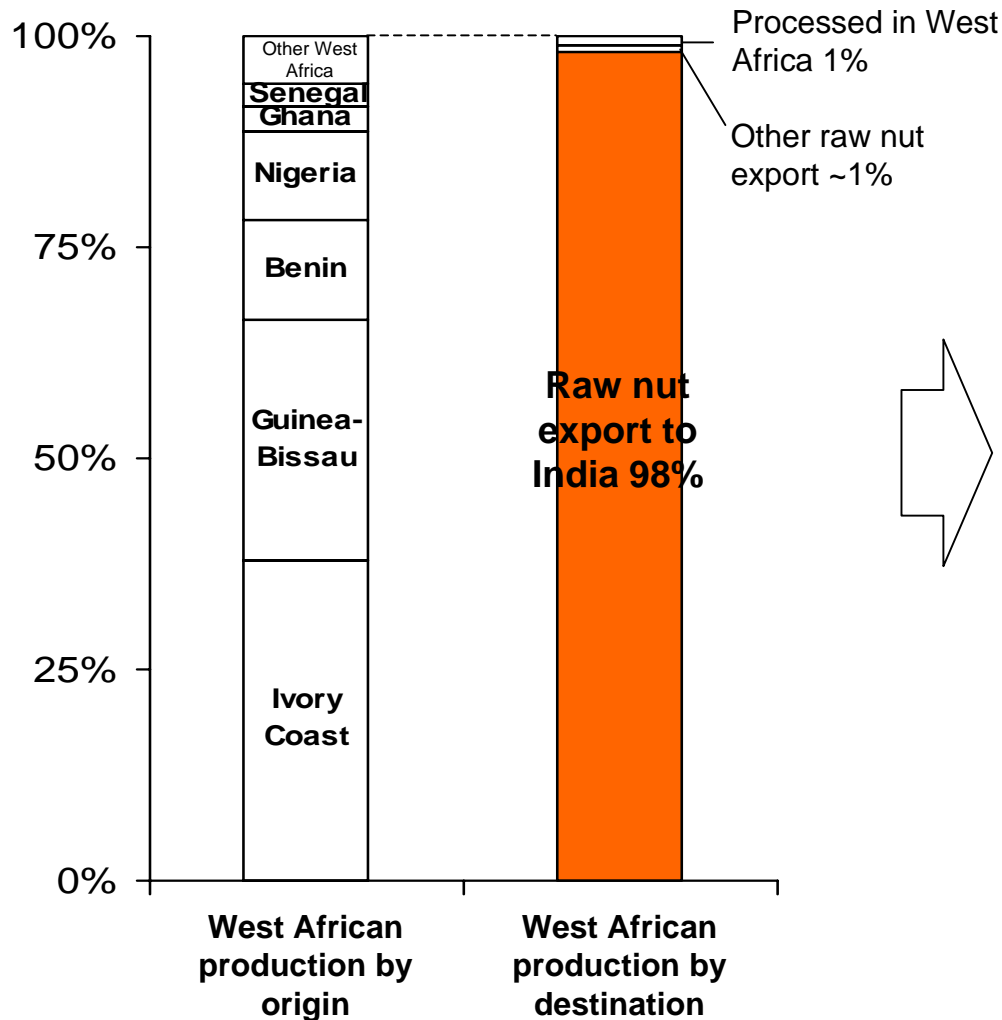
African small holder producers supply Indian cashew processing

Cashew nut production vs. processing (MT 000s)



Source: TechnoServe database; World Bank Cashew Report (2004)

Current industry structure 'status quo' risks West African production and forgoes benefits from processing



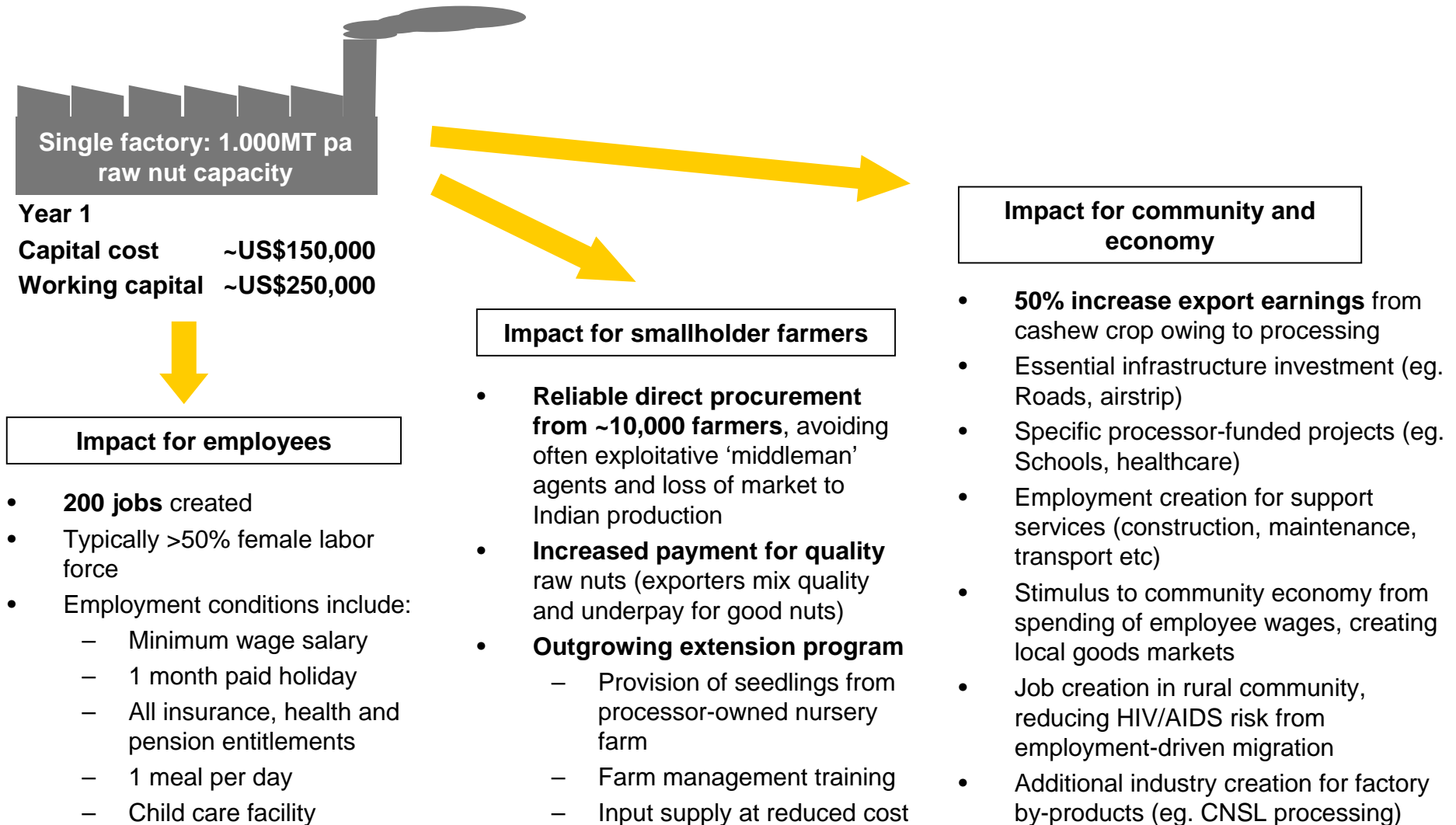
Impact of raw nut export

- **98% of potential cashew export earnings from West Africa at risk from import substitution in India**
 - India is increasing domestic cashew production in line with stated aim to reduce reliance on foreign cashew supplies
 - Important cash income for over 2 million small holders cashew farmers
 - Important source of export earnings (98% in Guinea-Bissau)
- **Forgone value of domestic processing***
 - If East African target of 17% of total production processed in region is reached:
 - 10,000 direct jobs paying USD 9M wages
 - USD 50M processing revenues
 - Domestic demand created for 270,000 farmers
 - Up to 50% increase in export earnings from kernel sold
 - Unquantified further economic stimulus

* Assumes target of 17% of production (current East African proportion) with incremental processing following the Mozambican TechnoServe model of medium-scale, manual shelling technology
 Sources: TechnoServe analysis



The impact from a single processing unit of 1,000 MT annual raw nut capacity in Mozambique



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International standards for cashew processing either relate to product standards or process standards

Product characteristics

- Classification of kernel products by various qualities (eg. Size, colour, moisture, oil content, broken/whole etc)
 - There are two classification systems: Indian/(African) and Brazilian
 - UN has endorsed a standard for comparing systems (1999)
 - Kernel prices are determined by reference to these systems
- Final/consumer product labelling and packaging standards, different in each market
 - USA: FDA Food Labeling Guide (1994)
 - EU: Directive 2000/13/EC

Process

- General application standards
 - FAO introduced HACCP (Hazard Assessment and Critical Control Points) is the international benchmark concerning cashew nut industry
 - Adopted by FDA and EU but the necessity of HACCP practices and/or certification is debated
 - Environmental standards ISO14000 concerning pesticides, shells
- Specialist standards and certifications for access to niche/premium markets
 - Fair trade, eg. Fairtrade Labelling Organisations International
 - Organic standards and certification, eg. Organic Crop Improvement Association International, Inc. certified Guinea-Bissau cashew producers

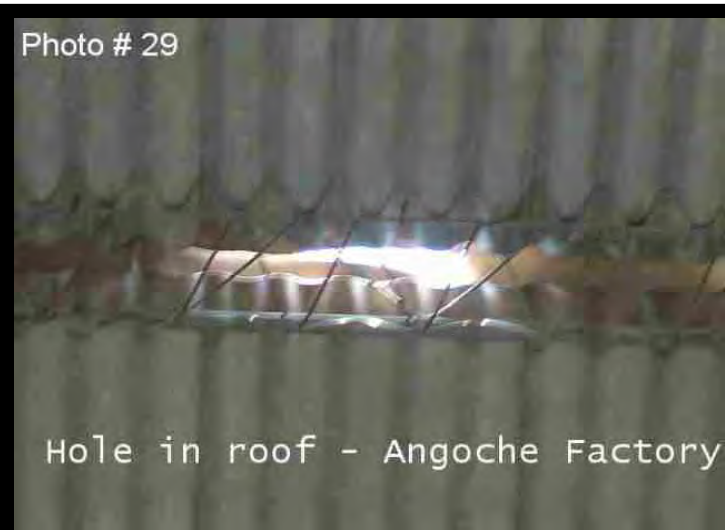
HACCP principles in general, and their application to primary production

EU guide to Regulation (EC) no. 852/2004 ... on the hygiene of food stuffs

- “These principles prescribe a certain number of requirements to be met throughout the cycle of production, processing and distribution in order to permit, via hazard analysis, identification of the critical points which need to be kept under control in order to guarantee food safety:
 - identify any hazards that must be prevented, eliminated or reduced to acceptable levels;
 - identify the critical control points at the step or steps at which control is essential;
 - establish critical limits beyond which intervention is necessary;
 - establish and implement effective monitoring procedures at critical control points;
 - establish corrective actions when monitoring indicates that a critical control point is not under control;
 - implement own-check procedures to verify whether the measures adopted are working effectively;
 - keep records to demonstrate the effective application of these measures and to facilitate official controls by the competent authority.”

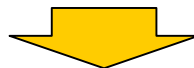
Paragraph (11) preamble: **“The application of HACCP principles to primary production is not yet generally feasible.** However, guides to good practice should encourage the use of appropriate hygiene practices at farm level.”

Examples of HACCP principles applied to cashew processing in Mozambique



Is HACCP demanded by the USA and European markets?

	Profile	Opinion of HACCP
Olam Industries	<ul style="list-style-type: none"> World's largest buyers of raw cashew nut Processes cashew in 7 origins (including West and East Africa) Among world's largest brokers of cashew kernel (#2 broker of African kernels) 	<ul style="list-style-type: none"> Introduced HACCP practices in factories in Africa with planned certification of all factories during the next 1-2 years Currently sees no premium for HACCP certification in the USA or Europe (but more important for Europe) Believes that premium will develop in 3-4 years
Global Trading and agency bv	<ul style="list-style-type: none"> #1 broker of African kernels Sells primarily to Europe and South Africa 	<ul style="list-style-type: none"> Believes that all factories must at least demonstrate that they are taking measures to implement HACCP standards
TechnoServe	<ul style="list-style-type: none"> Assisted 14 entrepreneurs to establish the largest kernel processing organization in Africa (Mozambique) 	<ul style="list-style-type: none"> Introducing HACCP standards with Swiss development funding Will not recommend certification until there is a perceptible premium
Richard Franco	<ul style="list-style-type: none"> #1 global broker of cashew kernel #1 broker to USA 	<ul style="list-style-type: none"> HACCP important for processors in non-traditional geographies to give buyers confidence if they have no previous experience with the geography (especially European buyers)



Consensus

- HACCP is growing in importance but currently
 - HACCP is more important in Europe than in other markets
 - Export occurs to both Europe and USA without HACCP standards being in place
 - There appears to be no premium for actual HACCP certification, but there may be a risk associated with not following HACCP practices

Some West African processors export to the USA and Europe while being far from 'HACCP standard'

Nigerian processor exporting to USA (via family contact)

Reasonable quality output...

...but poor quality process



Examples of unacceptable levels of hazards in West African processing

Nigeria:
unhygienic
kernel storage
awaiting peeling
stage



Benin: storing kernel
testa within factory
building (should be
disposed of
immediately after
removal)



Guinea-Bissau: kernel
packaging without introducing
an inert gas



Nigerian and Beninese final products, with output and packaging being short of USA and European demands

Nigerian: dry texture and scorched flavour

Beninese: Boulamb has quality packaging



A 10% premium can be expected for organically certified cashews, while the premium for Fair Trade depends on individual contracts

	Fair Trade	Organic
Olam Industries	<ul style="list-style-type: none"> Are not involved in Fair Trade 	<ul style="list-style-type: none"> Are observing premium of ~10% Have certified farmers in Tanzania for organic production
Global Trading and agency bv	<ul style="list-style-type: none"> Fair Trade premium depends on the negotiated price relative to market price <ul style="list-style-type: none"> Eg. Current market price is \$2.45/lb of W320, while a Global Trading Fair Trade price was negotiated at \$2.25/lb 1.5 years ago 	<ul style="list-style-type: none"> Believes that all factories must at least demonstrate that they are taking measures to implement HACCP standards
Richard Franco Agency	<ul style="list-style-type: none"> Are not involved in Fair Trade 	<ul style="list-style-type: none"> Are observing premium of ~10% Expect premium to decline with increasing supply of organic cashews
		
	<ul style="list-style-type: none"> Requires cost-benefit analysis and dependent on individually negotiated contract 	<ul style="list-style-type: none"> Suitable for West African processors owing to lack of pests in region that require inorganic treatment Requires cost-benefit analysis

Potential candidates for WATH market linkage assistance, with profiles that may be appropriate for access to niche markets in USA (Fair Trade and organic)

Country	Organisation	Processing activities
Benin	AFOKANTAN BENIN CASHEW	Bulk
	AFETRACA (Boulamb)	Final product
	Pride of Benin Association	Bulk & final product
Senegal	ATAC (EWW)	Bulk & final product
Guinea-Bissau	Djonje	Bulk & final product
	Caju Criole	Final product



Further investigation required to assess viability of these processors accessing niche USA markets

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Processor profitability comparison – key assumptions

Key assumptions to create approximate ‘like-for-like’ comparison between cashew nut processing profitability across countries

- Standalone processing factory, ie. without upstream (production/farming) or downstream (kernel marketing / secondary processing) integration
- Scale greater than 500MT of raw cashew nut processed per annum
- ‘Indian semi-mechanical’ process technology, with manual cracking machinery either designed in India, Vietnam, Brazil or in Africa
- Observed ‘best practice’ (ie. most profitable, highest productivity) example is used for each country surveyed
- Kernel sales price is approximate observed price for African kernels, adjusted for quality of output
- Profitability benchmarks outside West African region
 - African best practice: Mozambique
 - World best practice: India

Processor profitability comparison – using a ‘best practice standalone’ model from each country

 = High priority intervention areas
 = Medium priority intervention areas

	Ivory Coast	Guin.-Bissau	Benin	Nigeria	India	Mozambique
Price/revenue						
Whole kernel yield (% of output)	75%	70%	75%	70%	84%	75%
Relative proportion W320 grade*	Medium	High	High	Low	High	Medium
10% 'rebate' (Nigeria only)**				0.44		
C&F price (USD/kg)	4.96	4.70	4.96	4.86	5.43	4.96
RCN*** cost						
Kernel recovery (% of RCN)	21%	24%	22%	20%	24%	20%
RCN volume (kg/1kg kernel)	4.76	4.17	4.65	5.00	4.17	5.00
RCN price to farmer (/kg kernel)	2.10	2.29	2.30	1.98	3.72	2.50
Commission (USD/kg)	0.18	0.21	0.13	0.25	0.06	0.18
Transport (USD/kg)	0.22	0.08	0.12	0.15	0.05	0.22
Total RCN cost	2.49	2.58	2.55	2.38	3.84	2.90
% of revenue	50%	55%	51%	49%	71%	58%
Operating & financial costs						
Non-financial (USD/kg)****	1.45	0.98	0.99	1.09	0.58	1.10
Financial (USD/kg)	0.23	0.38	0.23	0.63	0.13	0.20
Shipping (USD/kg)	0.30	0.30	0.30	0.40	0.13	0.30
Total operating cost	1.98	1.66	1.52	2.12	0.83	1.60
% of revenue	40%	35%	31%	44%	15%	32%
Pre-tax profit						
	0.49	0.47	0.89	0.36	0.76	0.47
% of revenue	10%	10%	18%	7%	14%	9%

* W320 grade ('white whole' with 320 kernels per pound weight) is the most 'saleable' kernel grade and hence most profitable

** Without 10% rebate, Nigerian best practice processor profitability is negative (-2% as % of sales)

*** "RCN" = Raw Cashew Nut

**** 85% fixed and variable labour cost, 15% other fixed and variable costs

Production comparison

Orange box = High priority intervention areas

Yellow box = Medium priority intervention areas

	Ivory Coast	Guinea-Bissau	Benin	Nigeria	Ghana	India	Mozambique
Characteristics							
Quantity (MT)							
Actual	135,000	100,792	43,000	37,000	10,000	425,000	55,000
Forecast	145,000	106,839	43,000	37,000	10,000	525,000	60,000
Yield (kg/tree pa)	Unknown	4.00	3.25	Not known	2.00	10.00	3.00
Outturn (lb 'good' / 80kg)	46	53	49	44	48	52	44
Nut count (RCN*/1kg)	200	190	190	220	170	158	190
RCN price (USD/kg)							0
Actual	0.40	0.50	0.45	0.36	0.39	0.89	0.50
Outturn adjusted (using GB = 100)	0.46	0.50	0.49	0.43	0.43	0.91	0.60
Critical diseases/pests	None	None	None	None	None	None	PMD fungus
RCN marketing							
Level of organization of market							
Access to information	Poor	Poor	Poor	Poor	Poor	Good	Little
RCN grading	Poor	Poor	Poor	Poor	None	Widespread	None
Use of RCN (% of total)							
Processed domestically	1%	1%	3%	4%	2%		18%
Exported as RCN	99%	99%	97%	96%	98%		82%
Farming							
# farmers		1,040,000	860,000				940,000
# ha under cashew cultivation		175,000					
Av. farm size (ha)	Not known	2.50	Not known	Not known	Not known		1.50
Av. Yield / ha (kg)		576					
Av. Output /farmer (kg)		97				70	59
Cost/kg		0	0.2				
Agronomic practices							
Tree spacing	Non-existent/poor						
Replanting	Non-existent/poor						
Grafting	Non-existent/poor					Good	Poor
Clearing/pruning	Non-existent/poor						
Organic farming							
Organic practices	Not known	100%	100%	100%	100%	TBD	Inorganic
Certification	No	Yes	No	No	No	No	No



* "RCN" = Raw Cashew Nut
Sources: TechnoServe analysis



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Enabling environment comparison

= High priority intervention areas
 = Medium priority intervention areas

	Ivory Coast	Guinea-Bissau	Benin	Nigeria	Ghana
General					
Stable investment environment	Poor	Poor	Good	Fair	Good
Availability of finance	Fair	Poor	Fair	Poor	Fair
Infrastructure (roads, port)					
Roads	Good	Good	Good	Fair	Good
Port	Good	Fair	Good	Good	Good
Utilities	Good	Poor	Fair	Poor	Good
Agricultural support					
Research	Poor				
Extension					
Marketing					
Producer associations					
Processing support					
Raw nut tax	5.2%	8.5%	0.0%	0.0%	0.0%
Tax concessions	No concession	No concession	9 years+; EPZ	5 year holiday	
Other (eg. Rebate)	None	None	None	~20% 'rebate'	None
Institutional support					
Government	Poor	Fair	Fair	Fair	Fair
Civil society support	Poor	Good	Fair	Poor	Fair
Civil society organisations		EWW ROTA SNV LEAD	BTI SNV	EfDI	Chemonics