

Cassava: A Strategic Commercial and Food Security Crop in the COMESA Region

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for the
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Objectives

1. Examine why cassava is a strategic food staple in the COMESA region.
2. Summarize two ongoing efforts to promote cassava commercialization
 - a. the Cassava Transformation in Southern Africa (CATISA): accelerating cassava commercialization and processing regionally
 - b. Zambia's Acceleration of Cassava (ACU) Task Force: a model for involving the private sector

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Part I: Outline

- **Cassava's strategic importance**
 - **Food security**
 - **Commercial crop**
- CATISA: accelerating cassava commercialization and processing in the region
- Involving the private sector: Zambia's ACU Task Force

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Cassava as a food security crop

- **High productivity** (30% to 100% higher calorie production per unit of labor and land than maize)
- **Drought resistant**
- **Flexibility:** only staple harvested early in the rainy season; harvest all year round and over 2-3 years
- **Drought-year shock absorber:** increased cassava consumption permits maize export from dual-staple zones

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Highly productive new cassava varieties



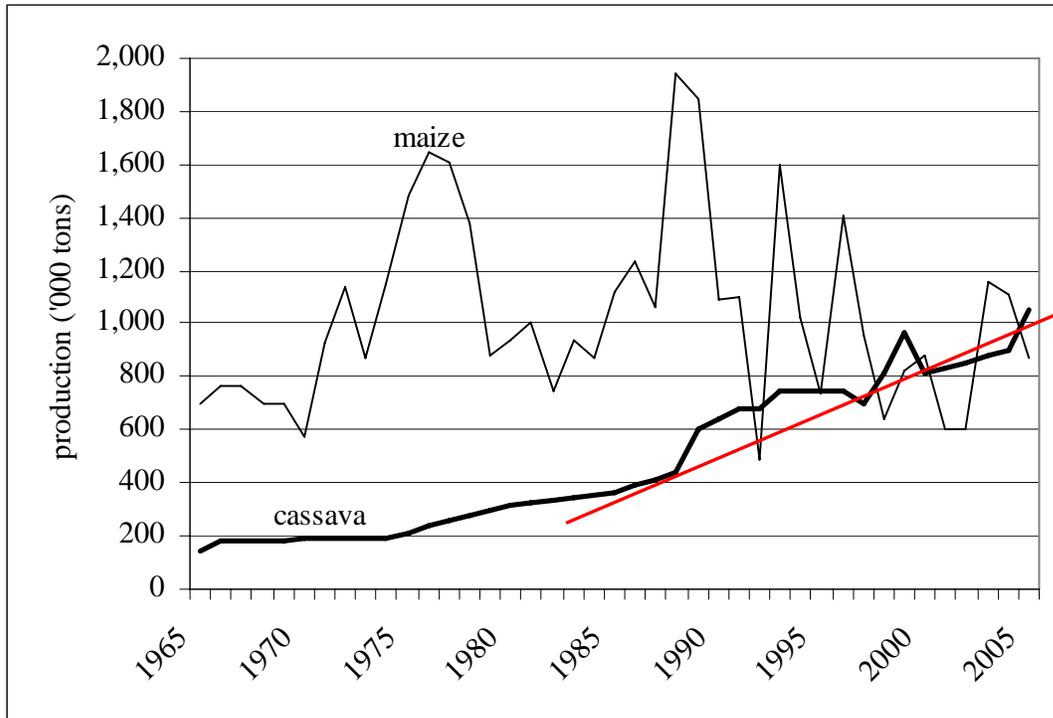
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Slide 5

a1 New Tropical Manioc Selection cassava varieties yield over 20-30 tons per hectare, compared to 7-10 tons for most traditional varieties.
aecsetup, 11/5/2007

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Cassava is drought-resistant



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Slide 6

a2 cassava is drought resistant. maize, in contrast, it highly susceptible to moisture. Given dependence on rainfed crop production, maize output proves extreme volatile, as a function of the rains.

aecsetup, 11/5/2007

Cassava is drought-resistant

- So cassava production is stable from one year to the next.
- Maize production, in contrast, varies wildly from one year to the next, along with fluctuations in rainfall.
- If global warming and regional climate change indeed leads to more frequent droughts in the region, then cassava's importance in moderating food shortfalls will increase.

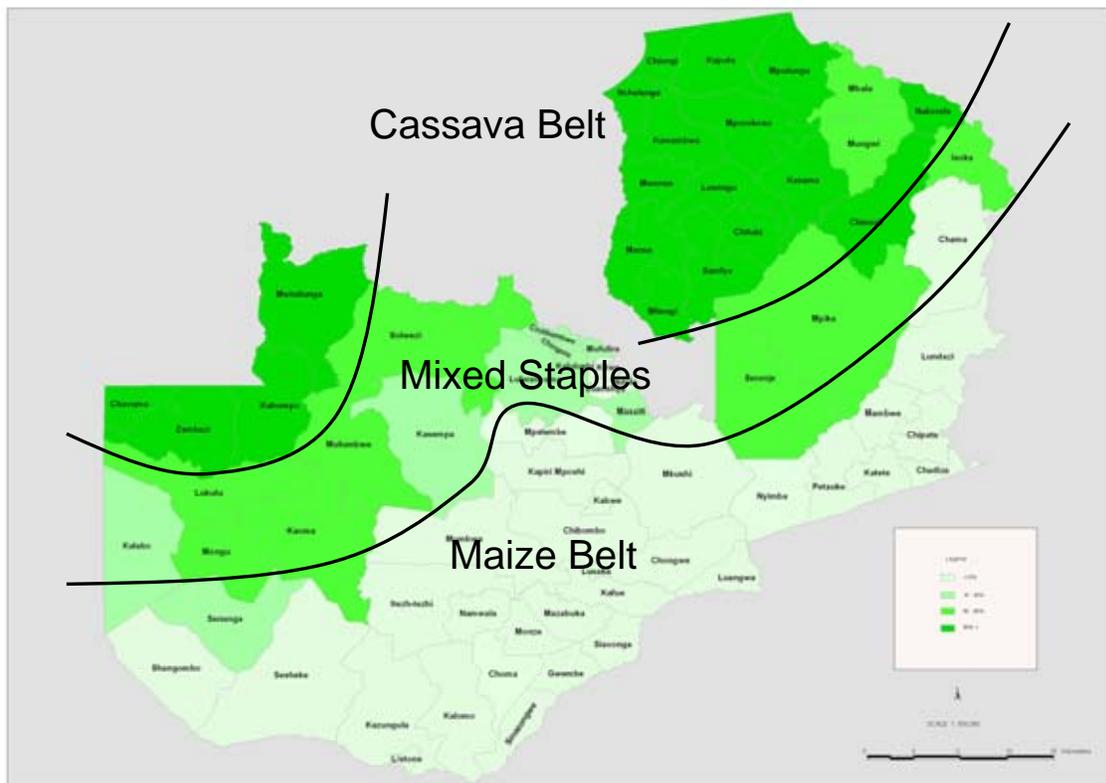
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Cassava serves as a drought-year shock absorber

- Dual-staple zones (FSEHS) are able to reduce internal maize consumption and even export maize during drought years

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Food Staple Zones in Zambia



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Characteristics of food staple zones

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	Cassava belt	Mixed staple zone	Maize belt
Percent of households growing			
Cassava	96%	65%	3%
Maize	49%	85%	95%
Cassava production (kg/person)			
	280	120	40
Cassava commercialization			
% hh sell	26%	30%	45%
Sales/prodn	6%	10%	25%

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aecsetup, 11/5/2007

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household in the cassava belt and mixed staple zone grow both cassava and maize

aec_user, 11/6/2007

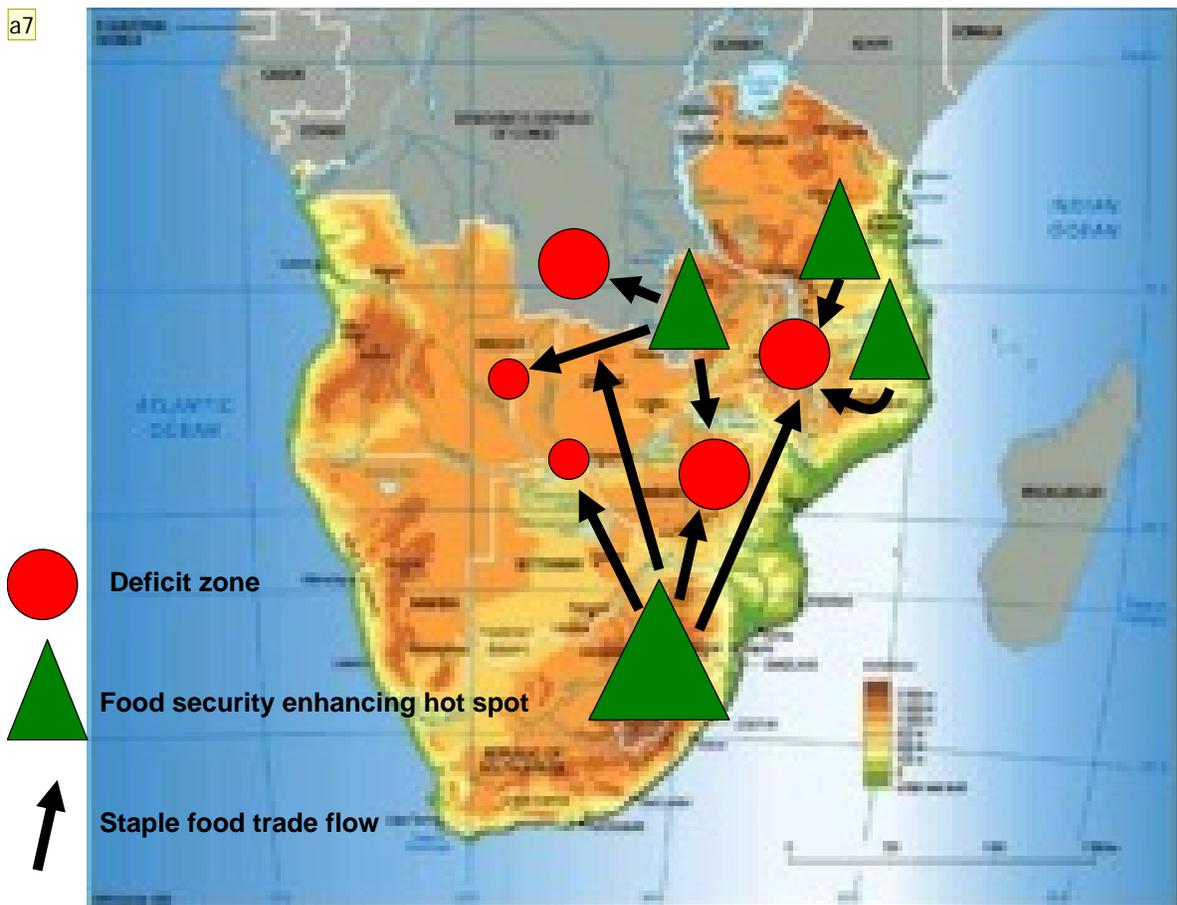
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Food staple consumption in Zambia ('000 tons)

	Cassava belt	Maize belt	All Zambia
Cassava	270	12	282
Maize	376	525	901
Cassava plus maize	646	537	1,183

- a5 Note the large volume of maize consumed in the cassava belt. Since households in this region consume both cassava and maize, they are willing and able to substitute one for the other when scarcity prevails.
aecsetup, 11/5/2007

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- a7 Cassava consuming regions such as northern Mozambique, southern Tanzania and northern Zambia all release maize for export during drought years.
aecsetup, 11/5/2007

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Open borders plus consumer substitution among food staples

30% fall in maize prodn	Closed border	Open border
Maize price	+163%	+36%
Poor household consumption (‘000 tons of maize-equivalents)		
Maize	-100	-43
Cassava	+43	+11
Total	-57	-33

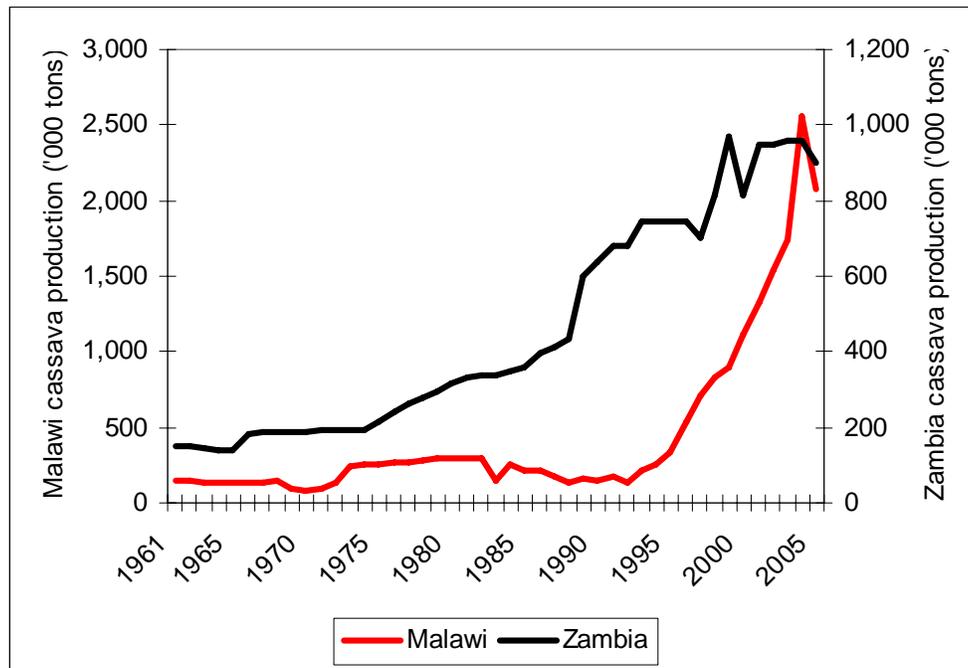
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- a6 Column 1 shows the importance of consumer substitution of cassava for maize (this occurs primarily in the cassava belt). A simpleminded food balance sheet approach to the drought would estimate a 100,000 ton maize shortfall. Government and donors would import too much maize.
Column 2 shows the benefits of consumer substitution and cross-border trade. Together, these two private sector responses would mitigate two-thirds of the maize shortfall facing vulnerable households.
aecsetup, 11/5/2007

Cassava as a commercial crop

- New varieties trigger a production surge
- High productivity → low cost carbohydrate for foods, feeds and industrial starches and sweeteners

Regional cassava surge



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Slide 15

a8 new cassava varieties trigger a production surge
aecsetup, 11/5/2007

Cassava price

	Price cassava/ price maize
Cassava belt	0.5
Mixed staple zone	.66
Maize belt	1.2

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higher productivity translates into lower cost of production and hence lower price for cassava
aecsetup, 11/5/2007

Low cassava price makes it commercially profitable for businesses to substitute cassava for wheat or maize

- In breads and biscuits
- In animal feeds
- In industrial starches and sweeteners

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Can production growth continue?

- Yes, farmers can increase output.
- But without growing markets, production growth will stall

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Part II: Outline

- Cassava's strategic importance (Boughton)
 - Food security
 - Commercial crop
- **CATISA: accelerating cassava commercialization and processing in the region**
- Involving the private sector: Zambia's ACU Task Force

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CATISA: The Cassava Transformation in Southern Africa

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CATISA Objectives

- Accelerate cassava commercialization through comparative cross-country analysis and cross-fertilization with stakeholders
- Understand how and why commercialization processes differ across countries and zones
- Share & improve cassava processing technology and food safety procedures across countries
- Understand and develop mechanisms to reduce Consequences of Commercialisation vis-à-vis HIV/AIDS, Gender & environment

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The aim of the CATISA development project

To inject results of project into ongoing policy fora by promoting regional policy dialogue among farm groups, agribusiness and government and donors, all in an effort to effect change in policies, public investments and private sector institutions required to promote national and regional cassava production, processing, consumption and trade.

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CATISA consortium

- Consists of a research & development consortium spanning the R&D-policy nexus
- Development Action-oriented
- South-North Public Private Partnership: Researchers, practitioners & private sector from 4 African countries: Tanzania, Malawi, Mozambique and Zambia, as well as from the US, Sweden and Denmark.

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The Broad Research & Development Questions

- Will the cassava commercialization process unfold differently in Southern Africa than it did in Western Africa?
- How and why does this process vary across the four countries?
- How can processors and policy makers learn from experiences of neighboring countries?
- What is needed to drive the commercialization forward?

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CATISA COMPONENT TASKS

1. Zonal Mapping
2. Farm productivity and production analysis
3. Value chain analysis
4. Processing technology and safety of food and feed products
5. Consequences of Commercialisation vis-à-vis HIV/AIDS, Gender & Environment

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CATISA COMPONENT TASKS

- 1. Zonal mapping**
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1. Zonal Mapping

- Identify maize belt, alternative staple (cassava or banana) zones and mixed staple zones
- Map them
- Quantify magnitude of staple food production and consumption in each zone
- Identify direction of food staple trade flows in normal and drought years
- Define regional staple food market sheds

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2. Farm Productivity And Production Analysis

- Quantify levels and trends in cassava area, production and yield
- Measure diffusion rate of new varieties
- Measure impact of the cassava surge on farm families (labor allocation, gender, production of other staples)

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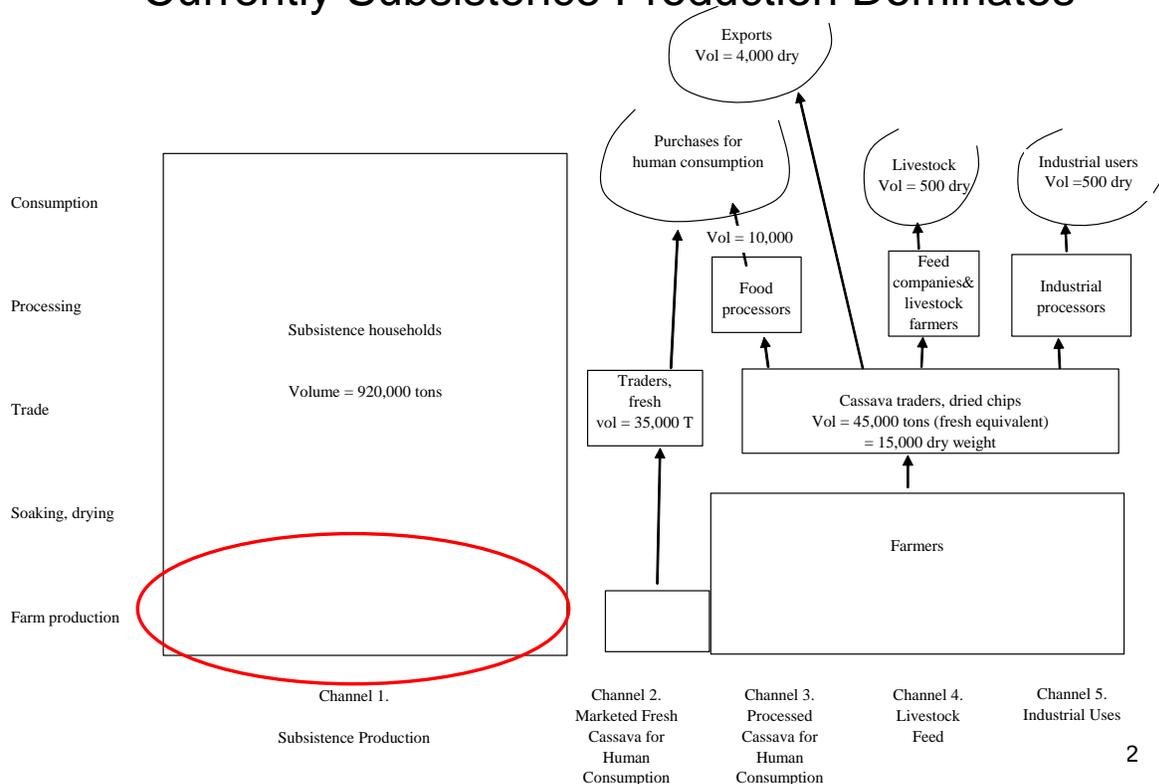
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3. Value Chain Analysis

- Compare structure and dynamics of cassava commercialization across countries and food staple zones
- Identify driving forces in commercial cassava development
- Identify key policies and commercial practices that facilitate cassava processing and commercial growth

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Zambia's Cassava Value Chain: Currently Subsistence Production Dominates



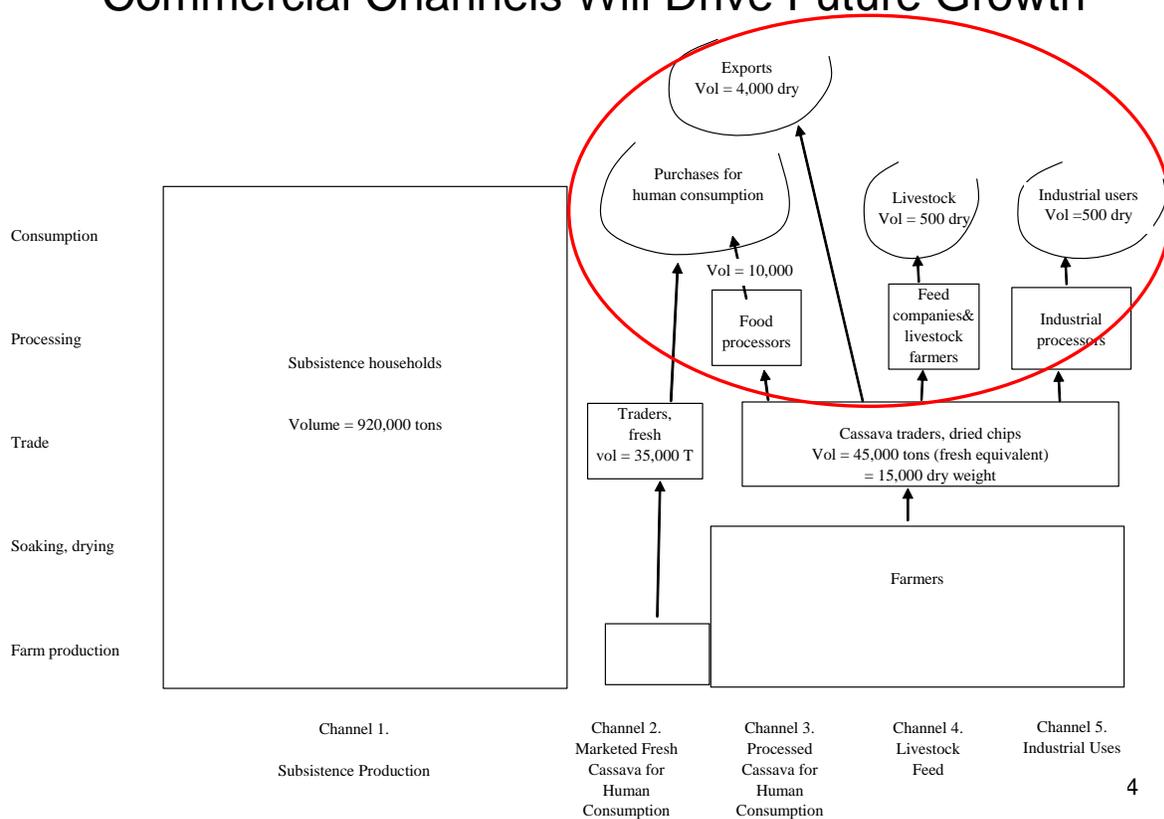
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Channel 1. Subsistence



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Commercial Channels Will Drive Future Growth



Channel 2. Fresh Sales

(now account for 40% of Malawian production)



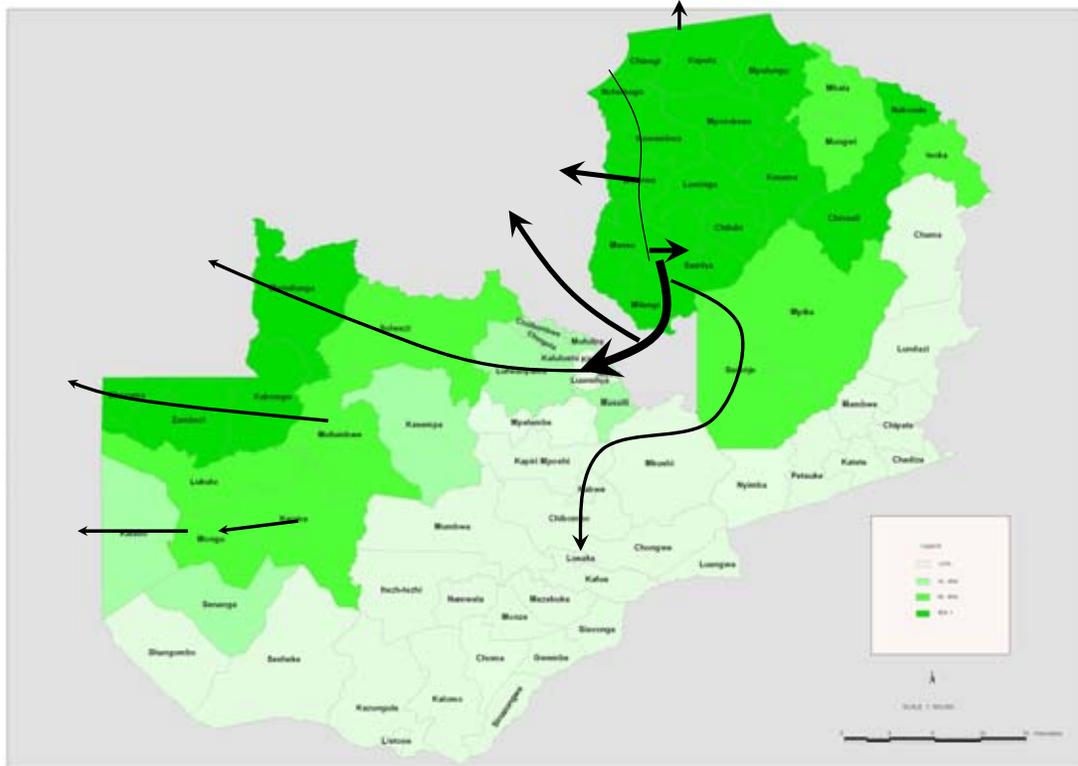
Channel 3. Human Foods

(domestic and export trade in dried chips is growing steadily, convenience foods, composite flours in development)



Dried Cassava Trade Flows

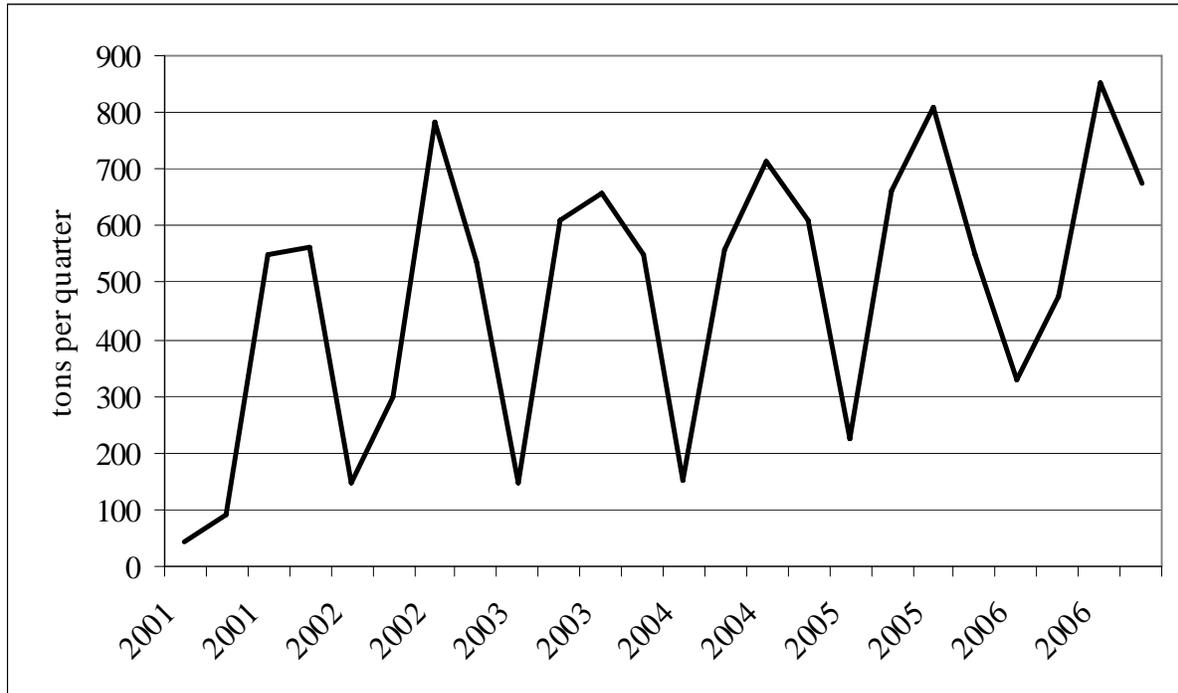
(for snack foods, flour, feeds and industrial processing)



Dried Cassava Transiting The Chembe Border Post



Dried Cassava Transiting The Chembe Border Post



Channel 4. Feeds

(Tiger Feeds has begun buying cassava)



Channel 5. Industrial Processing

(starch, sweeteners, industrial adhesives)



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Opportunities ('000 tons fresh)

Channel	Current size	Growth potential
1 Subsistence	920	2% pop growth
2 Fresh Sales	35	+ 50
3 Human foods	42 (14 dry)	Wheat flour 10% +40 Maize flour 10% +200 Convenience foods +500
4 Animal Feeds	1.5 (0.5 dry)	+ 100
5 Industrial	1.5 (0.5 dry)	Sweeteners +40 Ethanol +100 Other ?

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3. Value chain analysis
- 4. Processing technology and safety of food and feed products assessment and cross-fertilization**
5. Consequences of Commercialisation vis-à-vis HIV/AIDS and Gender

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4. Technology Assessment And Cross-fertilization

- Identify key cassava products across countries
- Identify key processing technologies
- Evaluate food safety of various products and processing technologies
- Facilitate cross-fertilization of new products and technologies across countries

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Prospects For Commercial Cross-fertilization

	Cassava-based commercial products
Malawi	Ethanol
Mozambique	Cassava crisps Cassava cheese bread
Zambia	Animal feeds, Composite foods (bread, biscuits)

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Cassava Processing Requires Scientific Study

	Published articles on physical properties of various starches
Cassava-based starches	200
Maize-based starches	2,000

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Cassava Food/Feed Safety

- Field survey and testing of cassava cyanogenesis and mycotoxin
- Baseline study on current processing technology and food safety perceptions
- Quantitative determination of cyanide content in cassava & its processed products consumed and marketed
- Product safety standards

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Part III: Outline

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- **Involving the private sector: Zambia's ACU Task Force**

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ACU Task Force Timeline

- June 2005: cassava presentation at ACF
- New ACF chairwoman
- Consensus:
 - higher productivity of new varieties → major economic opportunity
 - Continued growth of cassava production required growing markets
- ACF invites stakeholders to help constitute Cassava Utilization Task Force

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Task force objectives

- realize commercial potential of cassava
- enhance its contribution to household food security

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ACU Task Force members

- **Private sector** (feed companies, traders, processors)
- **NGOs and projects** (PAM, SNV, FSRP)
- **Public sector** (ZABS, ZARI)
- **ACF**

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ACU Task Force principles

- **Open membership**
- **All information → public domain**
- **Value chain perspective**
- **Facilitate private sector**
- **Zero budget**
- **evolving strategic road map**

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ACU first-round steps

- Value chain review
- Assessment of past promotional efforts
- Identification of first-round opportunities and constraints

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First-round activities (18 months)

- Ch 4. Feeds (LDT feeding trials)
- Ch 3. Human foods (taste panels, composite flours)
- Ch 2. Industrial sweeteners
- Standards (ZABS, processors, food safety labs)
- Market monitoring (prices, volumes, spatial dispersion)

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First round results

- Livestock feeding trials
 - cassava rations → same growth as maize
 - viable if 60% to 70% price of maize
- Major feed company starts buying cassava
- ZABS issues standards for cassava chips and flour
- Composite wheat flour most promising in Channel 3
- Market monitoring results

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Task Force 2nd round

- Regional sub-committees (cassava belt and maize belt)
- Cross-country learning
 - food products
 - industrial products
 - technologies

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Conclusion

- Cassava is a strategic but underappreciated food staple
- Full development of this potential will require active support for cassava processing and commercial development
- Ongoing efforts offer lessons for scaling up and expanding this important work