



Global Bioenergy Partnership

Biofuels in Africa - Risks and Opportunities

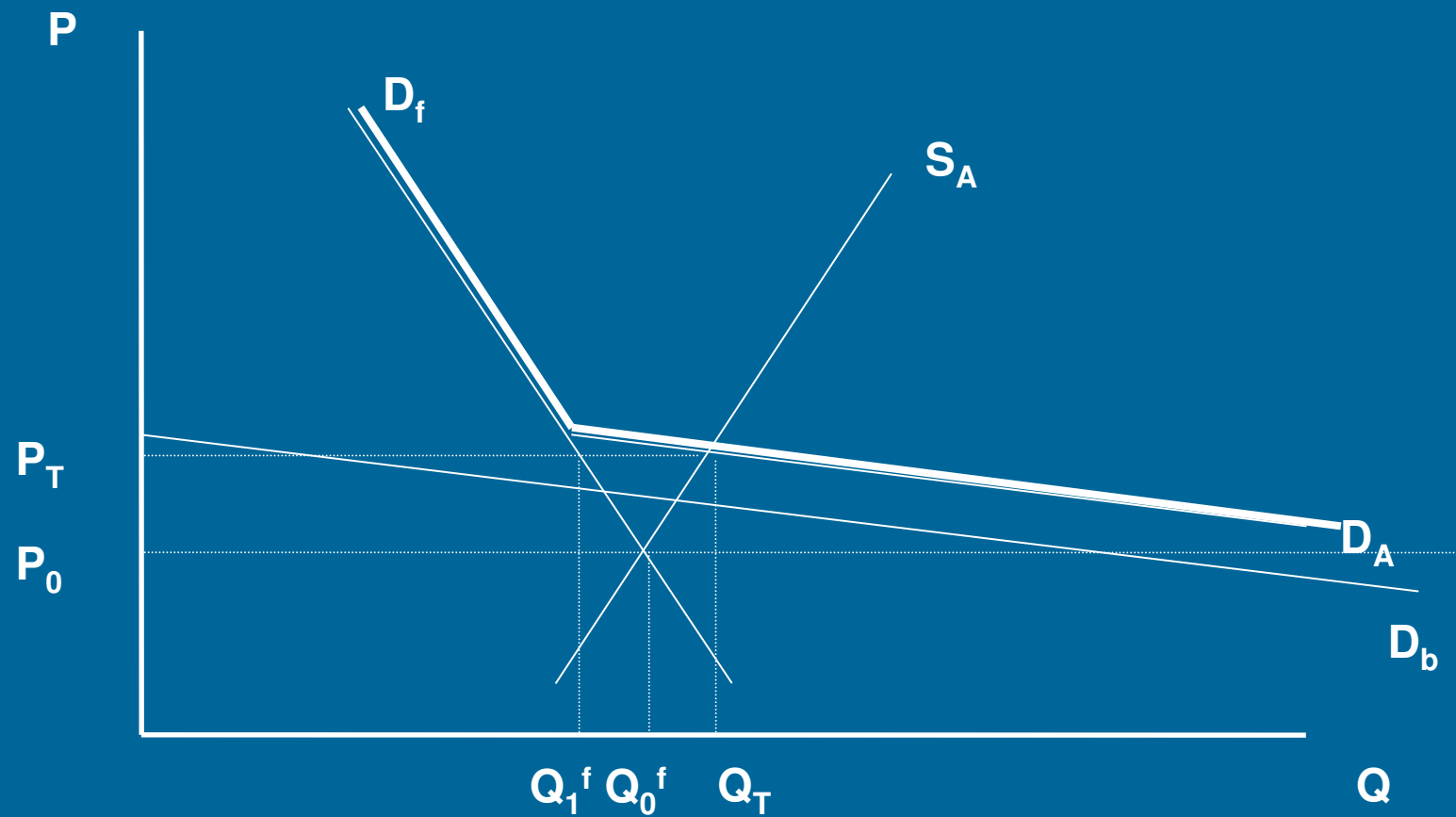
Food, Feed or Fuel?

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Introduction

- ❑ Food, Feed or Fuel?
 - ❑ Risks and Opportunities
 - ❑ Global Bioenergy Partnership
 - ❑ Bioenergy and Food Security
 - ❑ Conclusions and contacts
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Price response to aggregated demand



Source: FAO Commodities and Trade Division

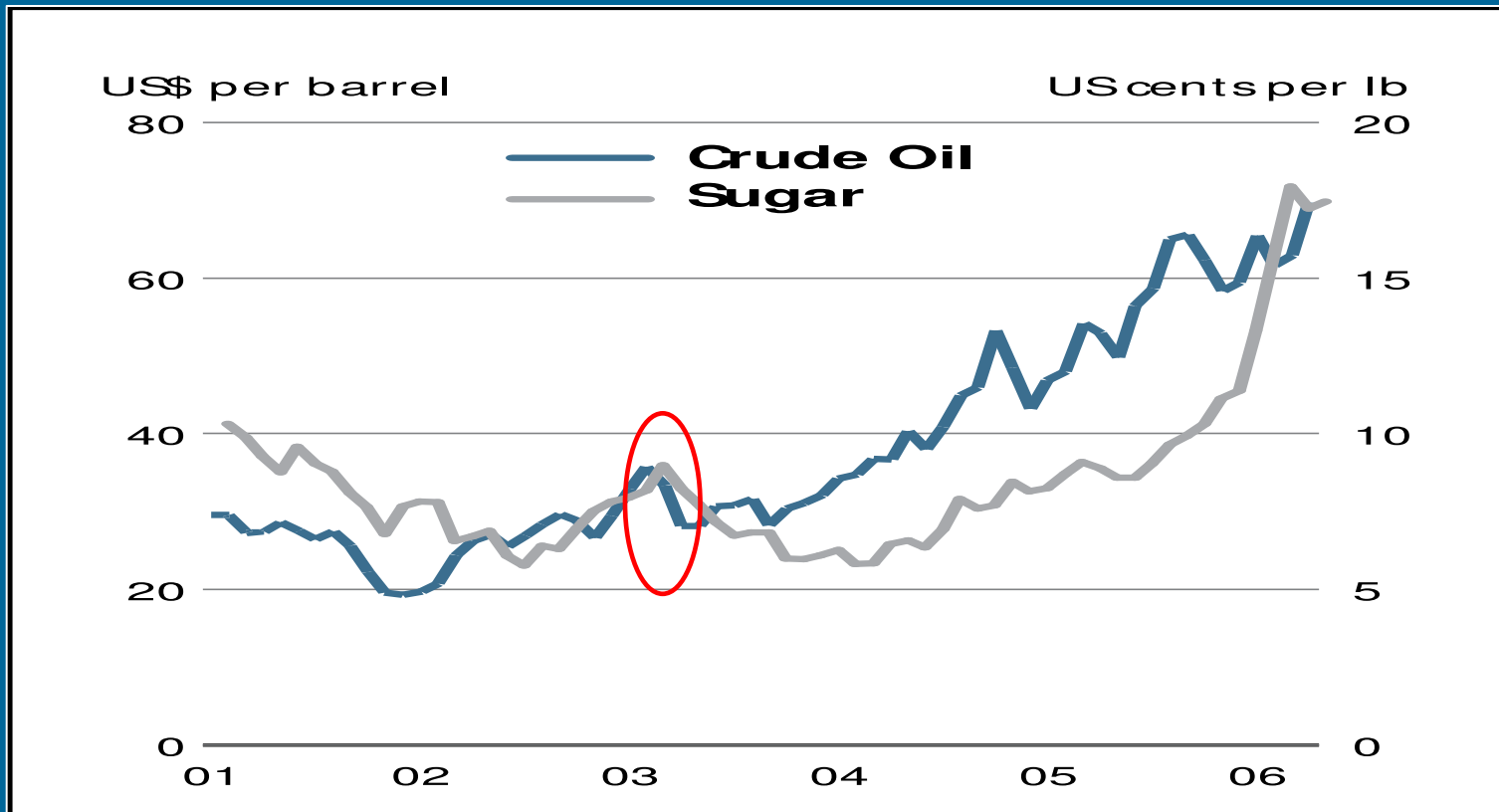
Impacts on international commodity prices FAO Agriculture@2030 Simulation Results

	<i>- and additional 10 million tonnes...</i>				
Feedstock	Sugar	Maize	Sugar and Maize	Soybeans and Maize	Sugar, Maize Soybeans
Corresponding energy [biofuels]	0.195 EJ	0.087 EJ	0.282 EJ	0.167 EJ	0.349 EJ
Commodity	<i>... used for biofuels would change international prices over longer term by...</i>				
Sugar	+9.8	+1.1	+11.3	+2.3	+13.8
Maize	+0.4	+2.8	+3.4	+4.0	+4.2
Vegetable oils	+0.3	+0.2	+0.2	+7.6	+7.8
Protein	+0.4	-1.2	-1.2	-8.1	-7.6
Wheat	+0.4	+0.6	+0.9	+1.8	+2.0
Rice	+0.5	+1.0	+1.2	+1.1	+1.4
Beef	+0.0	+0.2	+0.2	+0.4	+0.4
Poultry	+0.0	-0.4	-0.4	-2.1	-2.0

Source: FAO Agriculture@2030 Simulation Results, J. Schmidhuber

Strong linkages

Raw sugar and crude oil prices > 30 USD/barrel



Source: NYMEX, IEA, FAO

Estimated *parity* prices

Crude oil and sugar

Crude oil price (US\$ per barrel)	Raw sugar (NY#11 (US cents per pound)
40	7.52
60	12.94
65	13.37
70	13.98

Source: FAO Commodities and Trade Division

Biofuels in Africa

□ First Generation

- Ethanol - maize, sugarcane or sugarbeet, sorghum, wheat
- Biodiesel – soybeans, rapeseed, sunflower, jatropha
- Sugarcane = currently major feedstock in Africa

□ Second Generation

- Cellulosic, residues, wastes (non-food crops) – important shift
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International comparison of ethanol incentives (US cents/litre)

Country	Production incentive	Reduced excise tax	Import tariff (MFN)	Exceptions from tariff
Australia	—	28.9¢ Value of rebate on excise tax	28.9¢ Effective rate because excise tax not rebated	None
Brazil	—	30¢ (Sao Paulo)	—	MERCOSUR
Canada	up to 16.4¢ (variable rate)	up to 15.1¢ (BC)	4.3¢	NAFTA, DR-CAFTA, Chile
EU	—	up to 70.9¢ (Ger)	24.1¢	EFTA, GSP (excludes Brazil)
Switzerland	—	57.8¢	27.7¢	EU, GSP (includes Brazil)
USA	13.5¢ + state	up to 8.4¢ (MO)	2.2% + 14.3¢	NAFTA, CBI, DR-CAFTA

Source: Drexhage and Steenblik, IISD-GSI, *Subsidies and Biofuels in the United States* (2006).

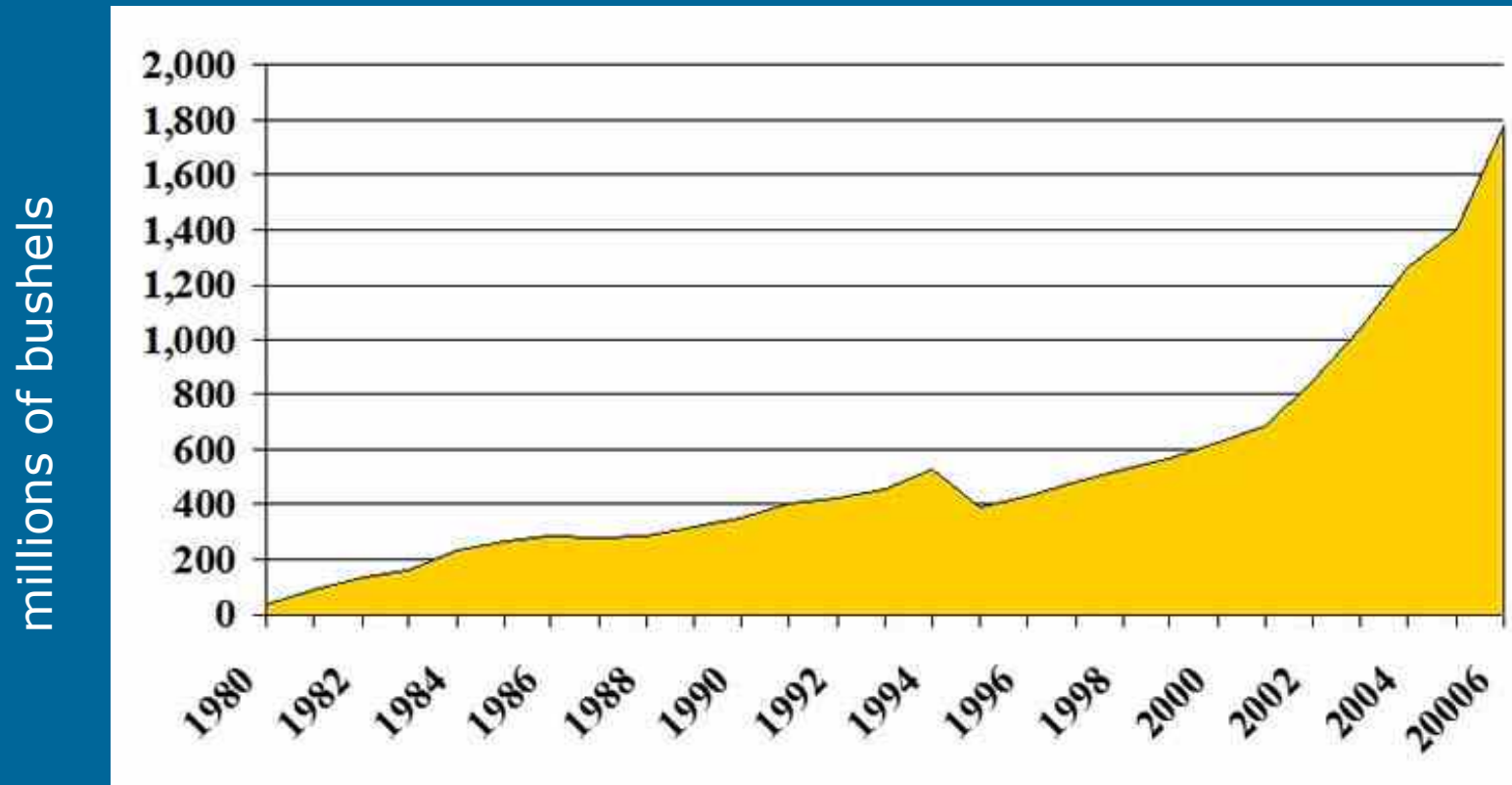
Sugar Production - *Expansions*

Country	-----Sugar	Production--	Increase
	2005/2006	2010/2011	
Ethiopia	300 000	450 000	150%
Malawi	263 536	350 000	33%
Mozambique	260 093	480 000	85%
Sudan	750 000	1 000 000	250%
Swaziland	643 688	740 000	25%
Tanzania	302 000	570 000	89%
Zambia	242 195	430 000	78%
Total	1 711 512	2 570 000	50%

Biofuel Initiatives

- ❑ Tanzania, Zambia, Mozambique, Zimbabwe and South Africa – ethanol production
 - ❑ South Africa – new National Strategy, two new mills + ethanol + sugarbeet
 - ❑ Angola revitalizing, DRC and Madagascar small sugar industries
 - ❑ Sudan, Ethiopia, Malawi, Zambia – lowest production costs - expanding
 - ❑ Burkina Faso, Cote d'Ivoire, Mali, Senegal – all have proposals for ethanol production
 - ❑ Benin/Guinea-Bissau – cassava/cashew
 - ❑ Niger/Togo – Jatropha
 - ❑ Policy environment – create markets
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US corn used for ethanol



Source: Iowa Corn Promotion Board, GSI-IISD 2006

Risks

- ❑ Poor land use and crop choice
 - ❑ Price pressures in near to medium term, particularly net food importers
 - ❑ Dietary convergence – increased demand for livestock feed
 - ❑ Second generation fuels – pressure on less competitive sugar industries
 - ❑ Globalization – follow investment patterns
 - ❑ Trade (WTO or regional) uncertainties
 - ❑ Uneven distribution of benefits - factors of exclusion
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Opportunities

- ❑ Dedicated market outlet for farmers
 - ❑ Rural employment
 - ❑ Increased incomes
 - ❑ New business models or cooperative approaches may emerge
 - ❑ Carbon trading – minimum carbon savings will have to be certified
 - ❑ Consumers – carbon footprints
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Global Bioenergy Partnership

*Global Bioenergy Partnership
working together to promote bioenergy for sustainable development*

- ❑ Launched May 2006
 - ❑ G-8 Agreement to Italian proposal
 - ❑ Current partners – G-8, China, Mexico, FAO, IEA, UNEP, UNDP, UNDESA, UNCTAD, UNIDO, UN Foundation, WCRE and EUBIA
 - ❑ Italy, Chair and Mexico, Co-Chair
 - ❑ FAO current Secretariat host
 - ❑ GBEP-Secretariat@fao.org
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- ❑ Global policy dialogue to exchange information
 - ❑ Foster efficiency and sustainability
 - ❑ Integrate bioenergy into energy markets
 - ❑ Promote multidisciplinary approach
 - ❑ Currently elaborating final work programme
 - Bioenergy and Trade
 - Bioenergy and Sustainability
 - Methodologies for measuring reductions of GHG emissions
 - ❑ FAO Partnering through International Bioenergy Platform (IBEP)
 - Bioenergy and Food Security Project
 - Thematic Conference 2007
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Food, Feed or Fuel? **Bioenergy and Food Security**

- ❑ Country typologies and food security contexts
- ❑ Energy transition < 5000 USD GDP – clear problems for importers, clear benefits for commodity exporter economies
- ❑ Poor spend >60% HH income on food, trade-off from lower energy prices/higher food prices offers no benefit
- ❑ 33% of rural SSA HHs are headed by women, lacking access to factor inputs, environmental degradation, water and fuel shortages
- ❑ Availability, Access, Utilization and Stability

Linkages between bioenergy and food security

Food and Energy Security Assessments?

Potential Positive Effects	Food Security Indicators	Potential Negative Effects
<ul style="list-style-type: none"> <input type="checkbox"/> Diversification of feedstock crops <input type="checkbox"/> Infrastructure development and employment (rural) <input type="checkbox"/> Competition for land use and other factor inputs <input type="checkbox"/> Diversification of domestic energy supply <input type="checkbox"/> HH energy burden reduced for women and children <input type="checkbox"/> SME energy access improved <input type="checkbox"/> New technological advances <input type="checkbox"/> Climate change mitigation <input type="checkbox"/> Revenue from payment for environmental services and monetization of carbon credits 	<ul style="list-style-type: none"> <input type="checkbox"/> Proportion of chronically undernourished (<5 stunting) <input type="checkbox"/> Adult literacy (+female) <input type="checkbox"/> Proportion of HH income to food (access) <input type="checkbox"/> Proportion own production of food (availability) <input type="checkbox"/> Population growth <input type="checkbox"/> GDP growth per capita <input type="checkbox"/> Agricultural contribution to GDP growth (%) <input type="checkbox"/> Health expenditures <input type="checkbox"/> Adult HIV population <input type="checkbox"/> Number of food emergencies (stability) <input type="checkbox"/> Degree of import or export dependence <input type="checkbox"/> Access to water and sanitation facilities 	<ul style="list-style-type: none"> <input type="checkbox"/> Decreased access to food due to price increases driven by competition for biomass for energy vs food <input type="checkbox"/> Decreased food availability due to replacement of subsistence farm land by energy plantations <input type="checkbox"/> Increased environmental pressure due to introduction or expansion of unsustainable bioenergy systems (H2O pollution, loss of biodiversity, land degradation) <input type="checkbox"/> Pressure on prices of other goods and services related to land-use and biomass

Source: Nyberg and Juergens, FAO Bioenergy and Food Security Project Proposal (2006)

Conclusions

- ❑ Competition for land use in terms of food production might be overstated
 - ❑ Food security and bioenergy systems - complex macro, meso and micro level interaction
 - ❑ Regional, national and subnational analysis required
 - ❑ Large climate change mitigation potential
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Thank you

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