Conference Summary:

Agricultural Successes for the Greater Horn of Africa

Findings of an international conference
22-25 November 2004
Nairobi, Kenya

FOREWORD

Over the past generation, Africa has faced the most daunting demographic challenge of any region in modern history. Regrettably, agricultural performance has not matched this demographic advance. Consequently, malnutrition and poverty have grown to alarming levels. In 2003, 40 million Africans faced starvation, while 200 million suffered from chronic malnutrition. Clearly, we must do better in the future than we have in the past.

Despite this sluggish aggregate performance, Africa has achieved a series of agricultural surges of varying magnitudes – across regions, commodities and over time. Together with our partners, we have endeavored to systematically identify these episodes where a significant, durable change in agriculture has taken place. By identifying the institutions, investments, processes, and policies that have made these successes possible, we hope to foster partnerships and an enabling environment in which agricultural successes can become the rule rather than the exception. This, after all, is the spirit of the New Partnership for Africa's Development (NEPAD): to draw our own lessons from our failures and our achievements, for us as Africans to take responsibility for replicating our success stories and for us to map out a path along the road of success on which we can walk, side by side, with our development partners.

To assist us in distilling lessons from past successes and identifying promising future opportunities, NEPAD has conceptualized - in collaboration with InWEnt, IFPRI and CTA - a series of conferences convening distinguished colleagues with extensive practical experience in African agriculture. The first, continent-wide, took place in Pretoria during the first week of December 2003. The second, covering East and Central Africa took place in Nairobi from November 22-255, 2004. We expect West African consultation to take place in early 2006. Participants in each of these events include high-level policy makers from ministries of agriculture, finance and trade as well as representatives of farmer groups, the private sector, senior researchers and donor agencies. We have benefitted from their considerable practical experience and remain grateful for their candor and willingness to help us identify specific opportunities for collectively improving agricultural performance in Africa.

Equally important are the partnerships forged during the three days of intense but constructive interaction and debate. I congratulate the conference co-sponsors – IGAD, InWEnt, IFPRI, CTA, IFAD and IWMI - for joining with NEPAD in organizing a conference of this nature. This is an example of true partnership between Africa and its development partners.

Looking forward, the NEPAD Secretariat intends to take the findings of this conference to the CAADP Implementation Meeting for East and Central Africa. We are pleased that our colleagues at InWEnt, CTA, IFAD, IWMI and IFPRI have pledged to work with us in organizing future consultations examining regional successes in African agriculture. In close cooperation with our many partners and with the regional economic commissions, we will continue to focus on the issues critical to obtaining success in African agriculture.

Professor Wiseman Nkuhlu,
Chairman of the NEPAD Steering Committee and Head of the NEPAD Secretariat

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ACRONYMS

ACT	African Conservation Tillage Network
ASARECA	Association for Strengthening Agricultural Research in Eastern and Central Africa
CAADP	Comprehensive African Agricultural Development Programmes
COMESA	Common Market for Eastern and Southern African
CTA	Tecnhical Centre for Agricultural and Rural Cooperation
EAC	East African Community
FAO	Food and Agriculture Organization
ICRAF	World Agroforestry Center (International Center for Research on Agroforestry)
IFAD	International Fund for Agricultural Development
IFPRI	International Food Policy Research Institute
IGAD	Intergovernmental Authority on Development
InWEnt	Capacity Building International, Germany
IWMI	International Water Management Institute
NAR	National Agricultural Research Institutes
NEPAD	New Partnership for Africa's Development

I. CHALLENGES

Over 220 million people live in the Greater Horn of Africa (Table 1). Roughly 40% remain chronically hungry, even in good years, making it one of the poorest regions of Africa (Table 2). From this chronically high level, undernutrition increases still further during the lean season in the region's cereal-dependent arid zones and during food emergencies triggered by periodic drought and intermittent conflict in many parts of the region. In the more diversified cropping areas of the region, prospects for year-round harvest of cassava, bananas and plantains provide a seasonal and inter-annual cushion that largely buffers them from the aggravated hunger experienced in the cereal-dependent zones.

In spite of current high poverty levels, the region houses some of the most productive agricultural land in Africa. The well-watered highland areas boast fertile soil, abundant rainfall, and an absence of human and animal disease, providing some of the most favorable agricultural conditions in Africa. These high-potential zones have attracted human settlement and supported heavy population growth over the past several millennia (Schoenbaum, 1999). As a result, population density remains among the highest in Africa in the highland areas of Rwanda, Burundi, Uganda, Ethiopia and Kenya (Figure 1). Today, population pressure remains particularly acute in Ethiopia and Kenya, where cultivated land per person stands at 0.11 hectares, roughly half the regional average (Table 3).

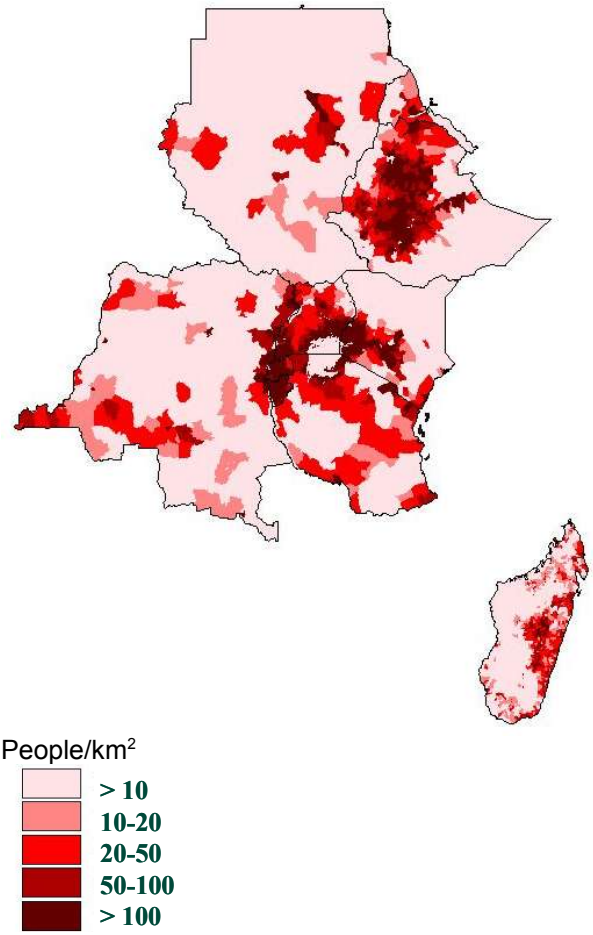
Table 1 -- Population and Poverty in the Greater Horn of Africa, 2002

Country	Population (millions)	Area ('000 km2)	Density (people/km2)	Hunger*	Chronic malnutriton**
Burundi	7	28	236	70%	57%
Djibouti	1	23	30	-	26%
Eritrea	4	118	34	60%	38%
Ethiopia	69	1,104	62	42%	52%
Kenya	31	580	54	38%	35%
Rwanda	8	26	318	41%	41%
Somalia	8	638	13	71%	23%
Sudan	33	2,506	13	25%	-
Tanzania	36	945	38	43%	44%
Uganda	25	241	104	19%	39%
Total	222	6,209	36	***39%***	***44%***

* Share of population consuming less than minimum calorie requirements.
** Stunting prevalence among children 6-60 months of age.

Source: FAOSTAT, Benson (2004), UNICEF (2003).

Figure 1 – Population Density in the Greater Horn of Africa



Source: Diao et al. (2004)

Two-thirds of the region's population lives in these high-potential agricultural zones. Because of heavy population pressure there, production increases will require technologies permitting increased productivity per unit of land. The remaining one-third of the region's population lives in lower-potential, fragile zones, where water scarcity, environmental fragility and armed conflict underlie a precarious, uncertain existence. In these zones, livestock and improved water management for cultivated agriculture offer the clearest routes to agricultural advance.

Armed conflict interrupts normal economic pursuits across large swaths of the region. Fighting currently rages in Uganda, Sudan and Somalia. Recently subsided conflict between Ethiopia and Eritrea and among Tutsis and Hutus in Rwanda and Burundi has led to massive population movements and millions of dead. Recurring conflict deprives the region of the manpower and security required for productive agricultural livelihoods.

Table 2 -- Hunger and Malnutrition in the Greater Horn of Africa, 2000

	Hunger		Child malnutrition	
	Kcal/persor	Undernourishe	Stunted	Underweight
Greater Horn	***2020***	***0.388***	***0.44***	***0.32***
Burundi	1610	0.703	0.57	0.45
Djibouti	-	-	0.26	0.18
Eritria	1670	0.595	0.38	0.44
Ethiopia	1910	0.42	0.52	0.47
Kenya	2040	0.375	0.35	0.21
Rwanda	2000	0.413	0.41	0.27
Somalia	1600	0.705	0.23	0.26
Sudan	2290	0.248	-	0.17
Tanzania	1970	0.433	0.44	0.29
Uganda	2370	0.193	0.39	0.23
Central Africa	***1810***	***0.583***	***0.36***	***0.28***
Southern Africa	***2050***	***0.413***	***0.39***	***0.23***
West Africa	***2590***	***0.147***	***0.37***	***0.32***

Source: Benson (2004), FAO (2003), WHO (2003).

Table 3 -- Land and Water Resources in the Greater Horn of Africa

	Cultivated land (ha/rural population)	Growing season (LGP > 180 days)		Irrigated land (% of total)
		(% land)	(% rural population)	
Burundi	0.16	88%	93%	8%
Djibouti	-	0%	0%	-
Eritria	0.24	0%	0%	5%
Ethiopia	0.11	80%	79%	2%
Kenya	0.11	55%	62%	2%
Rwanda	0.25	100%	100%	0%
Somalia	-	-	-	-
Sudan	0.64	4%	12%	2%
Tanzania	0.20	75%	71%	1%
Uganda	0.31	98%	94%	0%
Average*	0.24		66%	2%

Source: Diao et al. (2004)

As a result, agricultural growth in the region has proven sluggish relative to population (Table 4). Erratic production, chronic poverty and intermittent fighting have resulted in growing food aid dependency. The Greater Horn of Africa, likewise, remains the only region of Africa where child malnutrition has failed to improve over the past 20 years (Table 5). Projections of business as usual over the next decade and a half suggest declining or at best stagnant per capita production in half the countries of the region (Table 6).

Clearly, African farmers must do better in the future than they have in the past. This remains particularly true in the Greater Horn of Africa, where agricultural performance has proven more volatile and over long periods has generally lagged that of the rest of the continent. In spite of impressive performance in Uganda over the past decade, per capita agricultural growth has generally lagged that of Sub-Saharan Africa, particularly since the 1970's (Table 2). As a result, the region now depends on food aid shipments for approximately 10% of caloric intake, with two-thirds of these shipments concentrated in Ethiopia (Chamberlin et al, 2004).

Table 4 -- Agricultural Growth in the Greater Horn of Africa

	Index of Per Capital Agricultural Production, 3-year centered averages (1961=100)								
	1961	1965	1970	1975	1980	1985	1990	1995	2000
Greater Horn*	1.00	1.00	1.09	1.09	0.98	0.95	0.92	0.87	0.89
Sub-Saharan Africa	1.00	1.01	1.06	0.99	0.88	0.85	0.88	0.90	0.91

* Burundi, Djibouti, Eritrea, Ethiopia, Kenya, Rwand, Somalia, Sudan, Tanzania and Uganda.

Source: FAOSTAT.

Table 5 -- Trends in Child Malnutrition

	1980	2000	change
Stunting			
Africa			
Greater Horn	44.4%	44.4%	0.0%
Central	46.6%	37.8%	-8.8%
Northern	34.0%	21.7%	-12.3%
Southern	26.2%	24.6%	-1.6%
West	36.5%	32.9%	-3.6%
All Africa	39.0%	35.2%	-3.8%
All developing countries	48.6%	29.6%	-19.0%
Underweight			
Africa			
Greater Horn	24.3%	29.2%	4.9%
Central	29.6%	26.1%	-3.5%
Northern	15.4%	9.7%	-5.7%
Southern	14.3%	13.7%	-0.6%
West	28.4%	27.1%	-1.3%
All Africa	23.5%	24.2%	0.7%
All developing countries	37.6%	24.8%	-12.8%

Source: Onis et al. (2004).

Table 6 -- GDP Growth under Business as Usual in Agriculture, 2003-2015

Country	Base Growth Rate (past 5-8 years)			Projected Growth Under Business as Usual	
	staples	cash crops	livestock	agriculture	GDP/capita
Burundi	2.4	2.3	-0.2	1.8	-0.1
Eritrea	1.3	0.8	0.8	1.2	-1.3
Ethiopia	1.6	2.6	4.8	2.2	-0.2
Kenya	2.1	1.2	4.9	2.4	0.0
Rwanda	3.9	3.1	4.3	3.6	0.3
Sudan	5.3	3.1	2.0	3.3	1.2
Tanzania	2.9	3.4	3.5	3.0	0.8
Uganda	3.6	2.2	5.1	4.2	1.4

Source: Chamberlin, Diao, Omamo and Wood (2004).

II. GAINS FROM THINKING REGIONALLY

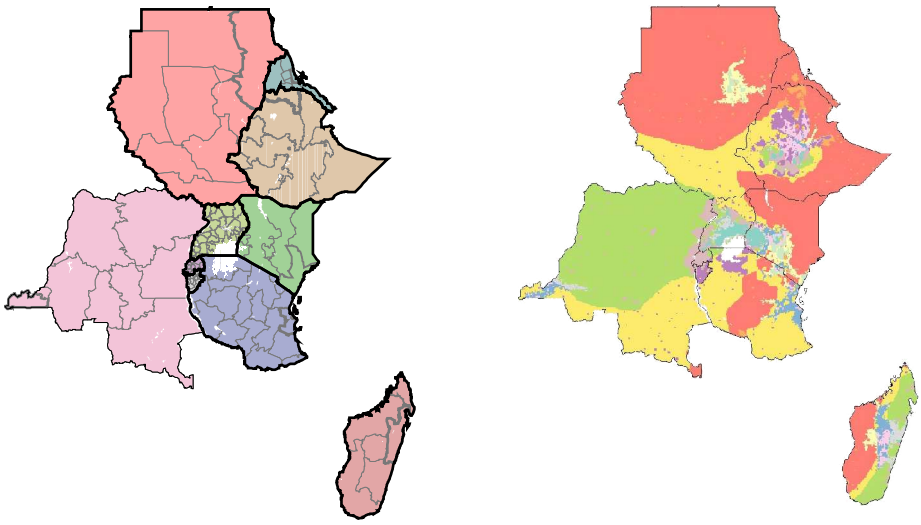
A. Technology spillovers

Interventions aimed at stimulating agricultural growth generally fall into two broad categories: a) improving production possibilities for farmers; and b) improving incentives under which they operate (Haggblade, Kirsten, Mkandawire and Penning de Vries, 2004). Both potential intervention points offer significant benefits from thinking regionally.

Because political and agro-ecological boundaries do not coincide, cropping patterns, technologies and production practices inevitably spill over across international boundaries (Inter Academy Council, 2004). These spillovers loom especially large in the Greater Horn, given the small geographic size of many countries in the region (Figure 2).

Because agro-ecological zones spill across national boundaries, this creates considerable potential for scaling up or transferring technology developed in one country to another. With maize breeding, cassava, bananas and pulses, the region has benefited from regional technology sharing and spillovers. To illustrate this potential, Figure 3 depicts anticipated regional gains from research and development investments in regional maize research.

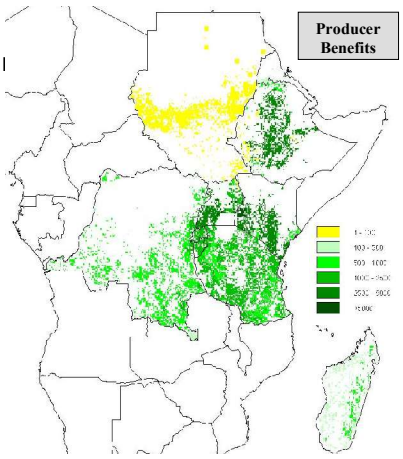
Figure 2 – Agro-ecological zones cut across political boundaries



Political boundaries | Agro-ecological zones

Source: Thornton, Wood and Freeman (2004).

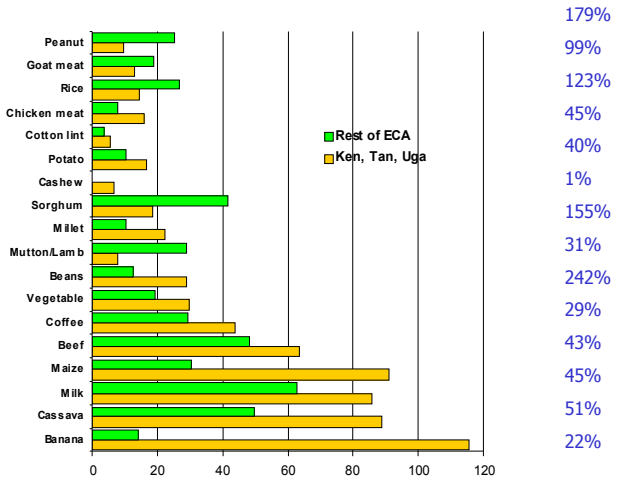
Figure 3 – Regional spillovers from maize research



Source: You, Chamberlin and Wood (2003).

Figure 4 quantifies anticipated benefits from agricultural technology development in the Greater Horn, with and without regional spillovers, using projections from IFPRI's Dynamic Research Evaluation and Analysis Model (DREAM) (see Wood et al, 2000). The simulations that produce these estimates first compute income gains to producers and consumers from R&D expenditures in Kenya, Tanzania and Uganda for over a dozen specific commodities. The yellow bar indicates the direct gains, in the case of bananas over $100 million in anticipated direct benefits. Spillovers to other banana growing and consuming countries in the East and Central Africa (ECA) region increase total benefits by an additional $15 million over the 2004 to 2020 time period. With other commodities, spillovers are even greater. In cassava, for example, direct gains amount to about $90 million while spillovers add an additional $50 million. Clearly the regional spillovers can be substantial. One primary goal of this conference is to identify specific significant prospects for such technology sharing.

Figure 4 – Research and Development Benefits with Technology Spillovers,
(projected benefits of a 1% productivity gain from 2004-2020)



Source: Wood et al. (2003)

B. Opportunities for regional trade

Because the timing of rains and cropping seasons differ across the region and across countries, countries consuming the same crops may find lower prices across the border than domestically, particularly during the local lean season. In response to such seasonal price differentials, private maize traders ship grain from Uganda to western Kenya, from northern Tanzania to coastal Kenya and from southern Tanzania into Malawi. Farmers in southern Ethiopia even intermittently export maize into northern Kenya (RATES, 2004).

Markets for domestic food staples currently account for 80% of the value of all agricultural commodities produced in the region (Table 7). Given income levels and the structure of incremental consumer spending, projections through 2020 suggest that these markets will grow more rapidly than other agricultural markets (Diao et al., 2003). As a result, incentives for cross-border trade in food staples, as well as within-country flows from food surplus to food deficit regions, are likely to grow significantly over the next several decades.

Table 7 -- Agricultural Markets in the Greater Horn of Africa, 2000

	Market Value, 2000	
	($ billions)	percent
Traditional exports	2.2	11%
Nontraditional exports	1.5	8%
Regional trade	0.3	2%
Domestic food staples	15.9	80%
Total	19.9	100%

Source: Diao (2003).

Table 8 -- Impact of Reduced Marketing Costs

	GDP Growth Rate, 2004-2020		
		50% reduction in	
Country	Baseline	domestic marketing margins	regional trade barriers
Burundi	2.1	2.8	2.2
Eritrea	1.4	2.1	1.6
Ethiopia	2.5	3.3	2.6
Kenya	2.5	3	2.6
Rwanda	3.7	4.6	4
Sudan	3.6	4.2	3.7
Tanzania	3.6	4.4	3.9
Uganda	4.1	4.8	4.3

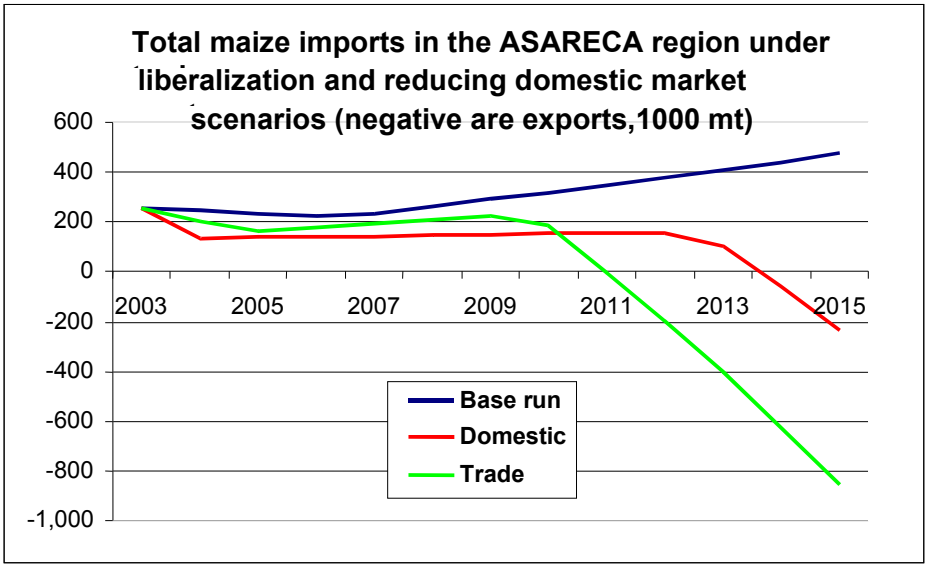
Source: Diao et al. (2004)

Yet trade protocols and policies across countries are not fully harmonized, constricting these flows and forcing significant share of cross-border trade to informal channels (RATES, 2003). An array of trade restrictions and infrastructural inadequacies hampers these flows (RATES, 2003). Many times, these restrictions force significant quantities to transit informal and illegal channels in response to significant cross-border price differentials (Whiteside, 2002; Magnay, 2004; RATES, 2003).

Agricultural trade liberalization holds the potential to open up significant gains through expanded regional trade. Using a multi-market regional trade model, in which prices and production are endogenous and equalized by trade flows, Diao and colleagues (2004) project aggregate gains to investments in marketing infrastructure and agricultural trade liberalization in the region. Table 8 summarizes the impact of a 50% reduction in domestic marketing margins or trade barriers on GDP within the region. Both increase aggregate income gains compared to the baseline, although reduction of domestic marketing margins yields the higher gains.

Trade liberalization involves tradeoffs in aggregating gains and losses to farmers and consumers. While consumers in importing countries win, as do farmers in exporting countries, surplus farmers in importing countries see their incomes fall. For this reason, the detailed simulations discussed by Diao et al. (2004) emphasize the benefits of trade liberalization coupled with simultaneous investments in productivity increasing technology and reduced marketing margins in importing countries. Poor consumers in importing countries, however, are unambiguously better off when constraints to regional trade are relaxed. To the extent that food shortages can be sourced regionally, increased trade in food staples holds the potential to reduce the region's current heavy dependence on food aid. Trade liberalization significantly alters the profile of net regional maize imports, reducing them below zero by about 2012 (Figure 5). As a result, the region becomes a net maize exporter.

Figure 5 – Trends in Maize Imports into the Greater Horn

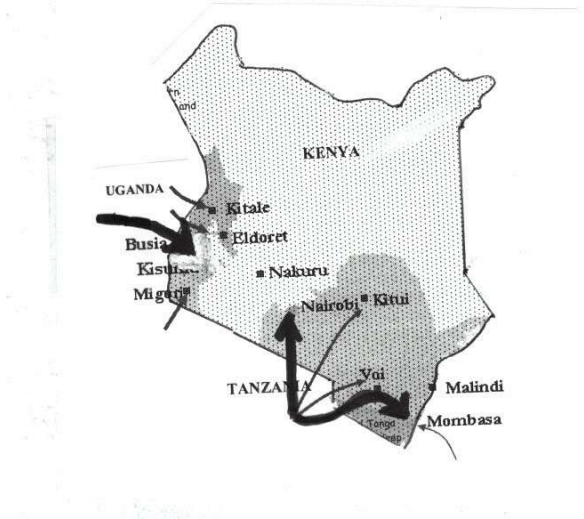


Source: Diao et al. (2004) The ASARECA region includes Burundi, Democratic Republic of Congo, Eritrea, Ethiopia, Kenya, Madagascar, Rwanda, Sudan, Tanzania and Uganda.

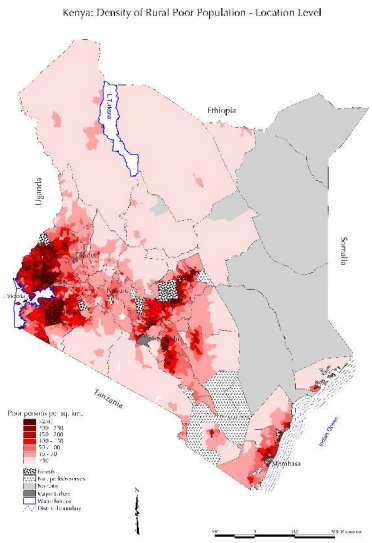
Likewise, trade liberalization offers important equity gains by enabling poor consumers price relief from high staple food prices. Cross border maize flows from Uganda to Kenya, for example, help to reduce food prices of low-income Kenyans in the Lake Victoria region of Western Kenya (Figure 6). Thus regional trade opens up potentially significant opportunities for improving food security of low-income households by sourcing seasonal food needs from regional resources.

Figure 6 –Poor Consumers Gain from Regional Trade

Regional maize flows



Kenya poverty map: poor people per km^2



Source: FEWSNET, Foodnet, RATES, ILRI.

III. THE PRETORIA PROCESS: LEARNING FROM PAST SUCCESSES

A. Scattered past successes

In spite of lackluster aggregate growth in many of countries of the region, the Greater Horn of Africa has witnessed a series of well-publicized successes in agricultural performance. As elsewhere, farmers and agricultural policy makers have achieved a series of temporally and regionally scattered successes in agricultural development (Wiggins, 2000; Gabre-Madhin and Haggblade, 2001; Pretty and Koohafkan, 2002; IWMI, 2003; NEPAD, 2003; Pretty and Hine, 2004).

Maize breeding. In the mid-1960's, Kenyan maize breeders released the first of a stream of improved open pollinating and hybrid varieties that radically altered productivity of rainfed maize cultivation. Yields rose by about 40%, even without fertilizer. Large commercial farmers adopted the new high-yielding varieties rapidly, and smallholders quickly followed suit. In favorable zones, 95% of both large and small farmers adopted the HYVs (Byerlee and Eicher, 1997). Although unsustainable financial subsidies artificially inflated production gains in many locations, the breeding breakthroughs have proven an undeniable success, with improved maize germ plasm shared across countries and currently benefiting roughly 60% of maize planted throughout the region (Smale and Jayne, 2003)

Cassava mosaic virus. In the late 1980's, a virulent new mutation of cassava mosaic virus emerged in Uganda and moved gradually southwards to Kenya and Tanzania destroying a over 500 local varieties of cassava on its way and threatening famine in the region. Rapid import of mosaic-resistant varieties from the International Institute of Tropical Agriculture (IITA) and accelerated trials by Ugandan breeders enabled a veritable army of agricultural research, extension staff and NGO's to multiply resistant varieties and distribute them to farmers in the region. Within five years, this crash testing and distribution program had brought the virus under control reversed the decline and resurrected production to its pre-invasion upward-trajectory (Otim-Nape et al., 2000; University of Greenich, 2000).

Horticulture exports. From the early 1970's onwards, private traders from Kenya have steadily expanded high-value exports of fruits, vegetables, and later flowers. In Kenya, smallholders supply about 75% of all vegtable exports and 60% of all fruit exports. One of the country's fastest growing foreign exchange earniers, horticultural exports have tripled in real terms over the past 30 years, growing to $175 million in 2000. More recently, exporters from Ethiopia and Uganda have entered this lucrative trade, particularly in flower exports where high altitude improves quality (Minot and Ngigi, 2003).

Small-scale dairy. Dairy production in Kenya has grown rapidly in recent decades resulting in per capita production double the levels found elsewhere on the continent. Smallholders have captured a steadily rising share of that market. Today 600,000 small farmers operating 1 to 3 dairy cows produce 80% of Kenya's milk. By

the year 2000, nearly 70% of Kenyan smallholders produced milk and it had become their fastest growing income source. Among the small farmers who produce milk, annual net earnings from milk average $370 per year (Ngigi, 2003; Ahmed, Ehui and Assefa, 2003; Gabre-Madhin and Haggblade, 2003).

Rice. In Sukumaland during the 1980's and 1990's, Tanzanian farmers responded to changing market and ecological conditions to develop new systems for rice intensification in lowland valleys. By constructing bunds and experimenting with new agronomic practices, they achieved relatively high yields of 3-4 tons per hectare. Within a decade, they converted this semi-arid region into a significant rice-exporting zone (Meertens, 1999).

Tissue culture bananas. Over the past 10 years, African countries have experienced a decline in banana production due to crop infestations of pests and diseases, particularly Panama disease, *sigatoka,* weevils and nematode complexes. These diseases can reduce banana yields by up to 90%.

Modern tissue culture offers prospects for rapid advances in both yield and resistance to major pests and disease. Moreover, it enables rapid and sterile multiplication of pathogen-free planting material. Recent efforts by the Kenya Agricultural Research Institute (KARI), in conjunction with a local private biotechnology company, have begun to produce in vitro banana plants commercially. Even at full commercial costing, the tissue culture plants roughly double both yield and income under farmer conditions (Qaim, 1999). Today, over 500,000 farmers have planted TC bananas, and demand for TC banana seedlings continues to surpass existing supply as more and more farmers adopt the technology (Wambugu, 2004). Beyond initial efforts in South Africa, Kenya, Uganda and Tanzania, prospects for upscaling appear considerable. Indeed, countries such as Malawi, Mozambique, Senegal and Zambia have already expressed interest.

Community successes. In the face of increasing demographic pressure, declining fallow periods and increased land and water degradation, some communities in Africa have nonetheless succeeded in reversing this deterioration in agricultural productivity. Our recent review of these "bright spots" identifies a number of key factors enabling development of superior performance at a community level (Nobel et al, 2004). The case studies reviewed in this conference highlight three key drivers of change: leadership; innovative new technology, effective vehicles for channeling local participation (see Cofie et al., 2004; Mati, 2004; Khisa, 2004; Omar and Younis, 2004). By examining these efforts systematically, it may be possible to capture the key processes under way and inoculate them into other settings in order to expand the development of bright spots elsewhere in Africa.

B. Principles underlying the Pretoria Process

1. Learn positive lessons from past successes.

Africa has witnessed a series of impressive agricultural successes in the past. Though these have proven inadequate in number to trigger sustained, rapid aggregate growth, many have endured for decades and have improved livelihoods of millions of rural households across the continent.

By examining a series of instances in which important advances have occurred in the past in African agriculture, the Pretoria process aims to identify promising avenues for achieving similar success in the future. We define "success" as: *a significant, durable change in agriculture resulting in an increase in agriculturally derived aggregate income, together with reduced poverty and/or improved environmental quality."*

This Africa-centric focus complements many ongoing efforts to transfer lessons from Green Revolution Asia and elsewhere. Rather than importing lessons from outside, where the institutional environment, ecology, irrigation potential, culture, population density and agroecology are all very different, this approach aims to inventory home-grown solutions that appear to work well and then see how far they can be scaled up. Given broad heterogeneity across Africa, scaling up of pilot efforts is not automatic. To transfer lessons from one setting to another requires solid experience and sound judgment.

2. Recognize the very new policy environment facing farmers in the future.

Both national and international economic environments have changed substantially in the past decade and a half. Therefore, African farmers and policy makers must apply the lessons from past successes in a very different environment going forward. Africa's resource base has seriously degraded over the past two decades. Nearly half of Africa's farmland shows serious signs of degradation due to reduced fallows, soil mining and erosion (Chigunta, Herbert and Mkandawire, 2003; Sanchez et al, 2000). Labor productivity and availability have likewise declined in the face of virulent new diseases such as HIV/AIDS, eroding Africa's skilled labor force as well as shrinking able-bodied labor on which farm families rely. Government and donor budgets for agriculture, flush during the post-independence decades of the 1960's and 1970's, have shrunk significantly, eroding scientific capacity and financing for inputs, research, extension and marketing.

Trade regimes have changed substantially as well. Prices for Africa's chief agricultural commodity exports have trended downwards. Worldwide, bulk commodities no longer dominate international agricultural trade. By the year 2000, processed agricultural products had surpassed bulk commodities in value (Johnson, Temu and Hazell, 2003; Regmi and Gehlhar, 2003). Global consolidation in food retailing has led to rapid concentration in international agribusiness supply chains. Rapid expansion of regional and international supermarket chains has radically altered the scale and quality requirements Africa's farmers must meet (Weatherspoon and Reardon, 2003). While export markets have provided a motor of agricultural growth in the past, projections suggest that regional markets for food staples within Africa will grow most rapidly over the coming decades.

Agricultural science and technology are likewise changing rapidly (Wambugu, 2004). Increasingly, new technologies lie in the private, rather than the public domain. This poses new challenges for making technology developed by private firms accessible for small farmers.

3. Government cannot do it all. New partnerships are required.

Since the 1990's, liberalization and structural adjustment have led to the widespread demise of agricultural parastatals and public marketing agencies. Eroding fiscal capacity had led to a gradual decline in civil service incentives and a consequent decay in the capacity of key agricultural support institutions.

Over time, private firms have filled the space vacated by the public sector. Private firms play significantly larger roles in marketing, processing and research than they did in the past. The globalization of many agricultural supply chains means that African farmers must increasingly interface with global multinationals. New technologies such as biotechnology often lie in the private sector. For technology, inputs, credit and output markets, African farmers rely to a growing extent on private agribusiness firms, both domestic and international. Private investment in technology, irrigation, marketing and processing play a growing role in transforming production opportunities.

Therefore, new partnerships will be required. Increasingly, private partners will prove crucial to successful efforts at stimulating agricultural growth. Government's role remains essential in supplying key public goods, such as roads, infrastructure and regulatory oversight. Yet, looking forward it becomes clear that future successes in African agriculture will require effective private-public partnerships.

C. The Pretoria Process

1. Document past successes.

The Pretoria Process, described in greater detail by Kisamba-Mugerwa et al. (2004) in Conference Background Paper #2, begins with a systematic inventory of successes in African agriculture. Organizers commission case study teams to investigate, verify and document inputs and outcomes. From these, conference organizers select an illustrative subset for careful review. In addition to the often voluminous case study reports, it is important to prepare concise summary material for all conference participants, well before the event. A complete set of conference background papers and summaries for the Nairobi conference are available on the internet at: www.ifpri.org/events/conferences/2004/20041125.

2. Distill key lessons by convening and facilitating interaction among a select group of experienced practitioners.

To distill key lessons and identify new opportunities emerging from the lessons of past successes, we have found it most effective to convene an experienced group of experts from the farm community, agribusiness and government.[1] This diversity proves crucial to the process. No one groups dominates the discussions. In addition to improving the quality of the deliberations, this diversity fosters open interactions in

[1] See Appendix A for a complete list of conference participants.

a neutral setting, where extensive interaction and off-the-record exchanges facilitate the building of relationships not possible in more formal settings.

After brief presentations of the case study material, the bulk of interaction among participants occurs in professionally facilitated working groups intended to distill key lessons from the case studies, to internalize and analyze and determine what within them is replicable in other environments.

3. Promote partnerships to exploit future opportunities.

More art than science, this final step follows naturally from the the process, if the organizers – match-makers in effect – have convened the right set of participants. A number of significant and spontaneous partnerships emerged from the original Pretoria Conference, among them the Pan-Africa Cassava Initiative. By replicating these introspective efforts on a sub-regional scale, NEPAD hopes to foster additional energy and interaction focused on more localized sub-regional opportunities for agricultural growth. The aim of the Pretoria Process is to facilitate partnerships of private and government interest groups that can upscale replicable processes and technologies across Africa.

Figure 7 – Facilitated Working Groups for Day 1

Table 9 – Conference Contents

	Day 1	Day 2	Day 3	Day 4
Theme	Regional Food Security Successes	Commodity Successes	Community Successes	Key Opportunities in the Region
Plenary Presentations	<u>Introduction</u> P1. Conference overview P2. Pretoria process P3. IGAD challenges & opportunities <u>Regional Food Security</u> P4. Southern Africa P5. Regional markets for food staples in the Greater Horn P6. A Private trader's perspective on regional trade	P6. Commodity Overview P7. Maize P8. Cotton* P9. Cassava-S&WA P10. Cassava-Uganda P 11. Tissue culture bananas P12. Horticulture exports P 13. Hort domestic markets* P14. Dairy Kenya vs Uganda, Ethiopia P15. Fodder Crops	P16. Bright spots overview P17. Human resources as a driver: Rainwater harvesting P18. Technology as a driver: Small-scale irrigation P19. Farmer Empowerment through Farmer Field Schools P20. Community empowerment	Identify the top four opportunities for accelerating agricultural growth and improving food security in the region.
Working Group Designations	WG1. institutional and policy requirements for improving regional trade WG2. assessing regional trade infrastructure WG3. structuring emergency responses to stimulate local production and trade WG4. opportunities for expanding regional trade with Ethiopia	WG5. Maize + cotton WG6. Cassava + bananas WG7. Horticulture: domestic + export WG8. Livestock: Dairy + + fodder crops	WG9. Rainwater harvesting WG10. Small-scale irrigation WG11. Farmer empowerment WG12. Individual bright spots	WG13. Opportunity 1 WG14. Opportunity 2 WG15. Opportunity 3 WG16. Opportunity 4
WG Discussion Questions	a. topic assessments b. key opportunities for improving regional trade in food staples in the Greater Horn.	a. Who initiated change? b. What action did they take? c. What's replicable: the technology or the process? d. How to replicate? Who and what? e. Key opportunities in the Greater Horn.	a. Who initiated change? b. What action did they take? c. What's replicable: the technology or the process? d. How to replicate? Who and what? e. Key opportunities in the GH.	a. Define the opportunity. b. Propose an action plan: (i) Who should initiate action? (ii) What action should they take?

IV. CONFERENCE FINDINGS

A. Objectives

This conference focused on three principal objectives: a) summarizing key opportunities and challenges for agriculture in the Greater Horn of Africa; b) identifying key successes in expanding African agriculture and improving food security with significant potential for replication and upscaling in the region; c) identifying key opportunities for accelerating agricultural growth and improving food security in the region and develop actions plants for their realization.

B. Content

Thematically, the conference focused on one major topic each day (Table 9). The first day concentrated on regional trade issues in order to explore ways in which more fluid cross-border flows might enhance farmer incentives and food security in the region. The second day focused on commodity successes, from within as well as outside the Greater Horn. Working in four case study clusters, participants aimed to summarize key lessons learned about ingredients necessary for sustained agricultural growth. They focused, in particular, on promising technologies with significant regional spillover effects. The third day involved a review of community-based successes, instances where local collective action has succeeded in improving agricultural production and livelihoods while maintaining sustainability of the natural resource base. On the final day, participants pulled together key findings from the prior three days of deliberation in order to identify what they see as the top opportunities for stimulating agricultural growth and improving food security in the region.

Moving forward after the conference, the NEPAD secretariat aims to identify coalitions of partners willing to translate these strategic opportunities into action. As an immediate step in this direction, NEPAD, ASARECA and COMESA representatives at the Nairobi conference were mandated to take these conference findings to the CAADP regional implementation workshop in Dar es Salaam in January 2005.

C. Findings

To consolidate a broad array of issues and evidence, the conference focused on summarizing opportunities along four key dimensions: a) regional trade; b) commodity-specific successes; c) community-based processes and approaches; and d) cross-cutting issues. Though it is difficult to do justice to the richness of the working group deliberations, the following thumbnail summaries attempt to highlight key observations and findings. The contents of each of the four thematic working groups are likewise summarized in the working group summary picture boards reproduced in Figures 8-11.

1. Regional trade.

The Greater Horn can clearly benefit from more fluid cross-border trade flows in the region. Structural maize deficits in Kenya over since the early 1990's have opened up opportunities for suppliers from Tanzania and Uganda (Magnay, 2004). During the bumper harvest of 2001, even chronically deficit Ethiopia exported maize to Kenya, despite the poor state of the Isalo-Moyale road on the Kenya side of the border (RATES, 2004). Opportunities also exist within coarse grains, pulses, stimulants and spices. To build on this potential, priorities for the future should focus on harmonizing regional trade regulations (export banks, safety standards, customs procedures and grades and standards), improving cross-border infrastructure (particularly the links between Ethiopia and Kenya and between Somalia and Djibouti), and strengthening agricultural market information system.

2. Commodity successes.

Although conflict, political turmoil and recurrent drought have compromised aggregate efforts to sustain agricultural growth in the Greater Horn of Africa, the region has nonetheless witnessed a series of impressive commodity successes. Maize breeding has produced a series of highly productive new cultivars over several decades (Figure 3). Cassava breeding by local researchers, invigorated by new genetic material from IITA, have produced impressive results, most strikingly in the highly effective recent response to the mutation of the cassava mosaic virus in Uganda (see conference papers 12a and 12b). Small-scale dairy has grown rapidly in Kenya, though with less success in Uganda and Ethiopia (see conference papers 16a and 16b). Horticultural exports have grown rapidly in many countries of the region, including Kenya, Uganda and Ethiopia. After reviewing available evidence, the conference participants suggest focusing future efforts on upscaling horticulture trade (both domestic and export), high-productivity dairy systems, and expanded regional efforts in maize and cassava research.

3. Community-based processes and approaches.

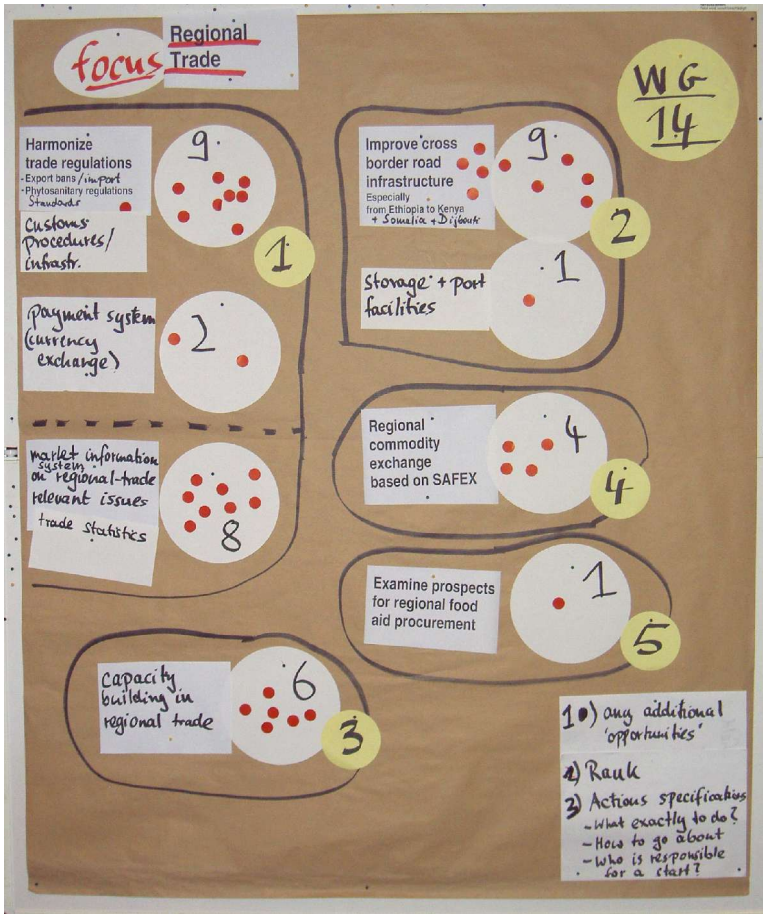
The background case studies and participant experience suggest that community successes already exist in many countries of Africa (see conference background papers 18-22). These are agricultural communities and households that perform better than neighboring ones facing similar environmental, social or demographic pressures. Preliminary inventories suggest that roughly 1% of the African rural population already falls into this category, maybe more. Many focus on natural resource management and develop through participatory network learning alliances. Three key drivers typically launch these community bright spots: • dynamic individuals with open attitudes and significant human capital, • new technologies, such as low-cost pumps or more productive plant materials that significantly expand production possibilities; and • external forces such as growing markets or new roads which improve incentives as well as market opportunities. Conference participants believe that significant potential exists for upscaling community successes more broadly by focusing on innovative methods of natural resource management, promotion of network learning alliances and more systematic identification, analysis and expansion of existing bright spots.

4. Cross-cutting issues.

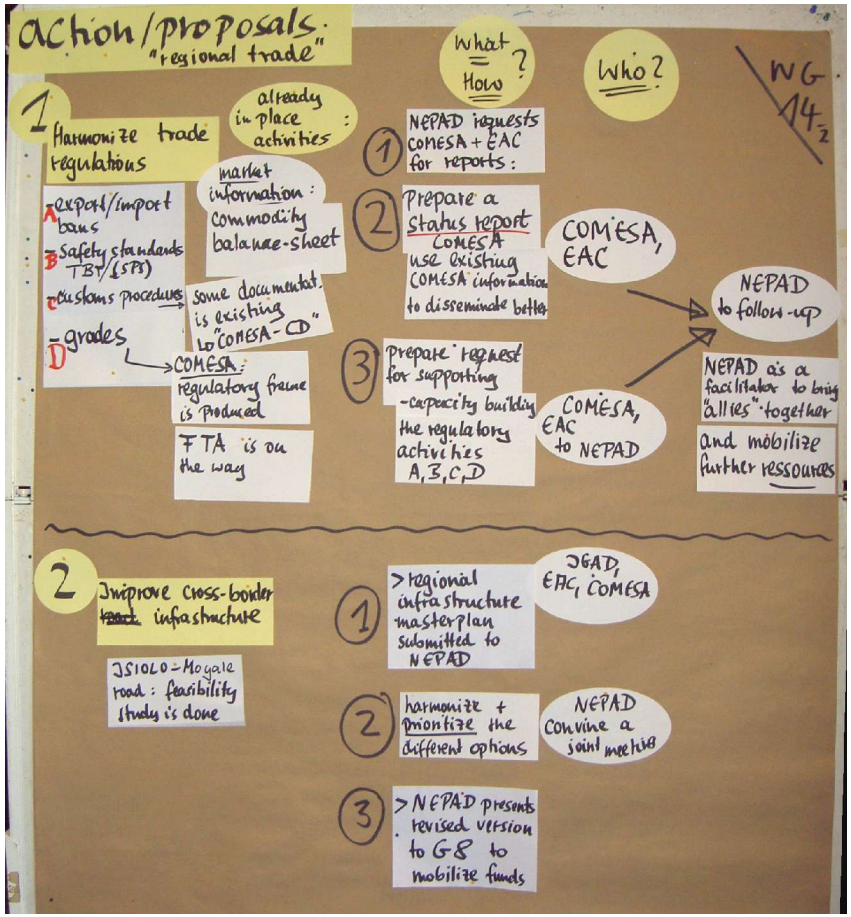
Given small countries and strong incentives for cross-country collaboration, the Greater Horn has been home to a broad array of regional initiatives – from infrastructure to trade to agricultural research. Regional networks for banana and maize have operated for many years. The region has been a center for public and private work on tissue culture propagation, with widespread applications in bananas, and sugar cane, as well as biotechnology developments, most noted in the development of high-vitamin pink-fleshed sweet potatoes. Given erratic rainfall and rising population, the region has seen widespread experimentation with various forms of soil and water conservation as well as with low-cost irrigation systems such as treadle pumps. Conference participants particularly highlighted opportunities for expansion in regional research networks, spreading tissue culture more broadly and expanding low-cost irrigation technology in the region.

To consolidate this rich set of evidence and debate, the workshop participants issued a formal summary statement of their findings and recommendations. Figures 8-11 reproduce the summary boards from the working group sessions to give a flavor for the depth and breadth of the debate. Following these is the formal statement of workshop findings issued by the conference participants.

Figure 8 – Regional Trade Working Group Recommendations

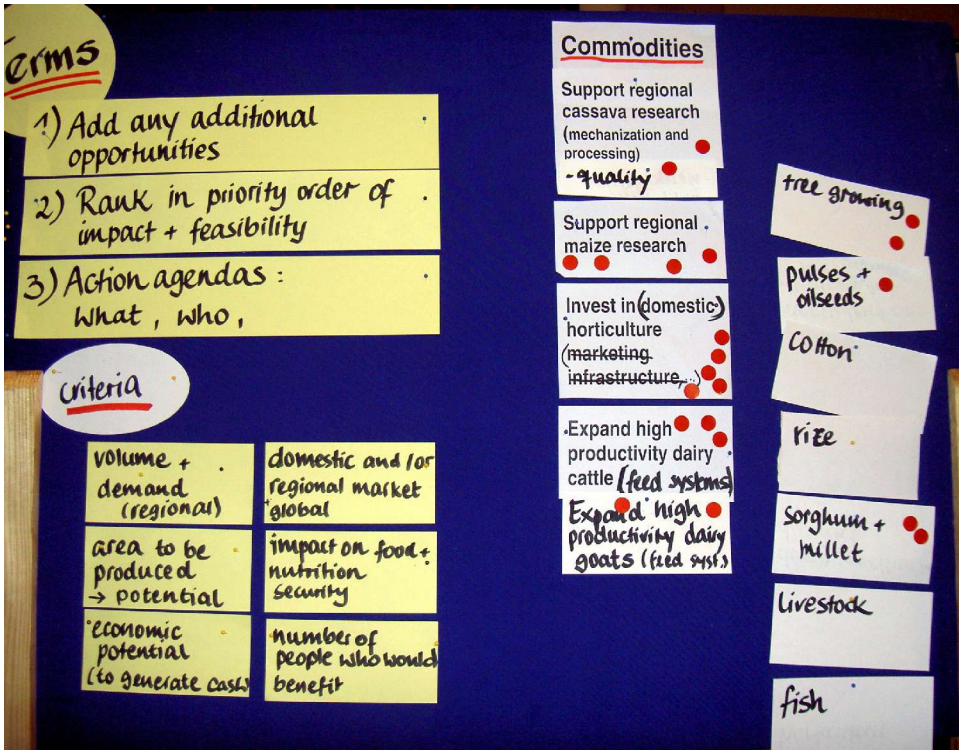


Priority activities



Actions and Key Actors

Figure 9 – Commodity Priorities



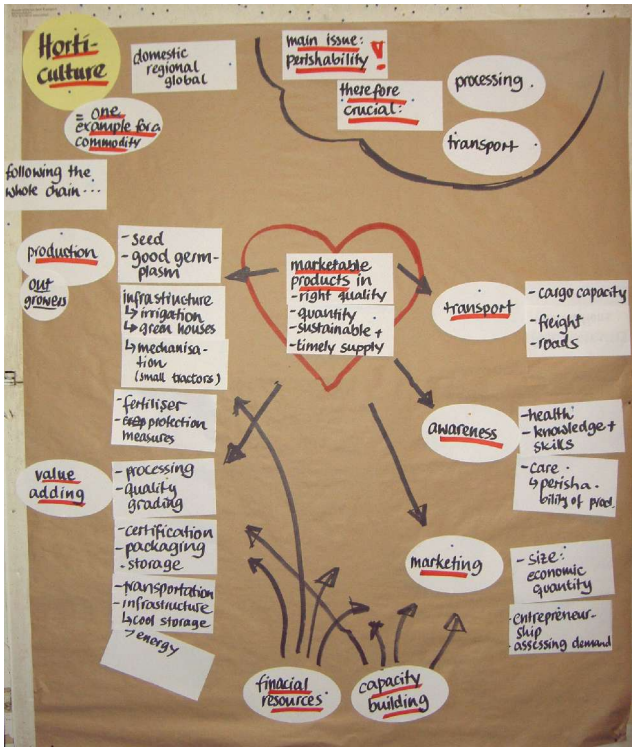


Figure 10 – Community Bright Spots

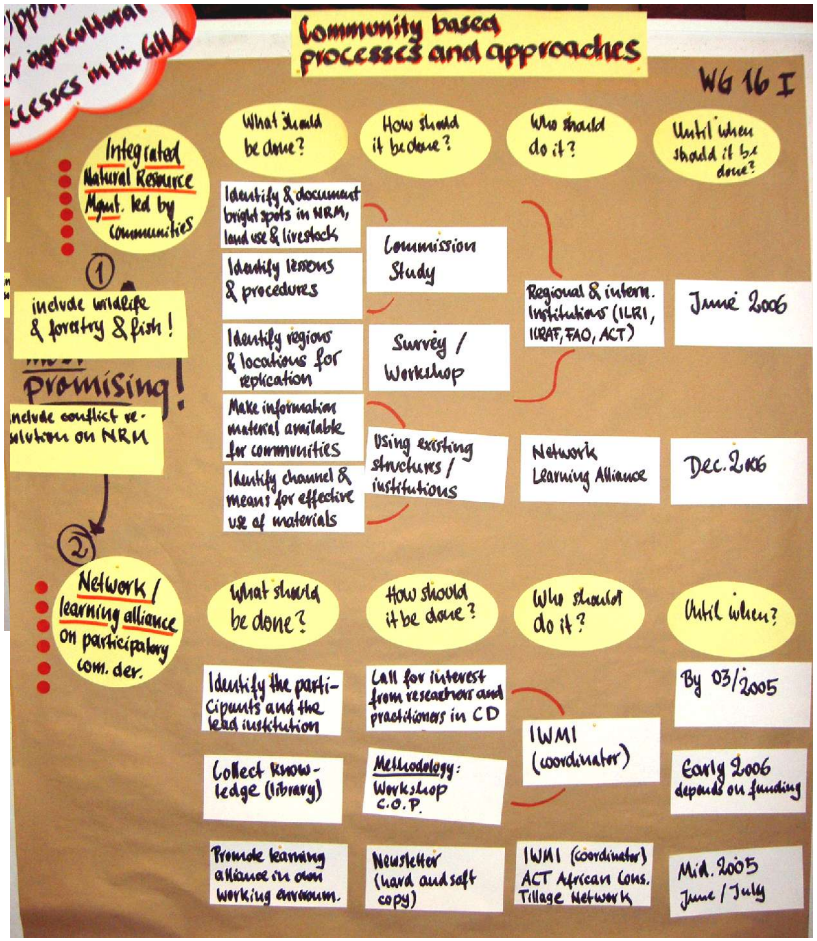


Figure 11 – Cross-Cutting Issues

Findings of the NEPAD/IGAD Regional Conference on Agricultural Successes in the Greater Horn of Africa

Nairobi, November 22 - 25, 2004

Significant poverty reduction will not be possible in the Greater Horn of Africa without rapid agricultural growth. Only improved agricultural productivity can simultaneously improve welfare among the three-fourths of the population who work primarily in agriculture as well as the urban poor, who spend over 60% of their budget on food staples.

Regrettably, past performance has proven inadequate. Sub-Saharan Africa remains the only region of the developing world where per capita agricultural production has fallen over the past forty years. In spite of good progress in selected countries, such as Uganda, the Greater Horn as a region has underperformed the rest of sub-Saharan Africa. Roughly 40% remain chronically hungry, even in good years, making it one of the poorest regions of Africa. The region remains chronically dependent on food aid as well as the only region in Africa where child malnutrition has increased over the past two decades. Clearly, the region must do better in the future than it has in the past.

For this reason, the African Heads of State and Government, through the Maputo Declaration in July 2003, have made agriculture a top priority and committed to increasing budget allocations to 10% of total outlays within five years.

Sluggish aggregate performance in the Greater Horn, however, masks a rich historical record of substantial agricultural successes. Though these episodic and scattered booms have proven insufficient to sustain aggregate per capita growth in agriculture, they do prove informative in pointing to promising areas for effective intervention in the future.

Having reviewed evidence on a series of successful efforts, in the region and without, this conference has identified a number of promising opportunities for accelerating agricultural growth in the region. These fall into four major categories:

Improving regional trade

- Harmonize trade regulations (export – import bans, safety standards, customs procedures, grades)
  key actors: COMESA, EAC, NEPAD
- improve cross border infrastructure;
  key actors: IGAD, EAC, COMESA, NEPAD
- agricultural market information system

Commodity successes

- invest in horticulture for domestic, regional and export
- request delay in implementing EUREP-GAP regulations
  key actors: NEPAD
- expand high productivity dairy cattle and goats including feed systems

- support regional maize and cassava research

Community bright spots

- Integrated natural resource management led by communities;
  key actors: ILRI, ICRAF, FAO, ACT, NARS, ASARECA, IFAD
- Network / learning alliance on participatory community development
  key actors: IWMI as coordinator, ACT, NARS, ASARECA, ICRAF, ……..
- Promote more Bright Spots; link it to the learning alliance; documentation of additional successes
  actors: everybody

Cross-cutting opportunities

- R&D, linking Research and Extension
  key actors: IGAD, NEPAD, IWMI, IFPRI, ASARECA, IFAD
- Tissue culture as a technology
  key actors: NEPAD , IGAD, AHarvest
- Expand low-cost irrigation technology (esp. soil + water conservation technology) in the region
  key actors: IGAD, IWMI, ASARECA, ICRAF, IFAD
- Capacity building
  key actors: InWEnt
- promote farmer organizations and Public Private Partnership
  key actors: IFAD, InWEnt
- governments support and commitment to create a conducive policy environment, redefinition of roles of various stakeholders

We, the participants of this conference, believe these are priority proposals that offer significant opportunities for stimulating agricultural growth in the region. We also recognize that there are other important areas that merit consideration in the future, which are documented in the proceedings of the workshop.

As a group, we remain committed to carrying these and related efforts forward. In order to seek funding and further support for these initiatives, the NEPAD and IGAD Secretariats commit to reporting these findings to the East Africa regional CAADP programming workshop in January 2005 and ensure implementation.

REFERENCES

Conference Background Papers*

Paper 1. Agricultural Successes in the Greater Horn of Africa: Conference Overview, by Steven Haggblade, Ingrid Kirsten, Richard Mkandawire and Frits Penning deVries

Paper 2. The Pretoria Process: Learning from Past Successes, by Steven Haggblade, Wilberforce Kisamba-Mugerwa, Ingrid Kirsten, Richard Mkandawire, Frits Penning de Vries and Juergen Richter.

Paper 3. Agricultural and Food Security Challenges for the IGAD Region, by Benson Mochoge and Samuel Zziwa.

Paper 4. Diversity, Challenges and Opportunities in the Greater Horn of Africa, by Jordan Chamberlin, Xinshen Diao, Steven Haggblade, Steven Were Omamo and Stanley Wood

Paper 5. Anticipating and Responding to Drought Emergencies in Southern Africa: Lessons from the 2002-2003 Experience, by David Tschirley, Jan J. Nijhoff, Pedro Arlindo, Billy Mwinga, Michael T. Weber and T.S. Jayne

Paper 6.a. Status Report on Regional Maize Trade Policy, RATES Project for the East Africa Commission.

Paper 6.b. Regional Maize Trade Policy Paper, RATES Project for COMESA and ECA.

Paper 7. The Ugandan Maize Industry, by John Magnay.

Paper 8. Overview of Commodity Successes, by Steven Haggblade

Paper 9. Maize in Eastern and Southern Africa: "Seeds" of Success in Retrospect, by Melinda Smale and Thomas Jayne.

Paper 10. Mali's White Revolution: Smallholder Cotton from 1960 to 2003, by James Tefft.

Paper 11.a. New Challenges in the Cassava Transformation in Nigeria and Ghana, by Felix Nweke

Paper 11.b. The Recent Cassava Surge in Zambia and Malawi, by Steven Haggblade and Ballard Zulu

Paper 11.c. Mechanization for Cassava Commercialization as a Livestock Feed and Industrial Raw Material in Africa, by Felix Nweke

* The full text of these conference background papers is available, together with a short summary, on the internet at www.ifrpri.org/events/conferences/2004/20041125/papers.htm and /summaries.htm.

Paper 12.a. Uganda: Saving a Nation Besieged by Cassava Mosaic Disease Epidemic, by University of Greenwich

Paper 12.b. From Crisis to Confidence: How Improved Cassava Turned the Tide in Uganda, by The Gatsby Charitable Foundation

Paper 13. Food, Nutrition and Economic Empowerment:The Case for Scaling up the Tissue Culture Banana Project to the Rest of Africa, by Florence Wambugu

Paper 14. Are horticultural exports a replicable success story? Evidence from Kenya and Côte d'Ivoire, by Nicholas Minot and Margaret Ngigi

Paper 15. Improving Kenya's Domestic Horticultural Production and Marketing System: Current Competitiveness, Forces of Change and Challenges for the Future, by David Tschirley, Kavoi Mutuku Muendo, and Michael T. Weber

Paper 16.a. Successes in African Agriculture: The Case of Smallholder Dairying in Eastern Africa, by Margaret Ngigi

Paper 16.b. Dairy Development in Ethiopia, by Mohamed A.M. Ahmed, Simeon Ehui and Yemesrach Assefa

Paper 17. Fodder shrubs for improving incomes of dairy farmers in the East African Highlands, by Steven Franzel and Charles Wambugu

Paper 18. Development of bright spots in Africa: cause for cautious optimism? By A.D. Noble, J. Pretty, F. Penning de Vries and D. Bossio.

Paper 19. Human Resources as a Driver of Bright Spots: the Case of Rainwater Harvesting in West Africa, by Olufunke Cofie, Boubacar Barry and Deborah Bossio

Paper 20. Brights Spots on Technology-Driven Change in Smallholder Irrigation: Case Studies from Kenya, by Bancy M. Mati

Paper 21. Farmer Empowerment through Farmer Field Schools: A Case Study of IFAD/FAO IPPM FFS Programme in Kenya, by Godrick S. Khisa

Paper 22. The Experience of the North Western Integrated Community Development Programme in Somaliland, by Safia Omar and Mohamed Younis

Other References

Benson, Todd. 2004. Africa's Food and Nutrition Security Situation: Where Are We and How Did We Get Here? Background paper prepared for the 2020 Africa Conference "Assuring Food and Nutrition Security in Africa by 2020," Kampala, Uganda, April 1-3, 2004. Washington, DC: International Food Policy Research Institute.

Byerlee, Derek and Eicher, Carl editors. 1997. Africa's Emerging Maize Revolution. Boulder, Colorado: Lynn Reinner.

Chamberlin, Jordan; Diao, Xinshen; Haggblade, Steven; Omamo, Steven Were and Wood, Stanley. 2004. "Diversity, Challenges and Opportunities in the Greater Horn of Africa." Conference Paper No.4 NEPAD/IGAD Regional Conference on Agricultural Successes in the Greater Horn of Africa, Nairobi, November 22-25. Pretoria: NEPAD.

Cleaver, Kevin M. and Schreiber, Gotz A. 1994. *Reversing the Spiral: The Population, Agriculture and Environment Nexus in Sub-Saharan Africa.* Washington, DC: The World Bank.

Diao, X.; Dorosh, P. and Rahman, S. 2003. "Market Opportunities for African Agriculture: An Examination of Demand Side Constraints on Agricultural Growth." Development Strategy and Governance Division Discussion Paper No.1. Washington, DC: International Food Policy Research Institute.

Diao, X.; Chamberlin, Jordan; Omamo, Steven Were; and Wood, Stanley. 2004. "Strategies for Agricultural Productivity Increase in the ASARECA Region." Kampala, Ugand: ASARECA.

Fan, Shenggen and Rao, Neetha. 2003. "Public Spending in Developing Countries: Trends, Determination and Impact." *EPTD Discussion Paper No.99.* Washington, DC: International Food Policy Research Institute.

Gabre-Madhin, Eleni and Haggblade, Steven. 2004. "Successes in African Agriculture: Results of an Expert Survey." World Development 32(5):745-766.

Harlan, Jack R. 1995. The Living Fields, Our Agricultural Heritage. Cambridge, England: Cambridge University Press.

Inter Academy Council. 2004. Inventing a Better Future: Strategy for Building Worldwide Capacities in Science and Technology and Realizing the Promise and Potential of African Agriculture. Amsterdam: The Inter Academy Council.

International Food Policy Research Institute (IFPRI). 2003. "Analyzing Successes in African Agriculture: The DE-A-R Framework," *Successes in African Agriculture Conference Background Paper No.18.*

Millennium Project Task force on Hunger. 2004. "Halving Hunger by 2015: A Framework for Action." New York: Millennium Project.

New Partnership for Africa's Development (NEPAD). 2003. *Comprehensive Africa Agriculture Development Programme*. Midrand, South Africa: NEPAD.

Penning de Vries, F.W.T.; Acquay, H.; Molden, D.; Scherr, S.J.; Valentin, C.; and Cofie, O. 2003. Integrated Land and Water Management for Food and Environmental Security. Comprehensive Assessment of Water Management in Agriculture, Research Report 1. Colombo: International Water Management Institute.

Pretty, J. and Hine, R 2004. "Measuring Progress Towards Agricultural Sustainablility in Developing Regions." Report to DFID for Project CNTR 02 4047: An Analysis of Findings from the University of Essex SAFE2 Project. London: DIFD.

Pretty, J. and Koohafkan, P. 2002. "Land and Agriculture: A Compendium of Recent Sustainable Development Iniatives in the Field of Agriculture and Land Management." Rome: Food and Agriculture Organization.

Regional Agricultural Trade Expansion Support (RATES) Program. 2003. Regional Maize Trade Policy Paper. Nairobi: RATES.

Rindos, David. 1984. The Origins of Agriculture: An Evolutionary Perspective. Orlando, Florida: Academic Press.

Sahn, David E., Dorosh, Paul A. and Younger, Stephen D. (1997). *Structural Adjustment Reconsidered– Economic Policy and Poverty in Africa*. Cambridge, UK: Cambridge University Press.

Smaling, Eric M.A.; Nandwa, Stephen M.; and Janssen, Bert H. 1997. "Soil Fertility in Africa is at Stake." *Replenishing Soil Fertility in Africa: SSSA Special Publication No.51*, pp. 63-80. Madison, Wisconsin: Soil Science Society of America.

Smith, Bruce D. 1995. The Emergence of Agriculture. New York: Scientific American Library.

Tefft, James. 2003. " Mali's White Revolution: Smallholder Cotton from 1960 to 2003," *Successes in African Agriculture Conference Background Paper No.4.*

Thornton, Philip; Wood, Stanley and Freeman, Adi. 2003. "Integrating Spatial and Nonspatial Data for Targetting Investments." SAKSS Regional Stakholder Consultation. Entebbe: International Food Policy Research Institute.

Whiteside, Martin; Chuzo, Pia; Maro, Moses; Saiti, Donata; and Schouten, Marie-Jose. 2003. "Enhancing the Role of Informal Maize Imports in Malawi Food Security." Lilongwe: DFID.

Wiggins, Steve. 2000. "Interpreting Changes from the 1970s to the 1990s in African Agriculture Through Village Studies." *World Development* 28(4):631-662.

Wood, Stanley. 2000. "The DREAM Model." Washington, DC: International Food Policy Research Institute.

World Bank. 2000. *Can Africa Claim the 21st Century?* Washington, DC: World Bank.

You, Liangzhi; Chamberlin, Jordan; and Wood, Stanley. 2003. "Spatial Allocation of Crop Production: Generating Plausible Maps of Agricultural Production for Sub-Saharan Africa." Dakar: International Food Policy Research Institute.

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ANNEX B. SPONSORING INSTITUTIONS

CTA

The Technical Centre for Agricultural and Rural Cooperation (CTA) was established in 1983 under the Lomé Convention between the ACP (African, Caribbean and Pacific) Group of States and the European Union Member States. Since 2000, it has operated within the framework of the ACP-EC Cotonou Agreement.

CTA's tasks are to develop and provide services that improve access to information for agricultural and rural development, and to strengthen the capacity of ACP countries to produce, acquire, exchange and utilise information in this area. CTA's programmes are designed to: provide a wide range of information products and services and enhance awareness of relevant information sources; promote the integrated use of appropriate communication channels and intensify contacts and information exchange (particularly intra-ACP); and develop ACP capacity to generate and manage agricultural information and to formulate ICM strategies, including those relevant to science and technology. CTA's work incorporates new developments in methodologies and cross-cutting issues such as gender and social capital.

IFAD

The International Fund for Agricultural Development (IFAD), a specialized agency of the United Nations, was established as an international financial institution in 1977 as one of the major outcomes of the 1974 World Food Conference. One of the most important insights emerging from the Conference was that the causes of food insecurity and famine were not so much failures in food production, but structural problems relating to poverty and to the fact that the majority of the developing world's poor populations were concentrated in rural areas. In this context, IFAD was created to mobilize resources on concessional terms for programmes that alleviate rural poverty and improve nutrition. Unlike other international financial institutions, which have a broad range of objectives, the Fund has a very specific mandate: to combat hunger and rural poverty in developing countries. The Fund's target groups, therefore, are the poorest of the world's people: small farmers, the rural landless, nomadic pastoralists, artisanal fisherfolk, indigenous people and rural poor women.

IFPRI

IFPRI was founded in 1975 to develop policy solutions for sustainably meeting the food needs of the developing world. Research, capacity strengthening, and policy communications at IFPRI concentrate on achieving economic growth and poverty reduction in low-income countries, improving food and nutrition security of poor people, and managing the natural resource base that supports agriculture. IFPRI researchers work closely with national counterparts and collaborate to strengthen research capacity in developing countries. IFPRI communicates the results of its research to influence policymaking and raise public awareness about food security,

poverty, and natural resource issues. Through its 2020 Vision Initiative and its regional networks IFPRI seeks to develop a shared vision and consensus for action on how to meet future world food needs while reducing poverty and protecting the environment. IFPRI further strengthens the link between research and policymaking through its regional networks.

Based in Washington, DC, IFPRI is one of 16 food and environmental research centers supported by the Consultative Group on International Agricultural Research. The institute receives its principal funding from governments, private foundations, and international and regional organizations, most of which are members of the CGIAR.

IGAD

In 1996, regional Heads of State and Government approved an Agreement Establishing the Intergovernmental Authority on Development (IGAD). The IGAD Council of Ministers identified three priority areas of co-operation:

- Conflict Prevention, Management and Resolution and Humanitarian Affairs;
- Infrastructure Development (Transport and Communications);
- Food security and environmental protection.

The new IGAD built on an earlier Intergovernmental Authority on Drought and Development (IGADD) formed in 1986 to combat drought and desertification. The founding members decided, in the mid-1990's, to revitalize the organization into a fully-fledged regional political, economic, development, trade and security entity similar to SADC and ECOWAS. They envisaged that the new IGAD would form the northern sector of COMESA with SADC representing the southern sector. Member countries include Eritrea, Ethiopia, Djibouti, Kenya, Somalia, Sudan and Uganda.

InWEnt

InWEnt – Capacity Building International, Germany (GmbH) – is a government owned agency for human resources development dedicated to international co-operation. It was established in 2002 through a merger of Carl Duisburg Gesellschaft (CDG) and the German foundation of International Development (DSE). InWEnt's mandate is to contribute to sustainable development by co-operating with national and international clients in politics, business and society. It's Department of Environment, Natural Resources and Food focuses on challenges posed by the environment, natural resources, rural areas and nutrition.

InWEnt targets the movers and shakers of politics, managers and professionals from developing and transformational countries. It provides management strengthening, institutional capacity building, and organizational support for international dialog fora and specialized training and conferences. Annually, InWEnt welcomes 9000 training participants, professionals, managers and junior managers to Germany and partner countries through our 22 senior project managers.

IWMI

The International Water Management Institute is a nonprofit scientific research organization focusing on the sustainable use of water and land resources in agriculture and on the water needs of developing countries. IWMI works with partners in the South to develop tools and methods to help these countries eradicate poverty through more effective management of their water and land resources. The Institute adopts a multidisciplinary approach to water management research, combining the expertise of economists, agronomists, hydrologists, engineers, sociologists, management specialists and health researchers. IWMI is a member of the Future Harvest group of agricultural and environmental research centres.

Kenya Ministry of Agriculture

Kenya's economy depends heavily on agriculture. 75% of Kenyans make their living from farming. Despite its dense population, Kenya's food production has kept pace with its population growth. Only in 1984, a year of drought, was a deficit in food production registered. The Ministry of Agriculture supports the country's farmers through a comprehensive network of research, extension and marketing agencies.

NEPAD

The New Partnership for Africa's Development (NEPAD) is a pledge by African leaders, based on a common vision, to develop a program of action for the redevelopment of the African continent. The goals of NEPAD are to promote accelerated growth and sustainable development, to eradicate widespread and sever poverty, and to halt the marginalization of Africa in the globalization process.

The NEPAD Secretariat, based in Pretoria, orchestrates these efforts by coordinating high-level policy discussions among African states and with western economic leaders, by monitoring global and domestic political and economic processes, and by collaborating with domestic and international institutions in strategic and capacity building efforts.