



WHAT WILL EAST
AFRICANS EAT IN 2040?

WHO WILL PRODUCE THE
FOOD AND HOW?

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Researched & Written by
Victor Ogalo, (former) Programme Officer, CUTS Nairobi

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Abbreviations

ADB:	African Development Bank
AMSDP:	Agricultural Marketing Systems Development Programme
ASALs:	Arid and Semi-Arid Lands
ASDS:	Agricultural Sector Development Strategy
ASPS:	Agricultural Sector Programme Support
BTC:	Belgian Technical Cooperation
CAADP:	Comprehensive African Agriculture Development Programme
CAP:	Common Agricultural Policy
CFSVA:	Comprehensive Food Security and Vulnerability Analysis
COMESA:	Common Market for Eastern and Southern Africa
DADP:	District Agricultural Development Programme
DANIDA:	Danish International Development Agency
DSIP:	Development Strategy and Investment Plan
EAC:	East African Community
EAC-ARDS:	EAC Agricultural & Rural Development Strategy, 2005-2030
EC:	European Commission
EMA:	Environmental Management Act
ERS:	Economic Recovery Strategy
FAO:	Food and Agriculture Organisation
FSNP:	Food Security and Nutrition Policy
GDP:	Gross Domestic Product
GHG:	Greenhouse Gas
GMOs:	Genetically Modified Organisms
HBS:	Household Budget Surveys

HIPC:	Highly Indebted Poor Countries
HSSP:	Health Sector Policy and Strategic Plan
IFAD:	International Fund for Agricultural Development
IMF:	International Monetary Fund
KAPP:	Kenya Agricultural Productivity Project
KSPFS:	Kenya Special Programme for Food Security
MDGs:	Millennium Development Goals
MKUKUTA:	National Strategy for Growth and Reduction of Poverty
NAAIAP:	National Accelerated Agricultural Inputs Access Programme
NALEP:	National Agriculture and Livestock Extension Programme
NAP:	National Agriculture Policy
NASEP:	National Agricultural Sector Extension Policy
NMK:	Njaa Marufuku Kenya
ODA:	Official Development Assistance
OECD:	Organisation for Economic Cooperation and Development
PADEP:	Participatory Agricultural Development and Empowerment Project
PHDR:	Poverty and Human Development Report
PMA:	Plan for Modernisation of Agriculture
PRSP:	Poverty Reduction Strategy Paper
RDS:	Rural Development Strategy
RFSP:	Rural Financial Services Programme
SACOS:	Saving Cooperatives
SRA:	Strategy for Revitalising Agriculture
SSR:	Self-Sufficiency Ratio
TFR:	Total Fertility Rate
TMEA:	TradeMark East Africa
UFNP:	Food and Nutrition Policy
UFNS:	Uganda Food and Nutrition Strategy
USAID:	United States Agency for International Development
WB:	World Bank
WFP:	World Food Programme
WTO:	World Trade Organisation

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Foreword

Africa has roughly half of all the people living today who are under 16 years of age. How these people are to live, what they are to eat and how they will feel about and interact with the rest of the world is deeply important to everybody.

Policymakers across the world have tended to see domestic agriculture as a source of cheap food, a means to manage a potentially restive urban population. In effect, city dwellers are subsidised by farmers, and poverty is exported to the countryside. According to the World Bank, four-fifths of Africa's poor live in rural areas, and nearly all of them work in agriculture. As the world heads for a population of perhaps nine billion people, and as primary resources such as good land, energy and water become increasingly scarce, such policies are no longer a practical response. Agriculture – and the complex chain of information, money and physical flows that ultimately puts food on the table – needs not be merely investment, but a changed status in the minds of policymakers.

Africa has suffered from chronic rural underinvestment. The Sub-Saharan African (SSA) share of agriculture in gross fixed capital formation remained static from 1980-2002, but rose by five times in East Asia and three times in South Asia over the same period. Productivity growth¹ has been slow. Output per person rose by 40 percent since 1980 in the aggregate of developing countries but changed very little in SSA over the same period. The production in many nations has not kept pace with population growth. Individual countries have, however, shown a very wide range of

outcomes – from productivity drops to substantial gains – and correction for political and economic disturbance. Policy matters: how farming is approached varies substantially by country, and the profitability of the sector, the capital which it attracts and its share in national wealth generation varies directly with this.

These issues are not new, but they are newly-acute in their implications. For a wide range of reasons, it is likely that food is going to become more expensive over the next decade. Buying it represents between half and two thirds of the cost of living for the poor population. As many SSA countries become net agricultural importers, food security represents an increasingly important political goal. Failing to ensure adequate, inexpensive food may lead to political discontinuities. Agriculture has not, perhaps, occupied the attention of policymakers as it should.

The CUTS study is a fine example of a managed attempt to bring these issues to a policy audience. It is a near-perfect application of the use of scenario planning, generating alternative models through which the future can be viewed. This is, of course, the beginning and not the end of process, and this study should be the foundation stone for what is built upon it.

Dr Oliver Sparrow
Chairman, Challenge Network

1 The Decline and Rise of Agricultural Productivity in sub-Saharan Africa Since 1961 (Steven Block NBER Working Paper 16481 www.nber.org/papers/w16481)

Preface

CUTS Centre for International Trade, Economics and Environment; Nairobi (CUTS-CITEE), with funding support from the Trade Mark East Africa (TMEA) undertook a scenario building exercise for East Africa's agriculture and food security in 2014. This pioneering work is aimed at developing viable policy alternatives for all relevant stakeholders to ensure that the people of this region have sustained and sustainable access to sufficient food.

Agriculture is of major importance to all countries in the region and its role is crucial for food security and as the driver for livelihood and poverty reduction. Not only does it constitute a substantial portion of their economies, foreign exchange and trade, the sector is of tremendous importance due to the percentage of the labour population it employs. The potential of agriculture to contribute to inclusive and sustainable growth and development in these countries is undeniable. In fact, the widespread poverty in these countries which is a main cause of food security and is much more pronounced in rural areas cannot be eradicated without such agricultural development.

It is important to note that most countries in the region are net importers of food, manifesting a high prevalence of poverty, hunger and malnutrition and affirming that agriculture is not delivering its potential as a driver for poverty alleviation, rural livelihoods and food security. Changing climatic patterns further exacerbate the problem as the farmers are often dependent on good weather and rain for irrigation purposes.

The reasons behind the lack of the full utilisation of the potential of agriculture in the region are many with the following as the most relevant:

- Post- independence government policies focussed mostly on import substitution, with special emphasis on industrial development by indirectly taxing agriculture;
- Primary focus was on self-sufficiency in food production, with lesser emphasis on issues relating to food accessibility and affordability; and
- Perpetuation of the colonial legacy whereby the production and trading patterns remained largely extractive (minerals, energy products) and outward looking.

Hence, the Green Revolution which had a lasting impact on countries in Asia by increasing agricultural productivity and economic growth seems to have bypassed this region.

Therefore, strategies and interventions at policy level focussing on the achievement of long term food security in these countries have to give precedence to the agricultural sector. There should be clear and unequivocal acknowledgement of the critical importance of the agriculture sector by all concerned at the national, regional and international levels. This should also be appropriately reflected in all international, regional and bilateral agreements, as well as national policies and practices of governments, and efforts and actions of donors.

Trade can play an important role in unleashing the potential of agriculture. Greater regional integration including through open trading arrangements can not only boost economic growth through the creation of larger markets and reducing dependence on the mature and slowly growing developed country markets, but can also improve livelihoods by generating business activities particularly in the small and medium sectors. Moreover, regional trade in agriculture, and particularly in food products, can improve food security by allowing movement from surplus to deficit countries and areas. In a similar manner, international trade too

can generate the required opportunities, production, and resources to improve long term food security for all segments of the population including farmers, labour, and small traders and entrepreneurs.

However, for trade to play its positive role, a number of trade infrastructure constraints in these countries must be addressed. These constraints have led to fragmented and imperfect markets, increased costs of agricultural production and trade, and hence have impoverished households and increased their food insecurity. Landlocked countries such as Burundi, Rwanda and Uganda are particularly affected as their imports and exports have to cover larger distances across several borders to reach their destinations.

There is a general recognition of these constraints and several schemes are being implemented related to, among others: the harmonisation of customs documentation and procedures; the introduction of a code on handling goods in transit; the harmonisation of axle load; the harmonisation of SPS measures and technical barriers to trade (TBT); and a number of Corridor schemes to link landlocked countries to ports.

This is a promising start though a lot more still needs to be done. This study provides useful analysis and relevant recommendations in this regard which can be employed for holistic, sustained and coordinated action. Nothing less will suffice to face the challenge successfully.

CUTS is proud to have made this contribution and will continue to work with its partners to ensure a food secure East African region in 2040.

Jaipur, India
December 2013

Pradeep S Mehta
Secretary General
CUTS International

Executive Summary

The study report explores the existing dilemma in realising sustainable food security in the EAC. The report analyses whether the EAC has positioned itself to attain sustainable agricultural production and food security for its population, given the enormous challenges and uncertainties lying ahead. The study was conducted with the following specific objectives:

- a) To discuss the state of food security and agricultural development in the EAC and to understand the drivers, trends and challenges affecting agricultural development and food security in the region; and
- b) To interrogate and deduce various results within the possible scenario setups. This is meant to provide an important input into developing robust and viable EAC policies for agriculture and food security.

The report analyses various scenarios explaining how stakeholders perceive the evolution of agricultural development and food security. The output of the scenario-building exercise confirms that East Africans face a tremendous complexity of systemic pressures on agricultural development and food security. At the same time, it is not clear whether the relevant institutions in the respective partner states are up to the task of discerning and articulating the choices, navigating and arbitrating between competing interests and resolving conflict by finding common ground on which to enlarge the space for vision and action.

The report indicates that the greatest challenge for EAC is to ensure that the food system continues to supply affordable and nutritious food for its growing population. The other challenge

facing the region's policy makers is how to avoid the threat of future price volatility in food markets. High volatility in import commodity prices will have adverse effects not only for consumers and producers but also for the macro-economy due to reduced public finances and ability to import other foods. The other emerging challenge confirmed by the report is about the competition for scarce agricultural resources.

The report further underscores the current competition for scarce agricultural resources as a future threat to food production, especially where bio-ethanol production, increased urbanisation and industrial development will mean competition for critical resources such as land, water and energy. The study also delineates specific number of challenges and gaps that are thought to be the leading causes and threats to agricultural development and future of food security. These challenges include poor access to markets, low access to affordable and good quality inputs by farmers; changing consumer diets and eating habits; undercapitalisation of agriculture; rising energy prices; effect of increasing demand for alternative energy and energy security; constrained financing and access to credit by farmers; high population growth rates above food production growth raising food prices; labour shortage due to urban migration and diseases, mainly HIV/AIDS; land and water constraints; environmental degradation; inefficient utilisation of the available water resources for production, including for irrigated agriculture; and inadequate and weak farmer's institutions incapable of supporting a vibrant agricultural sector.

Based on the study findings, the report recommends various strategies to address the constraints inhibiting future status of food security in the EAC. These strategies should be considered by the regional authorities when formulating an inclusive 'Action Plan' to address the challenges posing threat to future food security in the region. Some of the key recommendations include:

- investment in productivity by enhancing inputs leading to a better exploitation of good seasons;
- creating mechanism to enhance credit availability;

- developing regional policies to reduce the need for food aid and hand-outs;
- developing policies to emphasise linking the emergency food aid to long-term development;
- enhancing tailor-made programmes on food security for marginal groups such as vulnerable communities, households and individuals;
- promoting the use of appropriate technologies/inputs that are adaptive to climate change impacts; and
- optimising the use of water for agricultural production by promoting integrated water resources management in the EAC, including joint water systems.

1

Introduction

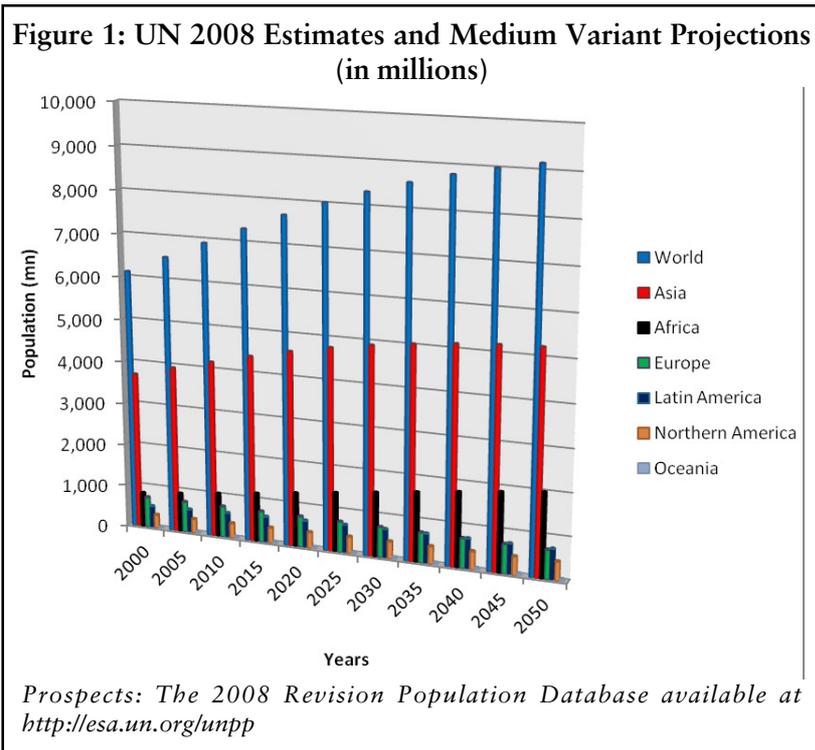
Global Food Insecurity in Perspective

After 19 centuries, the world's population reached one billion people. But, two centuries later, this population multiplied six-fold in 1999 and, by 2011, the seven billionth person had come along. This unprecedented exponential growth in human population has been largely attributed to improvements in public health, income and food production during the period.

Over the next forty years to 2050, the population will rise by about 38 percent, mostly in poor nations. Africa's population will continue to rise steadily, while Asian population will rise at a decelerating rate, even though the Asian continent would still carry more than half the world's population (see Figure 1).

To match the anticipated rise in food demand, the UN and World Bank, among other organisations, have estimated that current levels of food production would have to rise by 70-100 percent.¹ However, the UN's FAO has expressed cautious optimism that the world would be able to raise its productivity of food production² if the current unsustainable ways of food production and the unregulated global food markets are reversed.³ The immediate questions are: why would an increase in population by only one-third be matched by such a disproportionate rise in food production? Is the world going to get hungrier during the 21st century? Could the earth's ecosystem be approaching its breaking point in terms of its carrying capacity?

Table 1: World Population Growth: Past, Present and Future		
Population Size	Reached in	Interval between Next 1 Billion People
1 Billion	1804	
2 Billion	1927	123 years later
3 billion	1960	33 years later
4 Billion	1974	14 years later
5 Billion	1987	13 years later
6 Billion	1999	12 years later
7 Billion	2011	12 years later
8 Billion	2028	15 years later
9 billion	2050	22 years later



Out of the current population of seven billion people, an estimated one billion are suffering from direct hunger (FAO, 2009)⁴ and another one billion from hidden hunger.⁵ Each year, undernourishment kills more than 3.5 million children and robs the poor of a healthy and productive life.⁶ As a result, the mental and physical development of the next generation of the present poor people is stunted. Such malnutrition level has been estimated to cost developing countries up to three percent of their annual gross domestic product (GDP).⁷ African continent is scourged with both food insecurity and poverty relatively more than any other region.

Many of the gains in agricultural production during recent decades may not be sustainable. Most high-potential agricultural lands are already densely populated such that much of the increase in food production has been due to the expansion of agriculture onto lands inappropriate for long-term agricultural use or due to irrigation from underground water supplies that will soon be depleted. Environmental costs of these gains could be high. Intensive inputs of chemical fertilisers and pesticides for the 'Green Revolution' pollute the water that runs off farmland. And, while genetically modified organisms (GMOs), whether crops or livestock, could increase food production by as much as 20 percent beyond the gains of the Green Revolution of 1960s, these GMOs come with unanticipated detrimental effects on human health and the environment. It was discovered recently that pollen from corn that has been genetically modified to kill insect pests may drift out of cornfields and kill butterflies.

Over the next decades, globalisation will continue to expose the global food system to new economic and political pressures. On the production side, competition for land, water and energy will intensify, with people having to make a choice whether to produce crops for human consumption or for processing bio-fuels. If current predictions of population growth prove accurate and patterns of human activity on the planet remain unchanged, then science and technology may not be able to prevent either irreversible degradation of the environment or continued poverty

for much of the world. These factors would present substantial challenges to food security, most notably, in the African continent, where challenges to agriculture are greatest (these challenges are discussed in Chapter Three).

Any attempt to progressively produce more food for the rising populations will thus require much effort. Africa must no longer delude itself in 'free lunches' whenever it faces food crisis. Trends show that official development assistance (ODA) and food aid have both been on the decline during the last three decades. The proportion of ODA devoted to the agricultural sector has declined from as much as 17 percent in the late 1980s to a maximum of six percent in recent years.⁸ At the same time, volumes of food aid today have hit a 50-year low.⁹

In addition, as ODA declines and as higher food prices persist beyond 2015,¹⁰ money dedicated to food aid will not only go down but will also decline in its purchasing power. This will put limits to the effectiveness of food aid and result in lack of confidence on markets.

Huge investment is going to be required to develop African agriculture to produce food in commercial quantities that will serve both the domestic and export markets. To do so, African countries must seek sources other than grants and loans to make such investments. In addition to the challenge of getting the right quantity of investment in agriculture, increasing food supplies in the world would have to face enormous threats from climate change, water scarcity, environmental degradation, sky-rocketing farm-input prices and competition for scarce energy resources. It will require doing more with less water and other natural resources, energy and financial resources.

To harness the scarce resources against the competing demands for them will demand more efforts in finding appropriate technologies and more resilient policies. Every choice to be made will both have its advantages and disadvantages. Every gain to be achieved will be accompanied by its costs. One of the costs of more food will have to be more work and costly investments. Whichever choices are made, some rethinking is necessary, not

least, to overhaul the present unsustainable systems of agricultural production to systems that will be more resilient and responsive both to the perceivable and unforeseen future challenges.

What is the Agrarian Question for East Africa?

The desire to progressively increase agricultural productivity and attain sustainable food security has led the East African Community to develop a regional “*Food and Nutrition Security Policy*”. But, as this report reveals, it is unclear whether this policy will have a chance to achieve the intended goal. Key questions are raised concerning the future of agriculture and food security in East Africa.

These include whether the region’s policy makers understand the world in which the food-security policy is expected to operate and whether the policy in place will remain viable even in the most turbulent of times. While these questions remain critical, the key question is how the EAC should position itself to attain sustainable agricultural production and food security, given the enormous challenges and uncertainties lying ahead.

Indeed, the key policy issues that the region would need to deal with include whether to focus more on improving smallholder subsistence farming or large-scale technified agriculture; whether to focus on the rural poor or the urban poor in view of the continued rise in food prices; and, whether the region could meet its food security needs through food self-sufficiency or imports?

While this report discusses these questions, the key concern is what the EAC region must do enhance food security and sustainable agriculture. Part of the solution will require that the region begins to think strategically and futuristically.

As a contribution to the process of developing viable EAC Food Security Policy, CUTS Office in Nairobi (the Centre for International Trade, Economics and Environment) initiated a project entitled “*Scenario Planning for East Africa’s Agriculture Development and Food Security beyond 2020.*” Through the support of TradeMark East Africa (TMEA), CUTS was able to

hold country-based discussions within East African region in 2010 with many stakeholders concerned with the practice and policies around agriculture and food security. The results of these discussions have been compiled together with background literature on the state and the future of food security in the respective EAC countries (discussed in Chapter Three).

In addition, as part of this larger process, CUTS organised a two-day scenario-building exercise in Nairobi in February 2011 in which it invited the region's policy makers and planners, scholars, farmers, consumers and traders to consult and discuss the EAC's prospects of a vibrant agriculture sector and food security goals. Through the use of scenario stories,¹¹ the stakeholder participants sought to establish possible trajectories that agriculture development and food security in East Africa might take and how the region might need to respond. These scenario stories have been summarised and presented in Chapter Five of this volume.

Objective

This research had two primary objectives. One was to discuss the state of food security and agriculture development in EAC and to understand the drivers, trends and challenges affecting agricultural development and food security in the region. The other one was to integrate these results within the possible scenario setups, with the main aim that the report could provide an important input into developing robust and viable EAC policies for agriculture and food security.

Structure of the Paper

This paper has been structured as follows. Chapter One is the present section on introduction. Chapter two introduces the concept of 'scenarios', explaining what scenarios are intended to do and the value of scenario-planning in policy-making. Chapter Three reviews the state of agriculture and food security in the

EAC region, bringing out the challenges and the current state of public policy on agricultural development and food security. In Chapter Four, the report explores the drivers and trends affecting and influencing agricultural development and food security nationally, regionally and worldwide.

Chapter Five outlines key challenges drawing from the drivers and trends that East African Community has to deal with for its agricultural development and food security. Chapter Six discusses the possible scenarios that might unfold that will most likely impact East Africa's provides a summary of the scenario-building exercise developed together with key stakeholders from the region, explaining how stakeholders perceive the evolvement of agricultural development and food security. Finally, Chapter Seven provides a summary of the conclusions of the report, lessons learnt and policy recommendations.

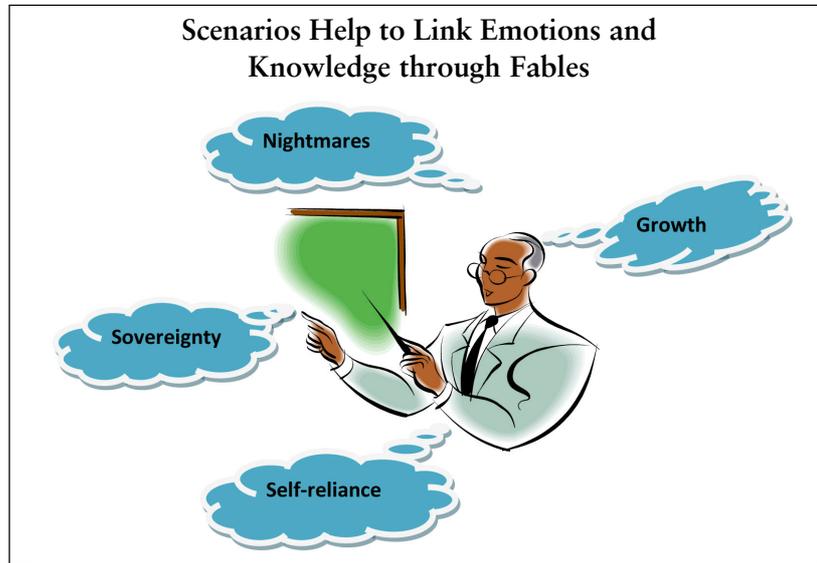
2

Overview of Scenarios in Planning

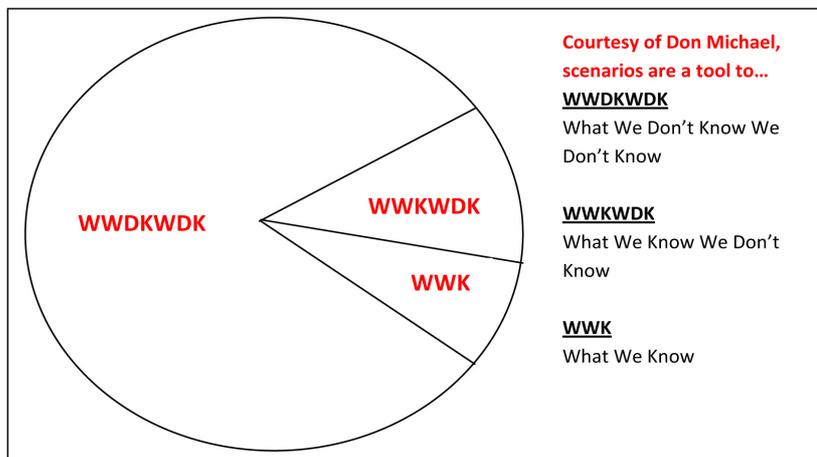
Understanding Scenarios and their Purpose in Planning?

Scenarios are rigorous stories about the future. Basically, scenario stories are preoccupied with describing a world we might have to face, not a world we want to face. They, therefore, embody a wide variety of ideas, integrating them in a way that is communicable and useful, simple, memorable and sharable. Scenarios seek to illuminate the future conditions within which we will seek to meet our goals and achieve our dreams. They are, therefore, **fales of the future which are:** internally consistent; plausible - can happen or stand up to rigorous analysis; credible - can be explained; and relevant to the current concerns of leadership and provoke conversations about key relevant issues; and, challenging – they stretch the thinking of leadership, taking leaders beyond what they know.

Courtesy of Pierre Wack, perhaps “the most important purpose of scenario building process is to shift the thinking of the leadership about what might happen in the future, in the external environment”. Therefore, whilst scenario stories do not seek to pass for predictions or the truth, they challenge the leadership and all concerned stakeholders to imagine what responses they might want to consider depending on their individual and corporate goals in whichever world or set of circumstances they might find themselves living in. Perhaps, the biggest role of scenario



planning is to help leaders understand things that they do not think they don't know (see chart).

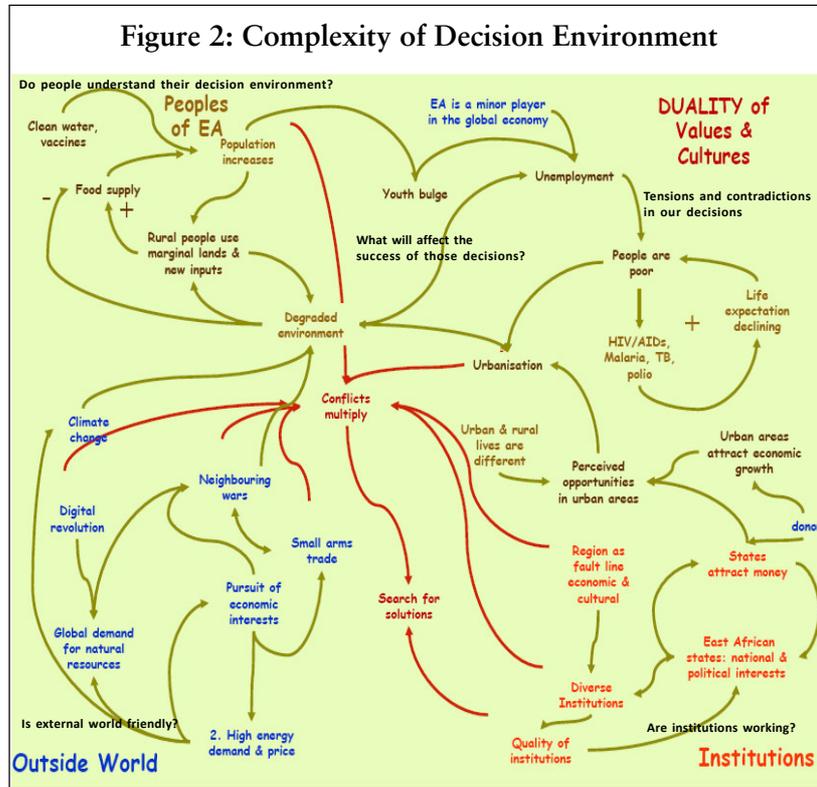


To quote Arie de Geus, “the only relevant question about the future is not whether something will happen but what we would do if it happened”. Scenarios tell us the facts about our world and ourselves, what we assume about the future so that we can determine what we want to achieve and what our values are. Thus, development of scenarios in policy-making serve to help the leadership to anticipate the most uncomfortable, the most unexpected and the hard-to-imagine or less acceptable things about the future so as to prepare appropriate responses. For example, what would we as leaders do if our world turned like the pictures above depict? Scenario planning helps the leadership to anticipate such things, to make sense of them and to develop a counter-strategy to face such future.



Scenarios Help People Make Correct Choices under Complex Decision Environment. Our decision environments can be as complex as depicted in Figure 2. The purpose of scenario planning would be to help us simplify such complex environments around which we make decisions so that we are able to make appropriate choices and be able to have a chance of success.

Scenarios are a bridge to strategic conversation. The end products of scenario planning usually feed into a larger strategic planning conversation. Scenarios should, therefore, help to clarify policy options and consequences. Understanding developments



in trends and emerging issues prompts ongoing strategic and tactical decisions at all levels of the organisation.

In summary, scenarios are stories about the future, but their purpose is to help policy makers and leaders to make better decisions about the future in the present time. The decisions we make about the future depend on how we think (assume) the world works. But, scenarios come to help address blind spots by challenging our underlying assumptions, expanding our vision and combining information from many different disciplines.

If we can understand our current facts, past trends and events, the deep continuities we face, new driving forces, tensions and contradictions we face, the uncertainties and inescapable facts

then we can be better enabled to face the future with confidence. Only then will we be able to draw clear scenarios that will help us depict possible futures and be able to devise appropriate strategies. In the next Chapter, we intend to explore each of these variables with regards to agricultural development and food security future of East African Community (EAC) countries.

3

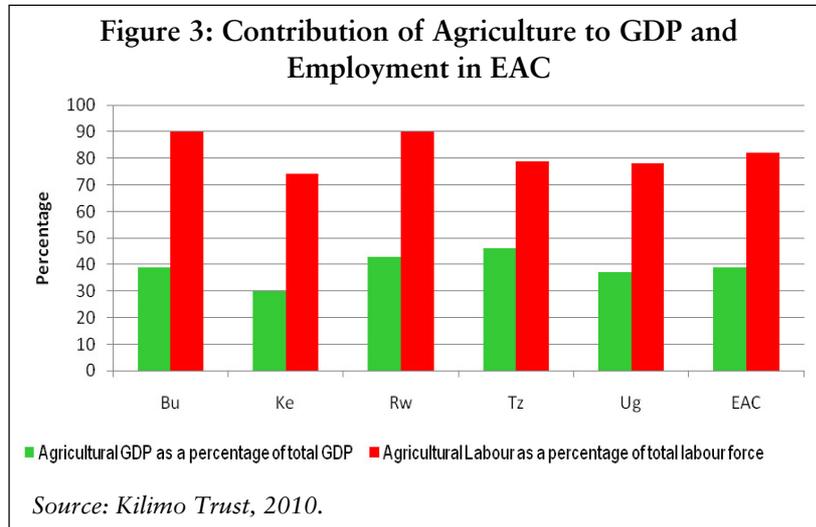
State of Agricultural Development and Food Security in the East African Community

Importance of Agriculture Sector to EAC Economies

East African agriculture has remained largely traditional and concentrated in the hands of smallholders and pastoralists. Since farming is largely rain-fed, yields are low and farmers have usually been trapped in a cycle of poverty and food insecurity for decades. Nevertheless, agriculture remains an important economic sector in the region, as reflected in its share in GDP and employment (Figure 3, see page 14). However, as is clear from the figure 3 that, agriculture contributes highest to employment than any other sector, but disproportionately lower to GDP.

The question is: Why this should be so? African agriculture contributed 29.2 percent to GDP in 1979-81 and 24.6 percent in 2002-2004, compared with the world averages of seven percent and three percent, respectively. This can be largely explained by the point that EAC is keeping too many smallholders on the farm whose productivity is low and the fact that the region continues to trade in raw agricultural commodities.

Although the share of agriculture in East Africa's GDP declined from 47.2 percent in 1980 (UNECA, 2007) to below 40 percent presently, agriculture still holds the key to future industrialisation



and poverty reduction in the region. It continues to be the provider of jobs as well as livelihood to over 80 percent of the region's population. The importance of agriculture sector can also be viewed from its sectoral linkages, where agriculture supplies raw materials as well as final consumer goods to other sectors. At the same time, increased agricultural output and income usually tend to expand markets for the output of other sectors, including manufacturing and services. The sectoral multiplier effect on the economy is thus higher in agriculture than any other sector.

By this phenomenon alone, it is clear that a one-dollar increase in agricultural income would lead to an increase in aggregate income of more than two dollars on average in the economy. The experience of industrialised and high-income developing economies shows that, although the share of agriculture in GDP tends to decline over time, agricultural output normally increases in absolute terms. Agriculture should, therefore, remain a priority sector not only for national food security but also as a driver of growth (UNECA 2007).

Food Security Situation and Issues in EAC Countries

Burundi

Burundi is a net food importer. Primary exports include coffee and tea, which account for 90 percent of foreign exchange earnings, though exports are a relatively small share of GDP. The country's export earnings and, therefore, its ability to pay for food imports rest primarily on weather conditions and international coffee and tea prices. The dependence on coffee and tea, therefore, increases Burundi's vulnerability to fluctuations in seasonal yields and international prices of these two crops and also adverse weather conditions affecting the two cash crops.

Little industry exists in the country, except the processing of agricultural exports. Although potential wealth in petroleum, nickel, copper and other natural resources is being explored, the uncertain security situation has prevented meaningful investor interest in exploiting these resources. Despite an improvement in the security situation recently, the lack of adequate infrastructure (transportation and energy) has limited industrial development, which is hampered by Burundi's distance from the sea and high transport costs. Lake Tanganyika remains an important regional trading point.

There are enormous underlying weaknesses of the Burundian economy – a high poverty rate, poor education rates, a weak legal system and low administrative capacity. Seven out of ten Burundians live below the poverty line, with food, medicine and electricity in short supply. Serious economic problems include the significant role played by the state in the economy, lack of governmental transparency and a huge external debt. In its present state, Burundi will continue to remain heavily dependent on aid from bilateral and multilateral donors.

Food security situation in the country is very much wanting. Presently, the country experiences a 30-percent deficit in its annual domestic food production and has to rely on imports to plug the gap. Burundi is, therefore, a net food importer, with food imports accounting for 12.5 percent of total import value in 2009¹².

The country is experiencing a high population growth rate and, as the population grows, less fertile land is available for agriculture. The rising pressure on land is mainly attributed to the high demographic growth and large number of populations trooping back for resettlement.

The problem of land scarcity is further exacerbated by landlords who are hoarding land for speculative reasons. The average household farm size now stands at 0.4 ha per household and cannot support the prevailing large family sizes of between 6-8 children. In addition, large numbers of internally displaced persons have been unable to produce their own food and are constantly dependent on international humanitarian assistance.

Because of the long period of conflict, where many people perished and many more were displaced from their farms, agriculture has seriously been disrupted. The destruction or looting of crops and livestock, as well as widespread insecurity, has put rural Burundians under serious strains.

Given that the vast majority of these poor people are small-scale subsistence farmers, their ability to realise optimal production is severely depleted. Other constraining factors include scarcity or poor quality of agricultural implements and technology. Farming in the rural areas is still predominantly carried out using traditional farming implements, mainly hoes, while a negligible number uses oxen. This has limited optimal food production. There is also the problem of poor seed quality, limited market incentives, low productivity of labour, low cash incomes from subsistence agriculture, limited non-agricultural activities and high rates of illiteracy among a majority of farmers, constraining technology adoption.

Access to food in Burundi is alarmingly low, with only 18 percent of the population being food secure. Chronic malnutrition rate was reported in 2007 to stand at 46 percent of the country's population. Because of income poverty, a poor household spends up to 67 percent of its earnings on food [CURDES (2006) and Survey QUIBB 2006].

Kenya

Kenya's *National Food and Nutrition Policy* (2007) paints a gloomy picture of the food security status in Kenya. Kenya first developed its Food Policy in 1981 (Session Paper No. 4 of 1981) whose major objective was to maintain a position of broad self-sufficiency in major foodstuffs. Following the 1991-94 drought, the Policy was reviewed and attempts were made to promote a market economy, but with a limited scope. Despite the existence of these food policies, food insecurity has become a national disaster today.

Approximately half of the population today is poor and some 7.5 million people live in extreme poverty. In any given year, two to five million Kenyans stare at hunger, while, generally, about 10 million suffer from chronic food insecurity and malnutrition.

During the decades of 1980s and 1990s, annual growth rates of the agricultural sector kept declining from six percent in the 1960s and 1970s to 3.5 percent in the 1980s and to 1.3 percent in the 1990s and have been below population

growth rates. However, in the recent years, there has been an upturn in Kenya's economy, providing renewed opportunity to enhance food security.

The Central Bureau of Statistics surveys of 1998 indicated that 33 percent of children under five years were stunted and 22 percent were underweight, while six percent were severely malnourished. The same survey done in 2003 showed no significant improvement:

In February 2010, the food security symposium organised by the FAO's Country Office in Kenya in Nairobi put a spotlight on Kenya as one of the EAC countries with the largest food deficit. By May 2011, the Government of Kenya declared hunger a 'national disaster' and sought more humanitarian assistance. In addition to external assistance, key corporate institutions started an initiative dubbed "**Kenyans for Kenya**" which helped mobilise over a billion Kenya Shillings to boost the official basket for helping Kenyans faced with starvation.

30 percent were stunted and 20 percent were underweight, while six percent were severely malnourished.

Nationally, an estimated 1.8 million children (30 percent of children below five years) are classified as chronically undernourished. Malnutrition levels remain high, especially among vulnerable groups in the pastoral, agro-pastoral and marginal agricultural districts – largely the arid and semi-arid lands (ASALs) of the country. In these ASAL districts, 80-95 percent of people live below the poverty line and insecurity is a growing threat, as is conflict between neighbouring and cross-border communities over increasingly limited water and pasture resources.

Rwanda

Rwanda has a population that has been growing at a rate of 2.6 percent annually (2007) and it remains the most densely populated country in sub-Saharan Africa, considering a population density of 408 inhabitants per square kilometre¹³. The population is young: an estimated 42.7 percent are under the age of 15 and 97.5 percent are under the age of 65, while the population aged 60 years or above constitutes a paltry 1.6 percent.

Per capita GDP of the country is approximately \$245, with rural poverty rate standing at 67 percent. Agricultural sector generates 35-40 percent of GDP; 80 percent of employment (especially for women); 70 percent of export revenues (tea, coffee, pyrethrum, horticulture like fruits, vegetables and flowers); and 90 percent of national food needs. Food demand grows at an average of 4-5 percent annually, stimulated by population increases and income gains.

Rwanda has made significant economic progress in recent years. Since the end of 1998, annual GDP growth has averaged 5.8 percent per annum. Agriculture, which remains the most important economic sector, has grown from -0.4 percent in 2007 to 15 percent in 2008, resulting in significant improvements in the food and nutrition security of the population.

Given the prevailing levels of poverty in rural areas, it is not surprising that most rural households are not yet secure in their ability to obtain the food they need. According to the Comprehensive Food Security and Vulnerability Analysis (CFSVA), Rural Rwanda (World Food Programme, 2006), 28 percent of the rural population is food insecure, 24 percent is highly vulnerable and 26 percent is moderately vulnerable.

The CFSVA Survey in Rwanda identified three livelihood profile groups in Rwanda as being especially vulnerable to food insecurity: low income agriculturalists, agro-labourers and marginal livelihood. The largest absolute number of food insecure households is found among the low income agriculturalists. This group depends nearly uniquely on agriculture to sustain its livelihood and income. The agro-labourer group consists of households depending on labour (manual and seasonal, paid in cash or kind) and agriculture. They have limited access to land and also have low diversity of agricultural production. The third most vulnerable group consists of households characterised by different livelihood activities, with a limited role in agriculture. Such marginal activities include assistance, remittances, hunting/gathering, transport and other unspecified activities.

Nationally, seven percent of women of reproductive age (15-49 years) are malnourished. Malnutrition among children aged between six to 59 months is 52 percent stunting, 4.6 percent wasting and 15.8 percent underweight. The prevalence of stunting is highest among low income agriculturalists (55 percent) and agro-labourers (55 percent), while it is the lowest among agro-traders/business (42 percent).

Rwanda has made dramatic improvements in its agricultural development over the past four years. Substantial expansion of agricultural sector budget has been achieved and has increased from 5.2 percent in 2007 to 6.8 percent in 2010 of the total national budget. Annual average increase of agricultural budget financed by the Government of Rwanda is 30 percent and increased

investment has yielded positive results: agriculture attained 15 percent growth in 2008, compared to 0.7 percent in 2007, which has resulted in overall growth of 11 percent for the Rwandan economy.

Tanzania

Tanzania is categorised as a least developed and low-income food deficit country. Indeed, more than 40 percent of the population live in chronic food-deficit regions. The per day dollar poverty remains widespread at over 58 percent of the population. The Demographic and Health Survey of 2005 revealed that 38 percent of Tanzanian children below five years are chronically malnourished, while over 30 percent of all regions in the country have stunting rates of over 50 percent. Almost 80 percent of Tanzania's population depends mainly on subsistence agriculture its livelihood.

The 2001 and 2007 Household Budget Surveys (HBS) and the Poverty and Human Development Report (PHDR) of 2009 show a limited decline in income poverty levels over the period in all areas. Over this period, the proportion of the population below basic needs poverty line declined slightly from 35.7 percent to 33.6 percent. Given the large proportion of Tanzanian households that rely on farming for their livelihoods and the high rate of rural poverty, overwhelming majority (74 percent) of poor Tanzanians are primarily dependent on agriculture.

Between 2000 and 2007, urbanisation increased from 20 percent to 25 percent. This increase was in large part due to populations migrating from poorer rural areas to less poor urban areas. The 2007 HBS also shows that, between 2000 and 2007, consumption of the poor households dropped by two percent.

Area of Residence	Population Share		Poverty Headcount ^a (%)			Poverty Gap ^b	
	2001	2007	1991/92	2001	2007	2001	2007
Dar es Salaam	5.8	7.5	28.1	17.6	16.4	4.1	4.1
Other urban	13.8	17.7	28.7	25.8	24.1	7.7	7.5
Rural	80.4	74.5	40.8	38.7	37.6	11.5	11.0
Tanzania mainland	100	100	38.6	35.7	33.6	10.6	9.9

Source: HBS 2007; Hoogeveen et al., 2009 ^a measures percentage of the population below the poverty ^b measures how far below the poverty line a person is located.

Pockets of vulnerable areas during the 2010 period have been identified in 65 districts within the country. On average, some 20-25 districts tend to have food shortages annually. Mostly, the regions which are characterised by moderate food insecurity include Lindi, Musoma, Mwanza, Shinyanga, Morogoro and Kilimanjaro. The vulnerable regions which tend to experience transitory food insecurity are mainly in the northern regions of Dodoma, Singida, Shinyanga, Tabora, Tanga, Arusha, Kilimanjaro and Manyara. The regions that enjoy food surpluses are mainly in the southern regions. Unfortunately, in the regions that enjoy food surplus, there are high levels of malnutrition.

In order for this country to be considered food secure, it should have at least 119 percent food self-sufficiency ratio (SSR) (based on MKUKUTA estimates) and a National Food Reserve of around 350,000-400,000 tons of grains, which can last 3-4 months through famine. But, this rate has not been attained over the last ten years (Table 3).

Year	2001	2002	2003	2004	2005	2006	2007	2008	2009	Target SSR
SSR (%)	94	94	102	88	103	102	112	104	103	119

The general trend from the table 4 reveals that the county is yet to achieve its target food self-sufficiency ratio required for the country to be declared food secure. With this respect then, the government usually steps in to control the food security conditions, most notably through food export bans.

Uganda

The hunger situation in Uganda has generally improved over the last few years. Uganda, as a whole, has no lack of food. However, access to and use of available food is inadequate in many locations. The north-eastern Karamoja region is most vulnerable. The combination of frequent natural disasters, gun violence, severe environmental degradation, extreme poverty, poor hygiene and other factors have eroded people's capacity to cope with crises. Thus, relatively small shocks can lead to acute hunger and malnutrition. In recent years, the prevalence of acute malnutrition in Karamoja has remained above the alert threshold (10 percent) and sometimes reached emergency levels (above 15) in some areas. Even in the absence of a specific crisis, communities struggle with chronic hunger (stunting), especially children.

There are high levels of childhood under-nutrition and 40 percent of deaths among children are due to malnutrition. More than 50 percent of all children under five years of age in Karamoja and the southwest are stunted. Across the country, the stunting rate of children below five years is 38 percent, four percent are wasted and 22.5 percent are underweight.

Elsewhere, there are communities that are not experiencing chronic or acute hunger currently, but are vulnerable to it in the future. Many are smallholders who produce surpluses, but face constraints in getting them to markets. Others have difficulty in obtaining the right micronutrients in their household diets. The rates of childhood anaemia in the country exceed 70 percent.

According to the January-June 2010 FEWSNET report (FEWSNET, 2010) on the current food security conditions in Uganda, the number of vulnerable people, both moderately and

highly food insecure, stands at approximately 1.4 million people. At least 900,000 of them are in Karamoja Region, an area that continues to suffer widespread high food insecurity due to consecutive lower than normal or total crop failures since 2006. The other areas of food insecurity include northern Uganda, where most households continue recovering and gradually rebuilding their food production and means of accessing food, following nearly two decades of insecurity and displacement that limited or wiped out production, and eastern Uganda, where a combination of population displacements over the years and poorly distributed rains or floods in the recent past have reduced people's means of production, leaving many households suffering moderate food insecurity.

Agricultural and Food Security Policy-Institutional Environment in EAC

Burundi

There are many recognisable interventions by the Government of Burundi which have been put in place over the last ten years to try and tackle the constraints in the agricultural sector and food insecurity. Among the ongoing projects are large irrigation perimeters in the Imbo and Moso plains; marshland and radical terraces and watershed management; rehabilitation of several seed centres and restocking of the national livestock; and establishment of strategic stocks of fertilisers. The increase in the budget allocated to the sector, currently standing at 3.5 percent of national budget in 2010, is expected to be doubled to seven percent in 2011.

Development of reference materials such as the National Strategy for Agriculture (2008-2015), the Agriculture Master Plan (2009-2015), a Comprehensive African Agriculture Development Programme (CAADP) compact within the EAC-COMESA Framework (2010-2015) and the National Plan of Investment in Agriculture (2011-2016) are also key to revamping the sector that

supports over 90 percent of Burundians. The government is also keen on mobilising donors to fund several projects. Some of the conspicuous donors in the Burundian agricultural sector are the European Commission, IFAD, World Bank, African Development Bank (ADB), FAO, USAID and Belgian Technical Cooperation (BTC).

The Burundi National Programme on Food Security (PNSA, 2009-2015) is crafted around eight sub-programmes: (a) Sustainable management of natural resources; (b) Intensive production of food crops; (c) Diversification of farming systems; (d) Crop protection, processing and marketing; (e) Nutrition; (f) Early Warning and Strategic Reserve Establishment; (g) Support for procurement of inputs, micro-finance, research, extension and capacity building; and (h) Implementation support. This programme awaits funding, with a proposed budget of US\$406 million. The Government of Burundi is poised to finance 30 percent and request 60 percent from development partners and the beneficiaries will have an in kind contribution of 10 percent.

The National Strategy for Agriculture of 2008 provides a basis for formulating and implementing programmes and projects that can rehabilitate and modernise the agricultural sector of Burundi. The overall objective of the agricultural development strategy is, first of all, to restore the production factors and revitalise farming and, secondly, to modernise all aspects of the agricultural sector and transform agriculture from subsistence to market-oriented farming.

Kenya

A number of guiding policies and strategies have been established recently in Kenya that guide the overall development of the agricultural sector. These include: *Economic Recovery Strategy 2003 to 2007 (ERS)*, *Strategy for Revitalising Agriculture (SRA) 2004-2014*, *Vision 2030*, *the National Agricultural Sector Extension Policy (NASEP)*, *the National Agricultural Research System Policy*, *the Food Security and Nutrition Policy (FSNP)*,

the Fisheries Policy, the Seed Policy, the Cooperative Development Policy, the Cooperative Investment Policy, the Kenya National Pharmaceutical Policy, the Kenya National Apiculture Policy and the Kenya National Poultry Policy.

The vision, mission and strategy for the development of the agricultural sector in Kenya are spelt out in the SRA. It aims to transform the sector into a more commercially-oriented and competitive sector, capable of attracting private investment and providing higher incomes and employment. The SRA has recently been revised into an Agricultural Sector Development Strategy 2010-2020 (ASDS) to align the agricultural sector strategies to the country's Vision 2030. The ASDS aims at positioning the agricultural sector strategically as a key driver for delivering the 10 percent annual economic growth rate envisaged under the economic pillar of the Vision 2030.

Some examples of the short-term and long-term food security-related initiatives include:

- (i) Kenya Agricultural Productivity Project (KAPP) is a 12-year multi-institutional programme funded by the World Bank and the GOK that aims at increasing agricultural productivity through reforms in policy, research, extension and farmer/client empowerment and is being implemented in 20 pilot districts in seven provinces, starting in 2004.
- (ii) National Agriculture and Livestock Extension Programme (NALEP II), supported by SIDA, is an upscale of NALEP I and covers 62 districts, compared to the previous 43. It aims at enhancing the contribution of agriculture and livestock to social and economic development and poverty alleviation by promoting pluralistic, efficient, effective and demand-driven extension services to farmers and agro-pastoralists.
- (iii) Horticulture and Traditional Food Crops Development Programme, covering eight districts in Eastern Province, is funded by IFAD.
- (iv) A national food security promotion programme called "Njaa Marufuku Kenya" (NMK), covering 71 districts and directly

- supported by the GOK, is an up-scaled implementation phase of the Kenya Special Programme for Food Security (KSPFS) that had been initiated through FAO and its main objective is to reduce by half the number of people who are food insecure in Kenya by 2015 (MDG1) through mobilisation of farmers to form support groups who are then empowered through training and provision of seed and agro-inputs.
- (v) Agricultural Sector Programme Support (ASPS), covering 15 districts in Eastern and Coast Provinces, is supported by DANIDA and is part of the long-term (10-15 years) Danish support to the agricultural sector in Kenya, being an up-scaling from the previous programme (called ASP) that ended in 2005 (the ASPS covers 16 districts in Eastern and Coast provinces, compared to the previous four under the ASP, and its objective is to contribute towards raising incomes of smallholder-farmers and agro-based micro and small-enterprises in the targeted semi-arid districts).
 - (vi) National Accelerated Agricultural Inputs Access Programme (NAAIAP), started by GOK in July 2007, focuses on small farmers who are currently not using modern agricultural inputs – the vast majority of farmers with less than 2 acres – and provides inputs and extension services to such farmers. It aims at reaching 2.5 million small farmers who farm between 0.50 and one hectare and will concentrate activities in 33 districts in medium and high potential areas of Kenya during the initial three-year phase, from 2009.
 - (vii) The National Climate Change Response Strategy, published in 2010, recommends a number of interventions to help mitigate the impacts of climate change. For instance, it recommends investment in water harvesting, early warning systems, food storage facilities, drought tolerant orphan crops (under-utilised) such as millet and cassava and promotion of conservation agriculture is one of the options. To support the livestock sector, the report recommends breeding animals better able to cope with climatic changes, vaccination

programmes and disease surveillance, establishment of emergency fodder banks and provision of water. Afforestation and reforestation programmes, increasing the involvement of forest communities in forest management and promotion of agro-forestry and alternative livelihoods such as beekeeping and silkworm farming are some of the suggestions to protect and restore forests.

- (viii) To reduce the vulnerability of farmers and livestock keepers, two innovative insurance projects are already underway. Kilimo Salama, or 'safe farming' in Swahili, is an insurance scheme that protects farmers' investments in seeds, fertilisers and other inputs. Piloted in 2009, the scheme pays out when experts monitoring local weather conditions and rainfall determine that crops have become unviable. Meanwhile, in northern Kenya, another pilot insurance scheme is using satellite images of vegetation to determine when pasture has become so scarce that animals are likely to perish, triggering automatic payments to insured livestock keepers.
- (ix) Conflicts over natural resources are increasing. The Mau forest, Kenya's largest, is also the country's largest water tower and source of 12 rivers. But, during the past 15 years, more than one quarter of the forest has been cleared. The rivers flowing out of the forest are drying up and, as they do, Kenya's harvests, cattle farms, hydro-electricity, tea, lakes and famous wildlife parks are suffering. The government has evacuated populations that lived in the Mau and has been implementing a resettlement plan for those who live within the forest.
- (x) Land is one of the most contentious issues in Kenya. Land grievances were at the root of violence that followed elections in 2007, when hundreds of thousands of ethnic minorities were driven off land that local communities believe had been given to them illegally. Provisions in the new constitution are intended to address these historical injustices through the creation of a National Land Commission. Equitable access

to land for all Kenyans and the elimination of discrimination against women are also stipulated.

Rwanda

Rwanda has detailed strategies and programmes for strengthening its food and nutrition security within the framework of the poverty reduction strategy paper (PRSP) process. Recent agricultural policy has been articulated through two documents: National Agriculture Policy (NAP) issued in early 2004, followed by the Strategic Plan for Agricultural Transformation in Rwanda (PSTA). Phase I of PSTA-I was implemented between 2005 and 2009. The NAP spells out the main areas of agriculture that need to be transformed and lays down guidelines for government intervention in the sector. The PSTA-I was intended to provide the basis for implementing the NAP and, to that end, defined four overarching programmes and 17 sub-programmes.

The four programmes were: intensification and development of sustainable production systems; support to professionalisation of the producers; promotion of commodity chains and agribusiness development; and institutional development. Then came the PSTA-II, which is the current food security strategy for Rwanda for the period 2009-2012. PSTA-II was developed in response to the need for an updated strategy for agriculture (Republic of Rwanda, 2008). However, PSTA-II retained the four programmes of PSTA-I, but reinforced and amplified them somewhat.

Tanzania

It is difficult to tell whether Tanzania is actually on progress towards achieving food security. For instance, while one part of the country may be starving, another part may be having surplus, complaining of lack of market for their produces.

In 2009, President Jakaya Mrisho Kikwete pioneered a campaign known as “*KILIMO KWANZA*” (literally, Agriculture First) as a move to transform the country’s agriculture into a modern and commercial sector and to deal a blow to the hitherto

recurrent food shortages and foreign dependence on food imports. But, agricultural revolution in Tanzania is more of a politicised campaign. Tanzania has had many initiatives that sought to make the country not only food self-sufficient and secure but also an exporter of agricultural produce and products. Unfortunately, all ended up being verbal magic wands that never delivered the goals. Some of the past campaigns include “*Kilimo ni Uti wa Uchumi Wetu*” (Agriculture Is the Backbone of the Economy), “*Siasa ni Kilimo*” (Politics Is Agriculture), “*Siasa na Kilimo*” (Politics and Agriculture) and “*Kilimo cha Kufa na Kuponu*” (Agriculture Is a Matter of Life and Death). Critics see “*KILIMO KWANZA*” as another old wine in a new bottle, but supporters regard it worthwhile.

There has been a chain of government interventions to address the constraints to agriculture and food security. At the outset of the Millennium Development Goals (MDGs), the government came up with a series of strategy papers and policy initiatives embedded in the Tanzania Development Vision 2025 (which envisages Tanzania as a middle-income and food-secure country) and the National Strategy for Growth and Reduction of Poverty (NSGRP), colloquially known as MKUKUTA.

In October 2001, the government issued its Poverty Reduction Strategy Paper (PRSP), which was prepared in the context of the enhanced Debt Initiative for Highly Indebted Poor Countries (HIPC). The PRSP subsumed two strategies: the Agricultural Sector Development Strategy (ASDS) and the Rural Development Strategy (RDS). The main priority areas in the ASDS include:

- (i) strengthening the institutional framework;
- (ii) creating an enabling environment for private-sector development;
- (iii) assigning public and private roles in improving support services;
- (iv) strengthening marketing efficiency for inputs and outputs; and

- (v) mainstreaming the planning for agricultural development in other sectors.

The RDS gives emphasis to:

- (i) promoting widely shared growth (agriculture and livestock development, rural small and medium-enterprise development, training and skills development, improved natural resource use, tourism, forestry, wildlife and fisheries development);
- (ii) increasing opportunities and access to services (education, health, rural water supply and sanitation, rural infrastructure, information, communications, technology and energy);
- (iii) reducing risks and vulnerability; and
- (iv) promoting good governance (decentralisation and empowerment, participatory district planning, security and justice).

Other relevant policies and strategies include the Agriculture and Livestock Policy (1997), the Rural Financial Services Programme (RFSP), the National Food Security Policy (2004) and the Agricultural Marketing Policy (2005). Under this framework, the country has witnessed mushrooming projects/programmes such as the Agriculture Sector Development Programme (ASDP) at the national level and the District Agricultural Development Programme (DADP) at the Local Government level. Seventy-five percent of ASDP resources go to DADP.

Operationalisation of DADP is through the Participatory Agricultural Development and Empowerment Project (PADEP), in which communities are facilitated to design community and/or group projects such as warehouse, irrigation infrastructure, new breeds of livestock, input supply shops, etc., that are funded by PADEP in collaboration with the community or groups. On the marketing side, there emerged an Agricultural Marketing Systems Development Programme (AMSDP).

AMSDP involved:

- (i) development of agricultural marketing policies through studies, establishment of new policy committees at national and district levels and institutional support for the ministry dealing with marketing and district councils;
- (ii) capacity-building of trader/processor groups and associations and support for their market access;
- (iii) market information systems;
- (iv) business advisory services;
- (v) financial services for traders and processors;
- (vi) roads, including building district capacity to construct and maintain roads; and
- (vii) village markets and storage facilities. In recent years, saving cooperatives (SACOS) have emerged under Rural Financial Services Programme (RFSP) to provide capital to commercialising small-scale farmers.

The Government of Tanzania is very concerned about the fluctuating situation of food security in the country and has, over time, formulated a number of policies, legislations and strategies. Relevant policies include: the Agricultural and Livestock Policy (1997), the National Food Security Policy (1997), the National Environmental Policy (1997), the National Livestock Policy (2006), the National Water Policy of 2002 and the National Land Policy (1995). Relevant legislations include the Plant Protection Act (1997), the Protection of New Plant Varieties (Plant Breeders Rights) Act (2002), the Land and Village Land Acts (1999), the Forest Act (2002), the Water Resources Management Act (2009) and the National Environmental Management Act (EMA, 2004). The EMA 2004, for instance, requires every sector to establish a Sector Environmental Section/Unit to oversee compliance with EMA 2004 requirements in the implementation of the sector's activities.

Uganda

Uganda has detailed strategies and programmes for strengthening its food and nutrition security within the framework of the poverty reduction strategy paper (PRSP) process. The government has adopted a development policy agenda that resulted in several action plans being implemented to address the problems of poverty, hunger and malnutrition.

The most important of these are: the Poverty Eradication Action Plan (PEAP), 1997; the Plan for Modernisation of Agriculture (PMA), 2000; the Health Sector Policy and Strategic Plan (HSSP); the Decentralisation Policy/Local Government Act, 1997; Children's Statute No. 6, 1996; the Food and Drug Act; Water Statute No. 7, 1997; the Uganda National Bureau of Standards Act, 1993; the Food and Nutrition Policy (UFNP), 2003; the Uganda Food and Nutrition Strategy (UFNS), 2005; and the current Development Strategy and Investment Plan (DSIP) spanning 2010-2015. These policies and strategies, singly and collectively, address various dimensions of the agricultural development and food security problem in the country. The country is also a signatory to the Maputo Declaration, under which it is committed to the principal of agriculture-led growth as a main strategy, and the subsequent CAADP.

Challenges and Gaps in Agricultural Development and Food Security in EAC Countries

Burundi

The biggest threats to food insecurity in Burundi are recurrent population displacement, poor infrastructure and insecurity, loss of soil productivity, erratic rainfall and climatic changes and plant diseases. Because it is a net food importer, Burundi's food security is also affected by the rising international food prices. The main challenge facing the government of Burundi in addressing the low food production is lack of (or low) financing, which is reflected in the poor state of the economy. As regards private sector's entry

into agriculture, marketing constraints are the biggest hindrance. Like farmers, uncertainty in trader price, low quantities and lack of information on product price and availability are a disincentive to commercial enterprise.

Having policies and reforms is one thing and implementing them in the appropriate way is another. Most people within the policy cycles of Burundi interviewed are not optimistic that these policies and the proposed reforms will be carried out as written and deliver the intended goals.

Kenya

Several factors have contributed to the limited progress in agricultural development and ensuring food security in the country. These are discussed here below.

Inappropriate legal and regulatory framework: There is an outdated and fragmented legal and regulatory framework. Kenya's agricultural sector is governed by over 130 pieces of legislation. Many of these are out of date with the current economic thinking and are in need of updating, amendment and repeal. In addition, many sub-sectors, like fisheries or agricultural commodities (potato and poultry) have for a long time lacked (or still are lacking) appropriate policies and regulations that would enhance production and processing and provide enabling conditions and necessary security to farmers, pastoralists and fishermen and women.

Unfavourable macro-economic and external environment: Many farmers have been impoverished by the high debt service costs and others have suffered from fluctuations in exchange rates, leading to less investment. Poor terms of trade also do not favour agricultural commodities, in addition to the escalating cost of farm inputs such as fertilisers, pesticides, seeds, drugs and vaccines.

Low technology application, leading to low productivity: Smallholder farmers account for 75 percent of the total agricultural production. However, the use of improved inputs such as hybrid seed, fertilisers and pesticides or machinery is very low. Due to continuous cultivation, there's been significant *decline in soil fertility*.

Inadequate markets and marketing infrastructure: The domestic market is very small, fragmented and lacks effective marketing information system and infrastructure. Similarly, inadequate storage and processing capacity of perishable commodities leads to wastage and constrains marketability.

Rising food prices in the face of declining terms of trade in pastoral and agro-pastoral areas, which traditionally suffer from food shortages, especially during droughts, have certainly made the food insecurity situation become more severe throughout Kenya.

High cost and increased adulteration of key inputs: Cost of seed, pesticides, fertilisers, drugs and vaccines have tended to be too high, leading farmers to substantially reduce the use of quality inputs.

Low productivity of the livestock sub-sector: This is due to heavy livestock losses arising from diseases and pests, inadequate superior genetics for livestock breeding; inadequate livestock feeding and nutrition; and inadequate livestock extension services.

Limited capital and access to affordable credit: Farmers point out inadequate credit to finance inputs.

Weak surveillance of offshore fishing: There is weak capacity to monitor and enforce compliance and regulations governing the exploitation of offshore territorial waters.

Past policies and recent measures have failed to tackle food insecurity due to the following reasons:

- (i) The policies have had limited scope, with too strong a focus on supply-side measures, with limited attention to access dimensions and nutritional considerations. The different initiatives that relate to improving food security lack both overarching policies and sufficiently strong institutional frameworks to ensure they are implemented.
- (ii) The elements of the previous policies were also constrained by overemphasis on government intervention, unstable macro-economic conditions, limited involvement of the private sector, inadequate sectoral coordination, lack of monitoring and evaluation systems and limited stakeholder participation in the formulation, implementation and monitoring of food policies.
- (iii) The health and agricultural sectors have never been sufficiently linked to generate synergy needed to modify agricultural policies that may benefit health at population level or to promote clear recognition of the impact of public health on agricultural productivity.
- (iv) Linkages among health, agriculture and food processing have been equally disjointed, despite the significant trends of increasing consumption in both urban and semi-urban areas of commercially processed foods.
- (v) Food availability in the past has mainly been understood in terms of cereal supply. As a result, agricultural programmes and policies on food security have given low priority to promotion of foods rich in micronutrients and more attention to maize. The strategies to promote production of fruits, vegetables, livestock products, aquaculture (fishponds) and preservation and conservation techniques to extend the availability throughout the year are inadequate.
- (vi) There have been inadequate budgetary allocations to implement the policies and programmes with a direct link to food security. Kenya claims that it is committed to the

CAADP framework. However, it is not clear how these ideals influence its budgetary process.

- (vii) In the recent years, it has become apparent that raising adequate resources to deal with emergency situations can be very challenging, especially if not initially budgeted for. It is puzzling that development partners have been quick with relief aid, but are slow to support food security initiatives that would avoid the need for future relief efforts.

Rwanda

Rwanda's agricultural sector faces a set of unique challenges. These include: high population density and resultant land scarcity; high rates of soil erosion due to steep sloped landscape, with resultant deterioration of soil fertility; rain-fed agriculture; inadequate land holdings per household of about 0.6ha by a six-member family; low levels of improved technology use, including non-improved seeds and low use of fertilisers; high level of poverty, especially in rural areas, with limited off-farm income activities; traditional technology use, where a majority of farmers still use hoe and machete; non-availability and affordability of quality inputs (seeds and fertilisers); limited market participation by producers; lack of access to financial services; weak human capital base; and, in terms of gender equality, heavy burdens continue to be placed on women, who are responsible for the majority of food crop production.

Tanzania

Based on discussions held with various officers of the key food security ministries in Tanzania, and consistent with both Mngodo (2010) and Mtambo (2009), unprecedented "climate change" in Tanzania has largely been responsible for the fluctuating food production situation in Tanzania. An analysis of climate trends and food production in Tanzania reveals that climate change has not only resulted in a decline in crop production and productivity

but it has also led to (i) increased incidences of some harmful weed species (such as *Striga*) and vermin, such as the mole rats; and (ii) an increase in the prevalence of insect pests/crop pests (e.g., *Prostephanus Truncatus* and *Bemisia Tabacci*) and diseases which, in turn, have caused increased demand for pesticides and herbicides. Other negative effects related to climate change in Tanzania include droughts, floods, strong winds and low soil fertility. Unreliable rainfall has inevitably prompted intensification of agriculture in wetlands and riversides.

Constraints Faced by Farmers

The leading constraints facing farmers in Tanzania are high levels of poverty. As a result, farmers cannot afford improved seeds, fertilisers, appropriate technology and even requisite agricultural knowledge. The country's average use of fertiliser stands at 9kg/ha, compared to Malawi's 26kg/ha, while Africa's average is 65kg/ha. But, in the last two years, Tanzania has been increasing the use of fertiliser through government intervention.

Box 1: Traders Lack Capacity to Meet Demand

“Two years ago, when Tanzania faced serious food shortage, the government invited traders to import grains, it removed import taxes and local taxes of food products, but only one trader stepped up and could only import 10,000 tons against a requirement of 300,000 tons”, John Mngodo, Director of Food Security, Ministry of Agriculture, Food Security and Cooperatives.

Because most farmers use rudimentary farming tools (i.e., the problem of low mechanisation), their production and productivity potentials are greatly impeded. They can only plough so much, even though they may own large parcels of land. At the same time, most land available for expansion is in the medium and low-potential areas, which would require adequate mechanisation and use of improved farm inputs, which these farmers cannot afford – the rich highlands are already overpopulated.

Over-reliance/dependence on rainfall exposes farmers' production to risks, especially when rains fail or don't come in the anticipated patterns. This is exacerbated by impacts of climate change in the form of unprecedented invariabilities in amount of rain, unpredictability in weather, floods and frequent droughts.

Lack of reliable market for agricultural produces is a disincentive to production. Farmers have no freedom to sell their produce to whom they want, at the time they want and in the form they want. At the moment, government leaders dictate terms on the aspects highlighted above. For example, when government (and other private farmers' associations) mediates in the market, they offer farmers very low prices for their produces, which turns off their resolve to produce for commercial purposes.

There is limited access to credit to farmers to increase input use due to unfriendly policies by financial institutions towards farmers. At the same time, there are no farmer organisations/cooperatives to step in and buy these inputs in bulk on behalf of farmers at a cheaper cost.

Failure to obtain farming inputs and extension services on time is a hindrance to production. In addition, lack of proper storage facilities particularly for perishable agricultural crops result into huge post-harvest losses in volumes/values. This is said to be as high as 30-40 percent of harvests, although this needs to be well researched.

Marketing costs are very high, mainly due to poor transport infrastructure (roads and railways), especially feeder roads in rural areas. The existing rail transport connecting Dodoma-Mwanza and Tanga-Arusha are unused, only Tazara-Kapirimposhi, connecting Zambia, is relatively used. Marketing information is also lacking to farmers. Although warehousing facilities are available, they are not accessible to the rural population.

Constraints Faced by Private Sector Traders

Input traders face the constraints of low demand of modern farming inputs such as fertiliser and improved seeds. As said

earlier, this is because of low purchasing power of many farmers due to poverty and price of the inputs.

Traders, in general, face high transport costs and unfriendly policies on inter-district and cross-border trade. The amount of local levy (district cess) is charged unfairly and the process of collecting it is cumbersome, as a series of roadblocks/barriers are placed at many points – high transaction costs.

Traders also lack market information on food crops, accompanied by lack sufficient capital to import food to serve local deficits. They also experience high cost of transportation (mainly due to high cost of fuel and poor road infrastructure), which raises the cost of food they trade and consumers cannot afford. The incentive to trade farm produce and farm inputs is, therefore, strangled.

Low investment by private traders does not allow them to take advantage of emerging opportunities. Most traders cannot raise enough capital to stock inputs or farm produce when called upon by the government to do so (see Box comment below). They are also curtailed by poor/low entrepreneurship skills.

Constraints Faced by Government

Even though it seems the responsible departments are working hard towards ensuring food security in the country, it is evident that lack of clear strategic plans on agricultural development leads to having many priorities with no consistency.

Prolonged disinvestment by government and donors (amount of aid) in agriculture has wrecked the sector. Recently, when the government called for applications to increase the number of extension

For 10 years, the Government of Tanzania froze employment of extension workers in the public sector. Those with agricultural extension knowledge remained largely unemployed and sought for other types of employment, while most prospective graduates were dissuaded from pursuing a profession in agriculture.

workers from the current 6,000 to about 15,000 in 2011, this number could not be raised. Regarding irrigation, Tanzania has 29,400,000ha of land suitable for irrigation, which is classified into high, medium and low potential. Out of this, only 262,000ha are currently under irrigation, which is about 0.8 percent of its potential (EAC Agricultural & Rural Development Strategy, 2005-2030).

Irrigation development is impeded by low utilisation of high efficiency water use technologies; poor water permit allocation; poor management of various water schemes under government; climate variation; catchment and surface water degradation; uncontrolled groundwater development; and low community participation in the management of irrigation schemes.

At the outset, it seems budget constraints are responsible for this disinvestment in agriculture, as this reasoning is normally used to justify low research and development, inadequate extensions services, failure to exploit the huge potential of fertiliser and irrigation in the country, failure to invest in production of improved seeds that meets the requirements of farmers. Yet, it is clear that it is this scale of neglect of the agricultural sector that curtails the potentials of the sector to generate productive employment for the 80 percent of Tanzania's population dependent on subsistence agriculture.

While budget constraints are mentioned as a contributing factor, nearly all people interviewed are in agreement that, if the government cannot show accountable and responsible use of the little resources at its disposal, then there cannot be justification for blaming low performance on resource scarcity. Indeed, corrupt behaviours characterise operations in the government circles, even though this is not unique to the country.

Indeed, when food insecurity was declared a national security concern, it was a different ministry that instituted the food export ban measure in no consultation with the mainstream agriculture ministry, which (as would have been expected) would have considered the impacts of the ban on farmers.

While the government may want to take some decisive measures to promote agricultural development and food security, such measures need to be mirrored against Tanzania's subscription to certain liberalisation ideals, which disallows measures such as subsidies and export bans. The manner in which these measures are implemented and how they might impact farmers also need to be looked into.

Gaps in Agricultural Development and Tackling Poverty

The interventions under the MKUKUTA framework are showing a positive signal. However, on average, their effectiveness cannot be determined yet. There is still a very huge need for evaluating the impact of these policies – most evaluations do not touch on the impact of these policies on the productivity side. *“How is that small-scale farmer motivated to produce (including for commercial purposes) given these policies? This ought to be the emphasis...taking into account small-scale farmers' views, especially on the pricing strategies would be important, otherwise these farmers are mostly price takers and this discourages them from producing”*, Monica Hangi, ESRF.

There are still “policies” that are constraining agricultural sector development and food security in Tanzania. The main “policy” (though not documented) is indiscriminate intervention by political leaders (Regional Commissioners, District Commissioners, Agriculture Minister, etc). Farmers spend hours and hours of backbreaking labour to produce crops which they have no freedom to sell where, when and how they want. They are sometimes denied the chance to sell raw maize, or to sell across the district borders, at profitable prices. Producer prices are low and terms of trade with manufactured goods continue to deteriorate. By imposing low prices on the farmers, household income levels go down and that increases the poverty prevalence in the rural areas.

The Economic Survey of 2008 shows that agricultural sector growth has averaged 4.4 percent in the period 2000-2008.

MKUKUTA had set a target of sustained agricultural growth of 10 percent by 2010, which, based on the current trend, will not be met.

MKUKUTA aims to reduce the incidence of basic needs poverty to 24 percent in rural areas and to 12.9 percent in urban areas (other than in Dar es Salaam). It is evident that the MKUKUTA target, which aims to halve poverty by 2010 (i.e., from 38.6 percent in 1991 to 19.3 percent in 2010) is out of reach, considering that by 2007 poverty headcount was still as high as 33.6 percent in the Tanzania Mainland. Based on the Household Budget Survey (HBS) of 2007 and the Poverty and Human Development Report (PHDR) of 2009, household income has not changed significantly between 2000-01 and 2007 and poverty incidence has basically remained the same. The reports show that poverty remains a rural phenomenon and is largely concentrated in households heavily reliant on agriculture, particularly crop-dependent households.

To sum up this discussion, it is evident that what is lacking in Tanzania is not innovative ideas, policies or strategies, but the formula to translate ideas and plans into actions that achieve intended goals. The constraints facing the agricultural sector have never eased despite billions being spent on a series of intervention programmes since independence.

Uganda

Evidence suggests that, in recent years, the performance of the agricultural sector has not been impressive. Table 5 shows that real growth in agricultural output declined from 7.9 percent in 2000-01 to 0.1 percent in 2006-07, before recovering to 1.3 percent and 2.6 percent in 2007-08 and 2008-09, respectively (Republic of Uganda, 2010). This rate of growth has been less than the population growth rate of 3.4 percent, implying that per capita agricultural GDP has been declining, with serious implications for food security. It is also far short of the six percent CAADP growth target required for the agricultural sector.

Period	2000/01	2006/07	2007/08	2008/09
% Growth	7.9	0.1	1.3	2.6

Uganda faces a number of challenges in achieving food and nutrition security.

These include: a high population growth rate of 3.4 percent per annum, the third-highest rate in the world; the country is experiencing degradation of land resources with declining soil fertility and top soil losses of as much as five tons per hectare per annum in some areas; and perhaps the most serious challenge of all is climate change, which is already being experienced. Average temperatures in Uganda are likely to increase by up to 1.5⁰C in the next 20 years and up to 4.3⁰C by the 2080. There are likely to be changes in the frequency or severity of extreme climate events, such as heat waves, droughts, floods and storms. All these will have significant implications for water resources, food security, natural resource management, human health, settlements and infrastructure and will have the potential to halt or reverse the country's development trajectory (Republic of Uganda, 2010).

The following gaps are identified in Uganda's food and nutrition security strategies and programmes:

- The Development Strategy and Investment Plan (DSIP) is the first attempt by the agricultural sector to implement a sector-wide programme. This approach requires robust and functional government structures, systems, procedures and processes. It also requires political and institutional will which are not currently in place (Republic of Uganda, 2010).
- Lack of, or insufficient, effective market institutions, systems and mechanisms to link farmers to domestic, regional and international markets. There is bias towards increasing production in government strategies, programmes and funding at the expense of market and trade development and promotion.

- Low level of budgetary allocation to the agricultural sector, which falls below the CAADP threshold of 10 percent of the national budget.
- There is no effective M&E to guide implementation and measure performance.

4

Drivers, Trends and Issues Affecting Food Security

Trends in the Number of Hungry Populations

In 2010, an estimated 925 million people worldwide were reported as hungry, a slight decline from the previous 1.02 billion reported in 2009. Since 1995, there has been a steady state in the proportion of hungry populations, despite major efforts implemented to forestall hunger. Table 6 depicts the number of hungry people falling steadily by 50 million during the 25 years to

Period	Number of World Hungry Populations (millions)	Proportion of Hungry Population to World Population (%)	Absolute Increase in the Number of Hungry People (millions)
1970	878	24	
1980	853	19	-25
1990	845	16	-8
1995	825	14	-20
2000	857	14	32
2005	873	13	16
2008	915	13.6	42
2009	1020	15	105
2010	925	13.5	-95

Source: Oxfam (2010) Data cited from FAO Hunger Statistics from 1969-2006; UN (2009)

1995, at an average rate of 2 million per annum. Thereafter, the next 10 years between 1995 and 2005 had a rise in the numbers of hungry populations at a rate of almost 5 million per year.

Between 2005 and 2009, the rate of increase in the number of hungry people jumped to 25 million per year, prior to the 2010 decline. These increases were exacerbated by the food, fuel and financial crises of the past four years. What the data in the Table 6 illustrates is the vulnerability of the poor to market prices for food and it highlights the inability of the current global food system to protect the most vulnerable from food price volatility.

In East Africa, although the proportion of hungry people may be lower, various reports indicate low energy deficiency in the foods eaten by east Africans (see Table 6).

Table 6: Percentage of EAC Population with Food Energy Deficiency (comparing Household Surveys and FAO Estimates)		
Country	Reports of Household Survey (%)	Reports of FAO (%)
Burundi	75	67
Kenya	44	43
Tanzania	44	43
Uganda	38	21
<i>Source: Obtained from Data in IFPRI Research Report; Smith et al. (2006)</i>		

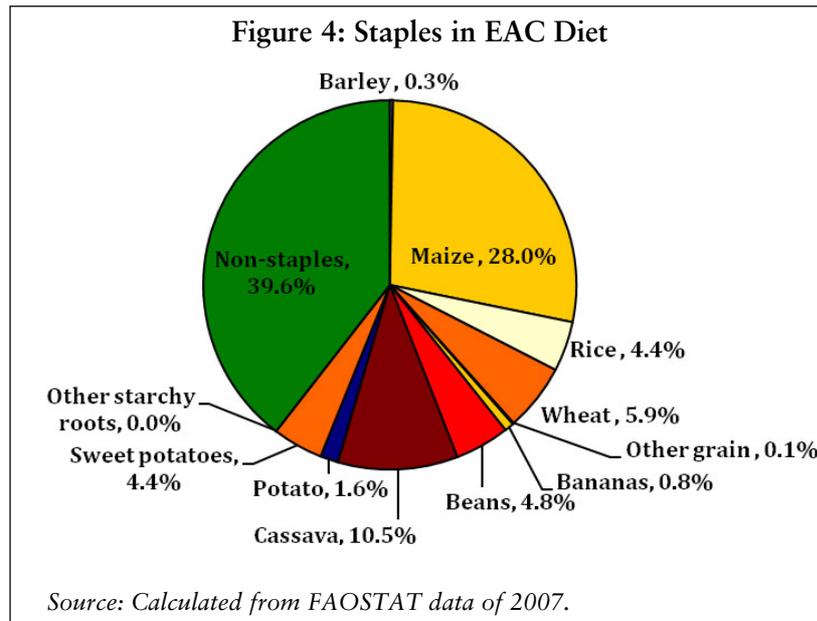
Undernourishment remains prevalent in all EAC countries, the highest in Burundi, where over 60 percent of the population is undernourished, while the lowest in Uganda at slightly 20 percent. Over the past twenty years, the proportion of the populations undernourished has remained relatively stable at 33 percent in Kenya and just about 20 percent in Uganda. Rwanda and Tanzania have made remarkable improvements in reducing the number of undernourished populations from an average of 52 percent prevailing in the 1995-97 period to 31.6 percent in the 2006-08

period, while that of Tanzania has reduced from 41.6 percent to 31.7 percent over the same periods.

Uganda has been relatively moderately food secure than all other EAC counterparts for over twenty years. The fact that the proportion of the hungry remains relatively stable in Kenya and Uganda is an indication that Kenya and Uganda are close to meeting MDG goal 1 of halving the proportion of populations in extreme poverty and hunger by 2015. None of the other four countries has met this target, except Rwanda, which appears to have made tremendous improvements from the highest level of food insecurity it faced during the period of civil war, compared to the present period.

Country	Indicators	1990-1992	1995-1997	2000-2002	2006-2008
Burundi	Population (millions):	5.8	6.2	6.6	7.8
	Undernourished pop:	2.5	3.5	3.9	4.9
	Proportion of population undernourished (%)	43.1	56.5	59.1	62.8
Kenya	Population (millions):	24.2	28.3	32.3	37.8
	Undernourished pop:	8.1	9.0	10.6	12.4
	Proportion of population undernourished (%)	33.4	32.0	32.8	32.8
Rwanda	Population (millions):	6.8	5.8	8.3	9.5
	Undernourished pop:	3.0	3.0	3.1	3.0
	Proportion of population undernourished (%)	44.1	52.0	37.5	31.6
Tanzania	Population (millions):	26.3	30.8	35.0	41.3
	Undernourished pop:	7.7	12.8	14.0	13.9
	Proportion of population undernourished (%)	29.3	41.6	40	33.7
Uganda	Population (millions):	18.4	21.6	25.2	30.6
	Undernourished pop:	3.5	4.9	4.8	6.7
	Proportion of population undernourished (%)	19.0	22.7	19.0	21.9

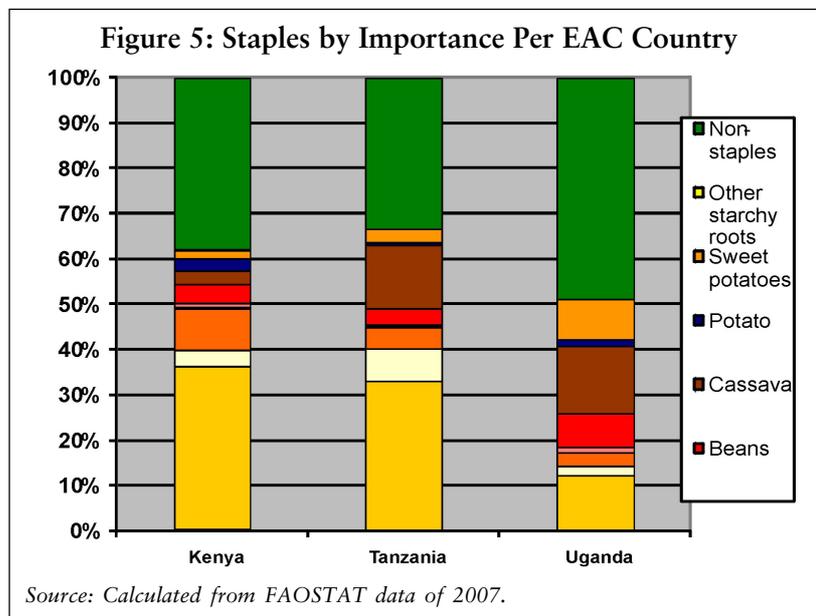
Trends in Staple Food Production and Consumption in EAC



Staples account for an average of about two-thirds of calorie intake in EAC economies. Grains alone account for almost half of the EAC diet. Of all the grains, maize is the most popular diet, accounting for almost one-third of diets of EAC populations.

In terms of importance of the individual staples, maize and wheat are relatively more important in the Kenyan diet than the rest of EAC countries, while cassava is relatively important in Uganda and Tanzania and rice in Tanzania than other EAC countries (see Figure 4).

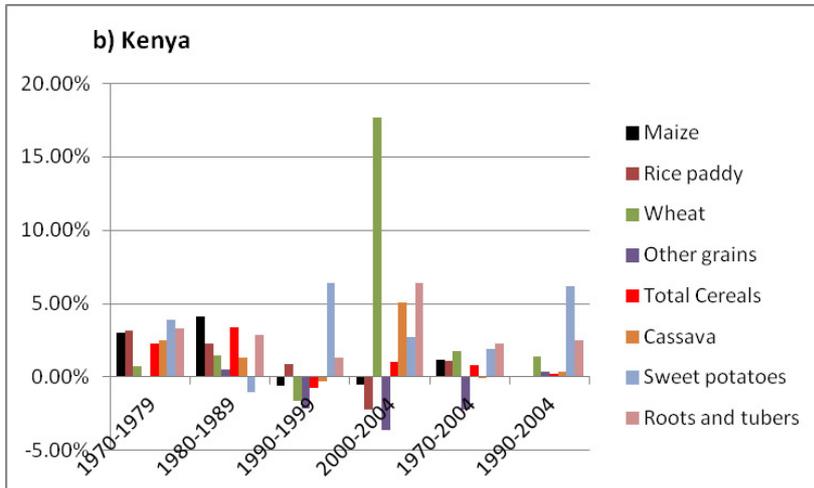
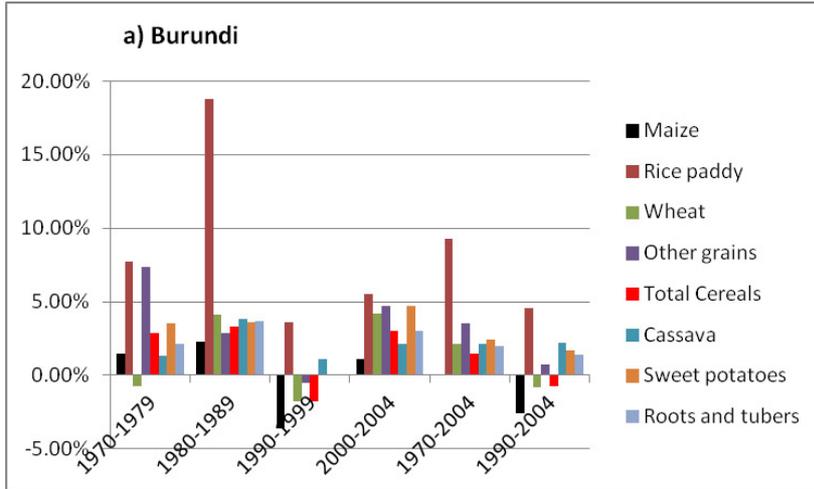
Yet, despite the importance of staples in the EAC diet, growth in the production of the same has stagnated and in most cases and fallen below CADDP targets of at least six percent, which EAC countries signed up to in 2003 (see Figure 5).

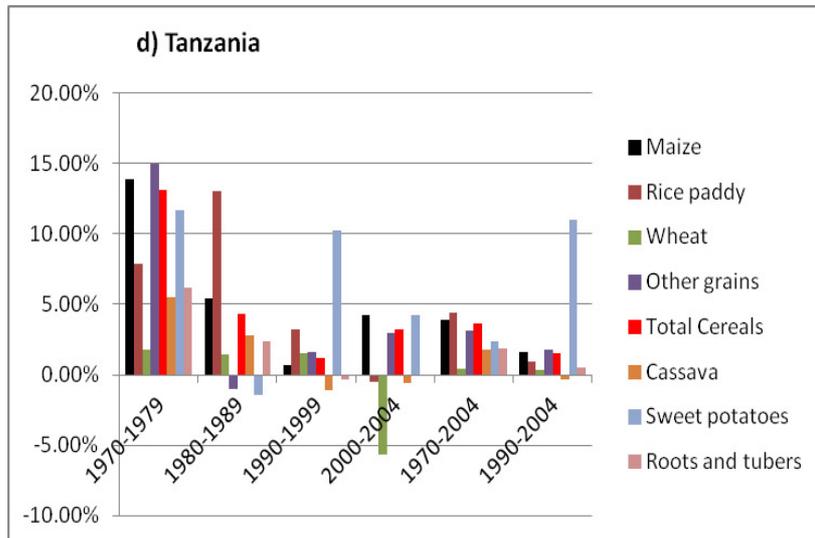
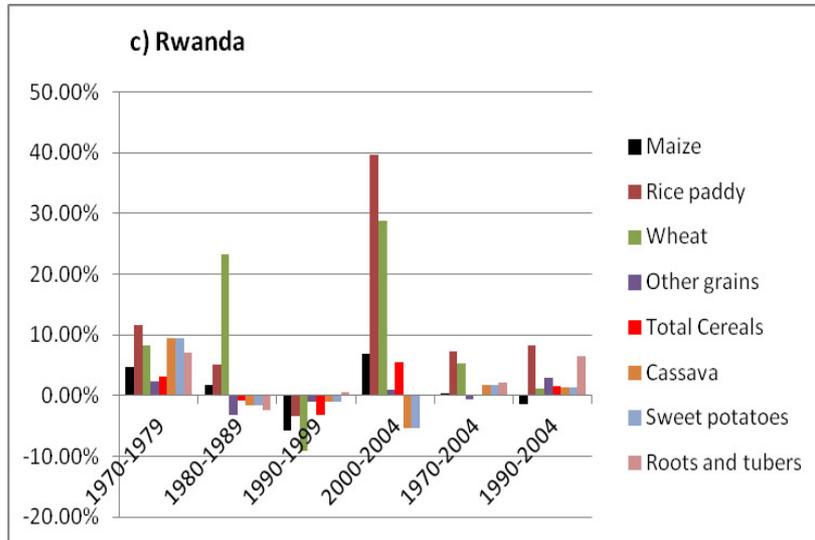


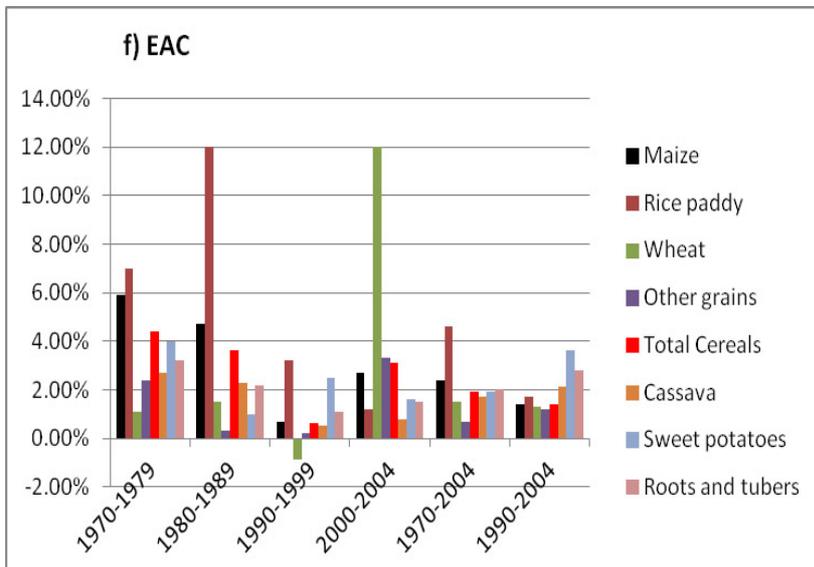
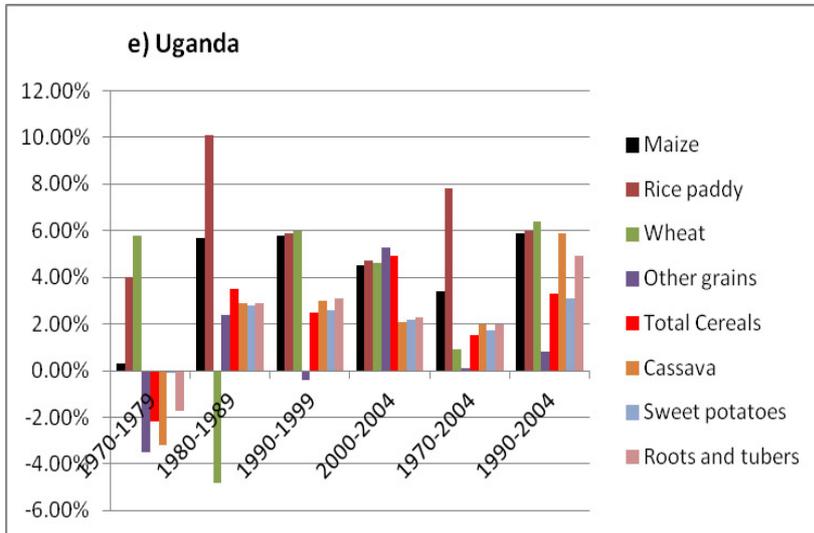
All the staples, except rice, in Burundi have been growing at below five percent since 1970s to-date and, in fact, the average growth in the production of maize during 1990-2004 periods has been negative for maize.

In Kenya, in spite of ranking top in the diet of the country's populations, the growth of maize averaged below zero during the periods 1990-99 and 2000-04. However, during the same periods, increased production has been realised in both sweet potatoes and cassava, perhaps as alternatives to maize, whose production has been disappointing. The fact that the production of maize has been negative and maize is still leading in the dietary components of Kenyans could point to the fact that the gap the domestic deficiency is being addressed through significant maize imports.

Figure 6: (a-to-f): Average Growth in Production of Various Staples in EAC (1970-2004)

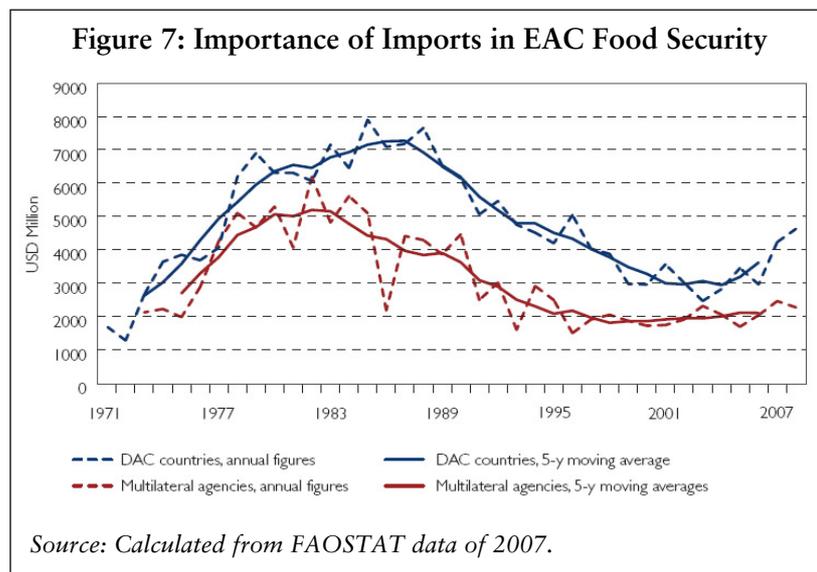






The comparative analysis from the above figures confirms varied results. For instance, it is only in Uganda, where the average growth in the production of maize, rice paddy and wheat is above five percent over the period of 1990-1999 and 2000-2004 while the average growth in production for the rest of the other EAC countries; are still below CADDP target which is normally 6 percent. On the other hand, the growth rate in Rwanda has shown a remarkable rise in the growth of the production of rice and wheat which reveals the two commodities as important staples in the country’s diet.

Generally the, EAC region, has experienced growth in the production of its important staples which is below two percent. However, the growth rate does not match the current population growth rate within the EAC. This confirms the possibility of food imports being an important contributor to the efforts of achieving food security within the EAC region as a whole. To put this point into perspective, take a look at the variation between the domestic production of maize, wheat and rice and the quantities available for consumption at any given year between 1970 and 2004 (Figure 7).



What Figure 6 tells is that, since mid-1990s, the amount of maize available for domestic consumption has been larger than the local production of the same. Maize production has been shifting from surplus (123 percent self-sufficiency) in 1970s to deficit (97 percent self-sufficiency) in 2000-04. The same case applies to wheat and rice, whose domestic production has been below the amount required for domestic consumption for the longest period of time – a trend that started around 1975. The underlying trend here is that imports of important staples are increasing and is becoming important for attaining food security in EAC.

Rising World Food Prices

While EAC countries are increasingly becoming dependent on the import market to secure the most important of its staple food, maize, wheat and rice, the world price of these important staples (and indeed other staples as well) has been on the rise during this decade. That is why, when the FAO Cereal Price Index doubled in 2008, food security became a global crisis. The prices of agricultural commodities, including staples of many EAC diets, have been rising sharply over the last several years since 2005. In the period 2005-2008, prices of maize and wheat more than tripled and the price of rice has now reached unprecedented levels (see Table 8).

Cereals	2005	2006	2007	1st Quarter 2008	2nd Quarter 2008
Wheat	152	192	255	411	347
Maize	98	122	163	220	259
Rice	288	304	332	516	953

Source: International Monetary Fund (IMF), "Table 3. Actual Market Prices for Non-Fuel and Fuel Commodities, 2005-2008," IMF Primary Commodities Prices (www.imf.org, accessed Aug. 12, 2008).

Higher prices of staple food commodities are associated with a significant increase in poverty.¹⁴ For East Africa's poor, who typically spend between 50 percent and 80 percent of their incomes on food, higher food prices lead to reduced food consumption, as well as a less nutritious diet. This increasing food and income poverty has led to increased need for food aid in almost all EAC countries.

While one might expect higher food prices to benefit rural farmers and lead to higher incomes and increased production, in East Africa, this is not necessarily the case. It is difficult for small farmers to increase production in response to higher prices for several reasons, including: lack of available land, inadequate irrigation, rising fertiliser prices, inability to get insurance and loans and reluctance to risk investment with no guaranteed return. In fact, sometimes, farmers end up planting less of the foods whose prices are rising.¹⁵

According to FAO, the Food Price Index (used as a measure of wholesale price of basic foods within a basket) averaged 231 points in January 2011, its highest level since such records began in 1990, and is now higher than in June 2008, when the cost of food, against a backdrop of deteriorating poverty, sparked violent protests in many developing countries. The World Bank has warned that the rising prices are likely to persist through 2015.¹⁶

The FAO/OECD Agriculture Outlook 2010-19 predicts continued real increases in food prices over the coming decade, fuelled by demand from the more successful developing countries. Its warning of "further episodes of strong price fluctuations" strengthens concerns that world leaders have failed to take steps necessary to prevent a recurrence of the 2008 crisis. As a result, the FAO has recommended new regulations to increase the transparency in global trade in food products.¹⁷

The January 2011 FAO's Cereal Price Index averaged 245 points, reflecting rises in the price of wheat and grain. This was driven higher by flooding in Australia, which is a major wheat exporter. Rises have particularly been high for dairy products, up

6.2 percent from December 2010. In addition, prices have been driven higher by a combination of lower supply and increasing demand in emerging economies such as China and India.

Recently, white sugar futures hit a record high because of concerns about the damage Cyclone Yasi could cause to the Australian cane crop. As most poor households in EAC spend 50-80 percent of their incomes on food, they have no mechanism to cope with rising prices, other than to reduce the volume or nutritional quality of their consumption.

Food prices have inherent volatility, the amount of food available for export is small in relation to total production and there is no strategy for holding reserves at the international level. Prices are also very sensitive to any rise in the price of oil, which drives up the costs of agri-chemicals, fertilisers and transport, as well as boosting the attraction of biofuels. This volatility is usually exploited by speculative market traders, further exaggerating price movements.

In 2008, the high cost of living is thought to have been a factor in the December 2007 post-election conflict in Kenya, further disrupting food production, trade and displaced farmers and labourers, which caused the normally food-secure regions of Central and Western Kenya to become food insecure. Similarly, the high cost of living, reflected primarily in the high cost of food products, is thought to have been a factor in recent political unrest that led to a coup d'état in Tunisia and ousted Egypt's President Mubarak. The same seems to have inspired the anti-government demonstrations in Algeria, Yemen and Jordan.

Prolonged Undercapitalisation of Agriculture

Poor technologies and low productivity; low application of appropriate inputs, particularly high yielding seed varieties and fertilisers; declining soil fertility; poor soil management and erosion; poor agricultural support services; and government policies which have, at most time, not been supportive to the agricultural

sector are all symptoms of long-term underinvestment and lack of prioritisation of the agriculture sector.

A look at the Africa-wide attempt to comply with the CAADP target of allocating at least 10 percent of national budget to the agricultural sector tells us that no EAC country has met this target. Between 2005 and 2009, only nine African governments have achieved the 2003 Maputo Declaration which called for allocation of 10 percent of national budgets to the agricultural sector. These are Ghana (2006), Ethiopia (2009), Niger, Mali, Malawi (2007), Burkina Faso, Senegal (2007), Guinea and South Africa.

Countries that have allocated more than between five and 10 percent of their total expenditure to agriculture include Mozambique (2007), Rwanda (2009), Nigeria, Benin, Chad (2007), Gambia (2007), Mauritania (2006), Sao Tome and Principe, Zimbabwe (2007), Tunisia (2006), Sudan (2007), Namibia (2007) and Togo.

Table 9: Proportion of African Countries Moving towards Meeting CAADP Target of Allocating at least 10% Share of Public Expenditure to Agriculture			
Period	Percent of Countries Reporting Share of Public Expenditure to Agriculture		
	Less than 5%	5%-10%	More than 10%
2002	62	28	10
2003	62	36	4
2004	50	40	10
2005	38	42	20
2006	33	33	33
2007	42	33	25
<i>Source: ReSAKSS (2009).</i>			

One of the leading causes of poor agricultural performance in EAC is inadequate funding. As trends show, development assistance and food aid have also been on the decline, including donor commitments to agriculture.

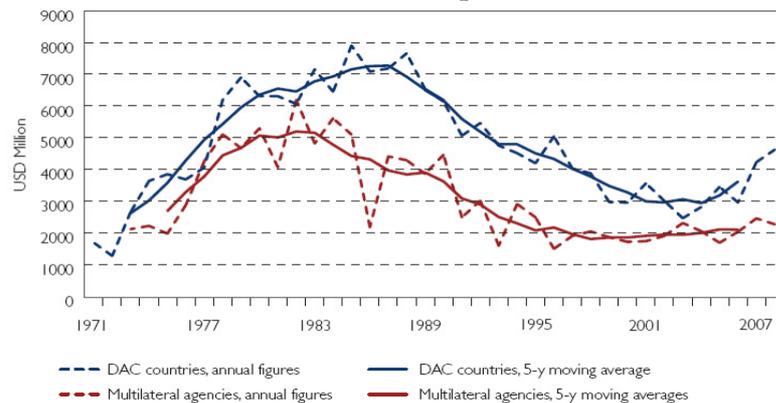
Box 2: Food Aid and Agriculture Aid on the Decline

Volumes of food aid today have hit a 50-year low and the higher the food prices get, money dedicated to food aid simply would provide as much food as in the past^a. More importantly, foreign aid allocated to agriculture has fallen from 18 percent in 1979 to 4.5 percent in 2008, indicating that donor focus on agriculture seems to be waning^b.

^aJavier Blas, “Food Aid Declines to Near 50-Year Low,” *Financial Times*, June 9, 2008.

^bThese statistics refer to ODA official development assistance from the 22 countries that are members of the OECD Development Assistance Committee (DAC). OECD-DAC, *Measuring Aid to Agriculture* (April 2010), found at <http://www.oecd.org/dataoecd/54/38/44116307.pdf>

Figure 8: Commitments to Agricultural Aid 1973-2008, Five-Year Moving Averages and Annual Figures (constant 2007 prices)



Source: OECD-DAC, www.oecd.org/dac/stats/agriculture. Data accessed in April 2010.

On average, only four percent of productive land in Africa is irrigated, whilst poor roads and storage facilities impede market functions. Indeed, this prolonged lack of prioritisation of agriculture in the investment plans and international aid is mainly responsible for the undeveloped state of agricultural markets in EAC, low research and extension systems, poor post-harvest handling and poor financing and access to credit for farmers.

High Rate of Population Growth *vis-à-vis* Food Growth

A high rate of population growth relative to food growth has been the most discussed demographic dimension of the food insecurity in EAC because of its very direct impact on the growth in food demand. As the world population rises from seven billion in 2011 to about 9.5 billion in 2050, demand for food is projected to double in 2030 and 20 percent of that increase in food demand is attributed to population growth (UNFPA, 2008).¹⁸

Neither population growth nor food production is evenly distributed across the globe. For example, the total fertility rate (TFR), a measure of the average number of children a woman will have over her lifetime, in East Africa in 2007 was 5.9, compared to the world average of 2.7 (see Table 11). Rural fertility is particularly high and stagnant in most countries, such as Uganda and Burundi, and, when combined with lowering mortality, is resulting in rapid population growth. The current East African population of approximately 137 million is projected to increase to 203 million in 2025 and to 321 million in 2050.

In the past, technological improvements in agriculture allowed food production to comfortably exceed population growth, resulting in declining food prices. This pattern of declining food prices, however, has recently reversed and there is growing concern among policymakers and researchers as to whether the previous progress will continue.¹⁹

The relationship between population growth and food security is not limited to increased demand for food. Population growth can also have an impact on food supply and access. In many areas,

population growth has been associated with land fragmentation and resettlement schemes in fragile environments that directly affect food production.²⁰ Specifically, land fragmentation contributes to inefficient and destructive farming practices and increased cultivation of marginal land, which often reduces food production. Because of population growth and land distribution policies, the average farm size in Rwanda fell from 1.2 ha to 0.6 ha currently.²¹

	2008 Population	Total fertility rate (TFR)	2010 Population	2025 Population	2050 Population
World	6,705	2.7	6,892	8,108	9,485
Asia			4,157	4,845	5,424
N. America			344	391	471
Europe			739	747	720
Oceania			37	45	58
Africa			1,030	1,412	2,084
East Africa	125.0	5.9	137.7	202.9	321.1
• Tanzania	40.2	5.3	45.0	67.4	109.5
• Kenya	38.0	4.9	40.0	51.3	65.2
• Uganda	29.2	6.7	33.8	53.4	91.3
• Rwanda	9.6	6.0	10.4	15.8	28.3
• Burundi	8.0	6.8	8.5	15.0	26.8

Note: The total fertility rate measures the average number of lifetime births a woman would have given. Source: Carl Haub and Mary Mederios Kent, 2008 World Population Data Sheet. Also obtained from Population Reference Bureau (PRB), 2010.

Urbanisation and its Effect on Food Security

The majority of recent reports on the food crisis focus principally on population growth and an increasing demand for food. Population growth, however, is one of several demographic factors contributing to the current food crisis. Urbanisation, the growth of the middle class and associated changes in consumption patterns, migration and wage employment, large family size and HIV/AIDS are all contributing factors as well.

The world is becoming increasingly urban and, by the end of 2008, more than half of the world's population lived in urban areas. Future population growth is expected to occur almost exclusively in urban areas. By 2030, the world's urban population is expected to reach 4.9 billion, while the rural population is expected to decrease by 28 million.²²

Furthermore, the pace of urbanisation will grow the fastest in regions that currently have low levels of urbanisation, such as in East Africa. Consequently, these regions will have a growing non-agricultural population that relies on purchased food and is susceptible to increases in food prices. In Mozambique, for example, urban residents purchase 83 percent of their food, while rural residents purchase only 30 percent.²³

Urbanisation, like income growth, is associated with increased demand for consumption of meats, fruits and vegetables. In East Africa, while the middle classes are growing in cities like Nairobi and Dar es Salaam, there is little evidence so far that the urban poor, who are the majority, are changing their food preferences to the higher-priced products. But, one thing is also clear. Urbanisation is often associated with decreases in food supply, due to loss of agricultural land and dietary diversification.

The expansion of urban space tends to affect farm lands because many cities and towns are located in rich agricultural lands. A compounding factor is that urban growth is increasingly land-intensive. Urban space grows faster than urban populations, evident as urban sprawl. Cities and their growing populations also increasingly compete with the agricultural sector for scarce water

resources, resulting in less water for irrigation. For example, in Tanzania, rapidly growing demand for water for domestic and industrial activities in the towns of Arusha and Moshi has led to the damming of large rivers to ensure urban water supply.²⁴ Decreases in the water available for agriculture will further inhibit the ability of farmers to increase food production.

	% Population in Urban 2008	Growth Rates, 2005–2010		Ratio of Urban to Rural Growth Rates	% Urban 2030 Projection
		Urban	Rural		
World	3	2.0	0.4	5.4	60
Tanzania	25	4.2	1.9	2.2	39
Kenya	19	4.0	2.3	1.7	33
Rwanda	18	4.2	2.4	1.7	28
Uganda	13	4.4	3.1	1.4	21
Burundi	10	6.8	3.6	1.9	20

Sources: Carl Haub and Mary Mederios Kent, 2008 World Population Data Sheet; UN Population Division, World Population Prospects: The 2006 Revision; and UN Population Division, World Urbanization Prospects: The 2007 Revision (<http://esa.un.org/unup>, accessed July 31, 2008).

Migration for Wage Opportunities

In many countries, a large share of rural income is earned by rural residents who migrate temporarily to places where they can find jobs. Research in East Africa has shown that rural households are increasingly dependent on wage labour not only as a coping strategy during hunger seasons but also as a routine livelihood strategy to meet their food needs. In Kenya, wage labour now accounts for more than 50 percent of rural household income.²⁵ The diversification of rural income is generally driven by social, cultural and economic change, but population pressure and land

fragmentation also play a role. As landholdings become too small to support households, and with excess family labour available, adolescent and young adult family members often migrate to supplement their farming livelihood with wage employment.²⁶

This increased dependence on wage employment may have mixed effects on food security. First, households may suffer from rising staple food prices if employment opportunities are reduced by energy, fertilisers, transportation costs, and the inability of employers to secure loans.²⁷

Second, household food production may decrease as adults migrate for employment and education opportunities and spend less time labouring on the farm. Finally, wage employment may actually improve food security in regions where household farming yields vary greatly from year to year and are highly vulnerable to drought. For these households, wage employment may serve as a risk mitigation strategy against crop failures.

Economics of Globalisation, Specialisation and Trade

The shortcomings of trade in agriculture have their roots in the desire to support the pattern of small family farms which were dominant in Europe and the US in the aftermath of the Second World War. Determined to achieve food security, the European Common Agricultural Policy (CAP) and the US Farm Bill combined subsidies and tariffs to support the sector. These policies proved successful, generating colossal internal food surpluses. Not surprisingly, the poorer countries of EAC are keen to copy this approach.

In Kenya, for instance, the government has adopted certain short-term subsidy measures by subsidising the price of maize seeds and fertilisers and even provided duty reprieve to importers when faced with a shortfall in local maize production. However, such measures to food security stand to be challenged at the global level, largely because in 1995, the richer countries were successful in their efforts to include agriculture in the system of open market

rules, governed by the World Trade Organisation (WTO). At the same time, they refused to unravel their own protectionist model.

In 2009, the FAO quoted a figure of US\$365bn per annum as total subsidies for agriculture paid by the rich OECD countries in 2007, nearly ten times the annual cost of eradicating hunger by 2025. This hypocrisy remains a fundamental barrier to agricultural development and food security in EAC. In the last decade, EAC countries have found their domestic markets undercut by cheap food imports dumped by rich countries. At the same time, the agricultural export window is blocked as EAC exporters encounter highly-restrictive trade barriers erected in European and US markets.

Other than dumping of heavily subsidised produce in developing countries, another avenue through which global liberalisation policies have been a threat to food security is the premature exposure of upcoming agro-industries to genuine competition from producers in developing and developed countries. In addition, because of the rules, most profits are repatriated by transnational companies²⁸ reducing the potential for poverty reduction to direct employment alone. In most cases, the pay is low because the national policies do not protect the labourers adequately.

Climate Change

While the scientific predictions and predictability of the climate-induced disasters has considerably improved and ought to inform appropriate government measures, the EAC region continues to suffer from the impacts of these events. Despite the very well-assembled body of knowledge and the establishment of early warning systems, the region has been unable (not prepared) to adequately respond to the continued recurrence of droughts, floods and other extreme events and natural disasters. The urgency of tackling these causes of food insecurity is redoubled by our knowledge of the impact of climate change.

Much of the tension in international climate change negotiations stems from the misfortune that agriculture will be

most affected in those countries least responsible for greenhouse gas (GHG) emissions. Indeed, a warming climate may improve food production in temperate zones, home to most of the richer countries. There is consensus that the most severe effect will be in sub-Saharan Africa, where higher temperatures will shorten growing seasons of staple crops and where the concentration of poverty limits capacity to adapt. A 2009 report by IFPRI estimates that, in the absence of resolute government action, “food availability in the sub-Saharan African region will average 500 calories less per person in 2050, a 21-percent decline.²⁹”

In South and East Asia, the retreat of Himalayan glaciers threatens food security through disruption to the critical water cycle. One-fifth of the world’s population lives in the five major river basins of the Himalayan water towers.³⁰

Overall, global and regional climate change could have several important consequences for African agriculture. Growing conditions may deteriorate in some tropical areas and there are likely to be more frequent and severe droughts in many arid and semi-arid areas. Such events will add to the burdens of existing farming systems, reducing their average productivity and resilience and thus increasing the vulnerability of poor people who depend on these farming systems. Given the long lead times inherent in much agricultural research, these changes need to be anticipated in setting research priorities for the future. Such priorities should consider both changed crop characteristics and changes in cropping systems.

Rising Middle Class, Energy Prices and Agriculture

Media reports have also focused on the growing incomes of households in China and India, which account for almost 40 percent of the world’s population and have had strong economic growth rates. Based on this trend, the world’s middle class will grow substantially. The World Bank estimated that, by 2030, “fully 1.2 billion people in developing countries —15 percent of the world

population—will belong to the global middle class, up from 400 million in 2005.”³¹

Usually, people tend to change their food preferences as their incomes rise. They tend to lay greater emphasis on the consumption of meats, fruits and vegetables and a move away from traditional staples. Thus, global trends are characterised by not only a growing demand for more food but also for different types of food. The growing demand for meat leads to a disproportionate increase in demand for grain and protein feed needed to produce meat. Producing one pound of beef requires seven pounds of corn feed.³² At the moment, 33 percent of the world’s grain production is fed to animals.

Rising Energy Prices and Demand for Bio-fuels

The growth of the middle class and economic growth in developing countries have also increased global energy demand. Rising petroleum use in developing countries has contributed to rising oil prices, which have affected food production in two ways. First, rising fuel prices have increased the cost of fertilisers, fuel and pesticides used in agriculture. This has caused the prices of agricultural products to increase, and in certain places, caused output to decrease.

Second, the rising oil prices have increased the demand and production of bio-fuels as substitutes for oil. The increased demand for and production of corn, which is converted to ethanol, has diverted croplands away from food production to ethanol production and this has contributed directly to the rising prices of corn and other staples.³³

An IMF analysis attributed one-third of the 2008 rise in food prices to the influence of bio-fuels. These petrol additives such as ethanol and bio-diesel are manufactured from plant crops as a means of reducing dependence on fossil fuels and potentially cutting carbon dioxide emissions.

In 2009, one-quarter of US grain was converted into transport fuel,³⁴ enough to feed 330 million people for a year. This

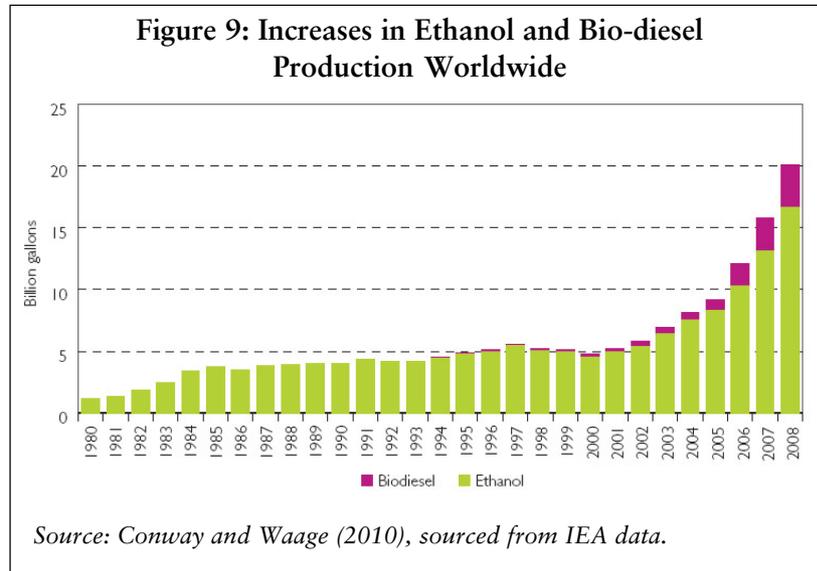
production was backed by subsidies of around US\$6bn, combined with tariffs blocking imports of the more efficient Brazilian ethanol manufactured from sugarcane. Subsidies also support European targets for bio-fuels, which are pursued largely by acquiring rights to agricultural land in developing countries.³⁵

Anti-poverty campaigners object to the conversion of land and food for rich motorists at a time of global food insecurity. The net saving in carbon dioxide emissions from maize-based ethanol has been exposed as less than 20 percent while “second generation” bio-fuel crops such as jatropha, which can be grown on land unsuitable for food crops, are unlikely to achieve commercial production until 2020.

Land Grabbing

Demand for bio-fuels is not the only driver of foreign investment in agricultural land for ethanol production. Some major food importers, such as the Gulf States and South Korea, have lost confidence in the global market and are negotiating the purchase of extensive farmland in developing countries in order to secure food supplies. The presumption that EAC countries and many other African countries contain swathes of “unused” arable land has provoked accusations of neo-colonialism and land-grabbing.³⁶

There are fears that non-transparent deals between big businesses and government will compromise local land rights and livelihoods, and ultimately national food security. However, foreign investment in land is not a new phenomenon and can deliver much-needed transfer of skills and technology, as well as infrastructure and jobs. The figure below shows us that world production of ethanol and bio-fuels has been on the rise since 1980s and production of bio-fuels has particularly increased since 2006. The World Bank and other UN agencies have drafted seven non-binding principles designed to balance the interests of farming communities and bio-fuel parties.³⁷



HIV/AIDS and Agriculture

The spread of HIV/AIDS is also undermining food security in sub-Saharan Africa, including the East African countries.³⁸ HIV/AIDS reduces agricultural production through a number of factors, creating both immediate and cumulative impacts. HIV/AIDS affects people in their prime working ages, 15 to 49. In Kenya, Uganda, and Tanzania, more than five percent of the working-age population is infected with higher proportions in Rwanda and Burundi.

Subsistence agriculture relies heavily on human labour, particularly women's labour. Therefore, in EAC regions with high HIV/AIDS prevalence, where subsistence agriculture is the norm, HIV/AIDS-related illness and deaths reduce the agricultural labour force, resulting in less land being farmed, reduced yields and less intensive crops being grown. In Kenya, a study found that the death of an adult female household member resulted in fewer grain crops grown, while the death of an adult male resulted in decreased production of cash crops such as sugar and coffee.³⁹

HIV/AIDS may also exacerbate poverty. Household income may fall, if the infected individual was a wage earner, and expenses may increase because of new health care costs. The redistribution of money for medicine and funeral expenses by afflicted households reduces the income available for food and investments to improve agricultural production. Food production is also threatened by the loss of agricultural knowledge when infected individuals die. Food crisis is also likely to exacerbate the impact of HIV/AIDS, as infected individuals, who have heightened nutritional needs, find it more difficult to purchase foods.

Competing Ideologies as Solutions to Food Insecurity

Any solution to the global food security challenge must start from an understanding of the current profile of production and hunger. About half of the world's food is sourced from 400 million small farms of less than two hectares, planting for a mix of household subsistence and surplus for market. This model is largely unsuccessful in that three-quarters of global hunger is located amongst the people who manage and work on these farms.

Competing ideologies hinder consensus to the way forward. A market-oriented model advocates that small "peasant" farms should be consolidated and alternative livelihoods found for surplus labour. In search of a new "green revolution", larger industrial farms can raise capital for the expensive products of modern biotechnology and compete in export markets. Countries should exploit the competitive advantage of crops that grow best in their climate. The alternative philosophy of "food sovereignty" restores priority for the individual right to food within independent national accountability.

This model favours local ownership and control of the full chain of resources. It accepts peasant farmers for what they are, encouraging their sustainability through subsidised inputs and credit. Defenders of small farms point to the ecological consequences of the "green revolution – the loss of biodiversity, soil erosion and depletion of water resources and the concentration

of 80 percent of the world's dietary energy in just 12 industrial crops".

Crucially, small farms deliver the added value of reducing the contribution of agriculture to climate change – modern livestock farming alone generates 18 percent of global greenhouse gas emissions. Advocates of low input or organic farming, often described as “agro-ecology”, cite research showing that it can raise yields by almost 80 percent.⁴⁰

The dogmatic stance adopted by advocates of the opposing models is possibly unhelpful. Optimum solutions to the distinctive challenge of agriculture in each country must strike a balance between the need to modernise antiquated methods and avoid the shortcomings of unsustainable industrial agriculture.

Political Economy of Food Insecurity in East Africa

Probably the single most notable cause of famine and hunger in Africa is greed, as leaders struggle for power, at the expense of the masses. A report by Ruth Oniang'o suggests that powerful leadership positions are rarely acquired through free and fair means within East Africa and, once acquired, such power is often used to oppress citizens, plunder the country's resources and corruptly divert foreign aid meant to improve the lives of needy people.

As evidenced in Oniang'o's report, countries with strong commitments to democracy, for example in North America and Europe, are not prone to famine, whereas most countries with repeated famine events are either “authoritarian” or ambiguously committed to democracy. Under such circumstances, economic vulnerability increases for households caught up in armed struggle, while other households are affected by the erosion of the government's ability to protect vulnerable groups or individuals. This was seen in Kenya in early 2008.

Apart from the preceding analysis of drivers of food insecurity, within East Africa, another major constraint to citizens' access to quality food is the policy makers' efforts to keep food security issues at the level of rhetoric, until a food emergency becomes

imminent, so that it can be used for political expediency. While there is little doubt that climate change has negatively impacted on food security, inappropriate policies and government responses are equally to blame (see Box 3).

In East Africa, national governments often see emergency food aid as a useful political tool, especially around election time. Furthermore, they may choose to delay food emergency responses in an effort to save money, in the expectation that external assistance will soon become available. In the case of Kenya, rarely does the government budget for these emergencies even when they are predictable and expected to occur in any given year.

Unfortunately, all EAC governments prefer engaging in humanitarian responses, rather than investing in long-term development. Response to shocks in east Africa is often viewed as a “donor responsibility,” raising questions of sovereign responsibility, accountability and responsibility.

Box 3: Case Study of ‘The Paradox of Hunger and Abundance’ in Kenya

It is the beginning of 2011 and parliament has unanimously voted for the government to declare drought and hunger a national disaster. A great paradox unfolds: hunger in one part of the country, food surplus in another. A persistent drought is biting hard in the northern and eastern regions of Kenya, threatening pastoralists and their livestock. The government confirms the number of Kenyans requiring food relief would increase to five million in the next three months. At the same time, farmers in the Rift Valley are sitting on surplus maize, following good harvests last August. A North-Rift member of parliament is quoted in one of the country’s dailies: “Can the government tell us what food shortage they are talking about? Most farmers have maize, but there is no market.”

Although prices normally rise this time of the year, as stockpiles from the last harvest dwindle, farmers are expecting them to be even higher to reflect the severe shortages in other parts of the country. They are pressing the government to buy their maize to feed their fellow

Contd...

Kenyans, rather than relying on food aid and humanitarian assistance from abroad.

After a few weeks of clamour, the government yields and directs immediate purchase of food from the surplus regions to distribute in the drought regions and to build the country's strategic grain reserves. But, farmers are reluctant to sell at the low price being offered by the government. But, no one wants to take advantage of this 'presumably' lucrative business – transferring maize from the surplus regions to the deficit regions – because no one will afford it there and no one would want to sell at a loss. Communications networks are inadequate, transport is insufficient and the private sector is weak. Three decades of national and international neglect of agricultural development in Kenya have also meant a neglect of developing agriculture markets. So, the hungry in the northern and eastern regions of Kenya are on the fringes of the economy; they lack the buying power to attract the surpluses. So, the laws of supply and demand that would usually move food from Rift Valley to the northern and eastern regions of Kenya rarely apply in this case.

As food prices rise even further in the months of March through June, a second paradox unfolds: rather than gaining, farmers are actually losing out. As it turns out, farmers are now net buyers of the very food they produce. Prices have risen, but they have no stocks to sell. Instead, some speculative grain cartels are benefiting. But, the World Bank has warned that these dynamics are expected to replay as "the rise in food prices will persist into 2015". No one bothers. Many of the smallholder farmers in Kenya – those with only a couple of acres – face their greatest expenditures shortly after the August maize harvest.

Within months of the harvest, the smallholder farmers are selling some of their maize to pay school fees for their children at the beginning of the New Year and then to finance the purchase of seeds and fertilisers for the March planting season. Also, because of remedial storage facilities, they are forced to sell surplus maize before it is spoilt by the climate or infested by pests. Others choose to exchange their maize for other longer-lasting (they hope) assets like cows and goats.

At the time of these sales – for school fees, planting inputs, or to prevent spoilage – the market price of their maize is still relatively low, because there is plenty available. As their stocks of maize disappear, with several months still to go before the next harvest, the

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farmers enter the market to buy maize to feed their families. But, by then, the prices are on the rise, as nationwide maize stocks dwindle before being replenished by the harvest. Thus, the Kenyan smallholder farmers operate in reverse of the guiding principle of stock market investors: buy low, sell high. They, instead, sell low and buy high. They spend more buying maize than they make selling it.

Even then, if the government were to enter the market to combat the drought and offer a higher price to attract maize sellers, most smallholders won't benefit because they have to wait one or two months after delivery to be paid by the buyers. The reason Kenyan smallholder farmers living on the margins want to sell their maize surplus is because they need the money immediately. So, it is mainly the larger commercial farmers and mid-traders who benefit from the government purchases. The smallholder farmers who haven't yet sold their maize five months after harvest, who are holding on to their maize, storing it in plastic bags beside their beds in their mud-brick homes, are hoping to get the higher lean-season prices before their stocks spoil. If they lose that bet, a third tragic paradox emerges: maize spoiling in some homes, while hunger rages in others.

(Author's narrative, 2011)

5

Possible Future Scenarios for EAC Agricultural Development and Food Security

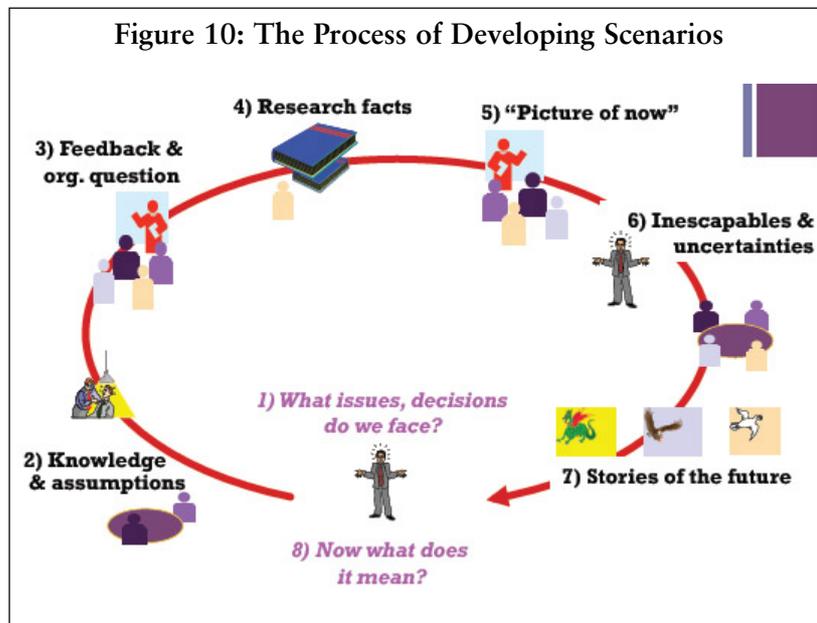
Building Scenarios for EAC Agricultural Development and Food Security

The scenario stories presented here were built on the Society for International Development's East Africa Scenarios to 2040. These stories seek to respond to the questions 'What do we want' and 'What will we become' as a region? In asking these questions, that scenario-building exercise that was conducted to a diverse range of participants sought to challenge the region's citizens to discuss and to reflect upon the content and trajectory of the deepening integration process. It proposed three stories, each reflecting possible futures that the region might have to face, but each with very different outcomes.

As explained in Chapter 2, scenarios are specialised tools that seek to disintegrate a complex decision-making environment and present stakeholders with an opportunity to be able to make viable decisions concerning their future and how they could approach it with chances of success. However, the process of untangling the complex decision-making environment is not an easy task. Certain procedures must be followed. In order to come up with the scenario stories and food and agriculture stories presented around each scenario, eight steps were followed, as depicted in Figure 9.

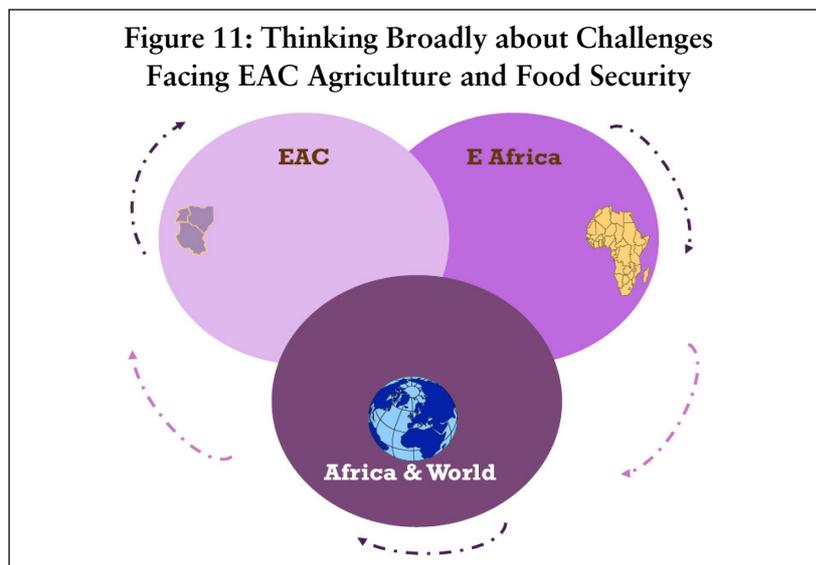
The first step was to ensure that all participants understood the key issues and the main objective of the project. Certainly, the main issue is that, for the last three decades, EAC countries have experienced poor agricultural performance and deteriorating food security conditions. Millions of the region’s populations stare at hunger and the region faces monumental challenges in its capacity to reverse the poor trend and be able to become a food-secure region over the next three-four decades.

The second process was to appreciate that at least the region is taking some measures to reverse the trend through regional policies for enhancing agricultural development supported by the food and nutrition security action plan spanning to 2020. However, underlying these measures are certain assumptions which the regional leaders and policy makers are making about the possibility of achieving the intended goal. Hence, the underlying question to address in this context is to analyse whether these assumptions still hold given what you, as the reader knows about the region’s past and future challenges.



Following this understanding, it was time to settle on what key question faces the region in its attempts at a future with better agricultural development and food security, hence the organising question is discussed below. Given this understanding on the organising question, participants revisited the key challenges facing the region's vision of a prosperous food-secure region over the next decades. It is important when discussing challenges facing EAC's agriculture and food security that we think broadly in time and space as most of the key challenges and issues affecting EAC goals are exogenous to the region and often the region's leadership does not have control over them.

By discussing the key challenges and issues affecting agricultural development and attainment of food security in the region, the process was able to sort out the key challenges and issues in those challenges that we are certain will occur and what impact they will have. We call these our inescapable realities. On the other hand, those challenges that we have only a rough idea about their occurrence and trajectory of their impact form our uncertainties as we need to interrogate our strategies against possible uncertainties.



A combination of the above process helps us to discern the possible scenarios and trajectories that agricultural development and food security might take in future. This then becomes a useful tool for the present leadership and policy makers to take action and devise strategies and be able to gauge the success and robustness of those actions and strategies.

Underlying Assumptions of the Official Future of Agriculture in East Africa

Underlying the EAC policies and strategies of agricultural development and food security are some important assumptions which are discussed hereunder.

a) We can produce and market enough food for both ourselves and export market:

- Enough food for ourselves at affordable price; and
- Have a surplus for export.

b) There are no conflicts between:

- Production of livestock, food crops, cash crops and bio-fuels;
- Agricultural land use and industrial and urban development;
- Smallholder farming and commercial agriculture; and
- Environmental protection and intensive use of farm chemicals and fertilisers.

c) Resources will be available:

- The region will have adequate money and skills to invest in agriculture.
- Credit to farmers is available and affordable.
- Science and scientists are interested in promoting East African agriculture.
- Skilled labour will be abundant and willing to work in agriculture.

d) Technology is good and will help us:

- Imported agricultural technology can be quickly adapted to local conditions and will be appropriate and affordable to farmers.
- Climate change constraints can be managed through technology (e.g., irrigation and seed varieties).
- ‘Modern’ farming practices hold greater promise than ‘traditional’ practices.
- Soil fertility can be managed and improved through technical inputs (fertilisers).

e) Regional Cooperation and Coordination will improve agriculture:

- Uniform food and production standards can be enforced across the EAC.
- Regional collaboration among Partner States will always be positive and effective.
- Regional agricultural policy will make a difference and it will be easy to transfer food from surplus regions to deficit regions within the region.
- Supportive institutions will be available and will function effectively (farm cooperatives, research, extension, finance and credit unions and marketing).
- Regional ‘hard’ infrastructure will quickly be provided (transport, processing and storage).

f) Land will be available suitable for agriculture and affordable:

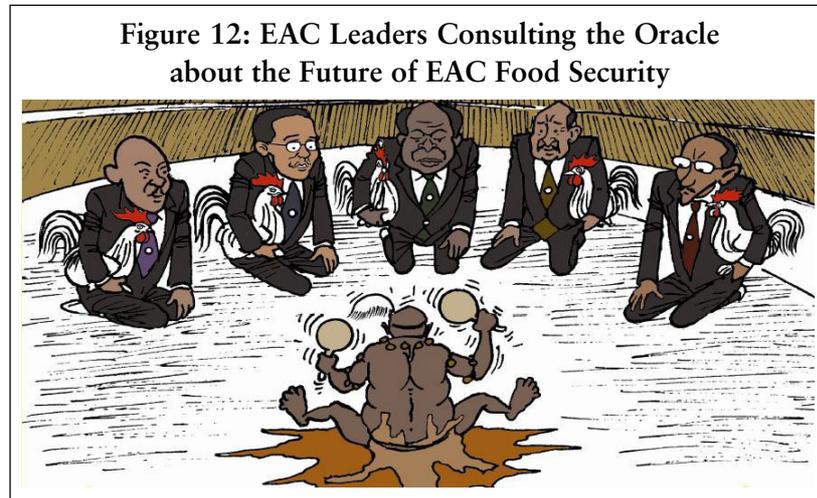
- Land reform is not an issue (this will be addressed through our Constitutions).
- Customary rights on land are a nuisance.
- Agricultural land will remain in East African hands.
- Damaging agricultural practices (overgrazing, inadequate fallow, etc.) can be easily discouraged and remedied.
- Any negative impacts that population growth and industrial and urban development may have on availability of suitable land will be tackled effectively.

- g) There is sufficient water to increase production:**
- Climate change impact will not radically affect water availability.
 - Shortfalls in rain-fed agriculture can be supplemented by irrigation (technology is available to do that including sufficient water sources and resources).
- h) The external world remains friendly:**
- World food markets will benefit, rather than penalize East African farmers.
 - External investors in East African land and agriculture are not here to grab land but to improve East African food security.
 - Donors will continue to support East African agriculture and food security measures.
- i) The underlying beliefs of the region's leadership:**
- Markets serve the best interests of all.
 - High productivity and output are more important than resilience.
 - East Africa will remain peaceful, without the nuisance of any civil conflicts.
 - Investing in women will lead to improved agriculture.
 - The future will be like the past.

The Organising Question

Reports such as this do not just get their titles anyhow. An Oracle question was posed to participants, reading: **“If you had an opportunity with an Oracle, what would you ask him about agricultural development and food security in EAC?”**

As expected, the responses to this kind of question can be as varied as the number of respondents (see Table 13 on page 85). Some of the responses seemed to suggest that the future will depend on region's leadership, others were more concerned about the limits of technologies and capacity of the region, the required



production scales, market failures and region's vulnerability to external world.

Summary of Responses on the Organising Question

Technology and Capacity

- How can we irrigate land more sustainably?
- If irrigation systems were improved to meet Africa's irrigation requirements, would the food situation improve?
- How do we use technological advancement to be food secure in our diversities?
- Do we have the capacity to feed ourselves for generations?

Production, Markets and Vulnerability

- Who will control food security in the EA region in the next 10-20 years – small-scale subsistence farmers, large-scale farmers or government?
- How can we build competent producer agency in EA?
- How can we make sure that the EAC is food secure within the next 10 years?
- How is the region going to address issues of vulnerability to food insecurity?

- What meal will the typical EA citizen eat in the next 20 years?
- Is EAC market intelligence possible and profitable for agricultural investors and producers?

Regionalism and Leadership

- How can EAC set up strategic grain reserves as a solution to recurrent hunger, price fluctuation and enhance marketing?
- How can we make sure our leaders put the interest of their people above their own?
- How can we have visionary and committed leaders?
- What leadership will deliver food security?
- How can we expand regional markets of produce and products?
- Will we have visionary and committed leaders?

Underlying these various responses is a common concern about the failures of the present leadership to steer agricultural development and make EAC a food-secure region. Upon presentation and discussion of these responses to the Oracle question, the team reached a consensus that the most appropriate response that captures the spirit of the questions to the Oracle would be to ask this question: **What will East Africans eat in 2040? Who will produce that food and how?** Hence, the title of this report.

The understanding of the organising question helps us understand the realities of our current capacity, the constraints and key challenges the region might face and we are better able to sort out what we cannot escape from facing and we cannot discern for certainty, but that will have an impact on our desired future.

Table 12: Participants' Responses to the Organisation Question



Inescapable Issues and Uncertainties

As explained above, inescapable challenges are those issues which the region will have to deal with in the future, whether it likes it or not. These are issues about which we are reasonably certain as to how they will play out and that we understand them

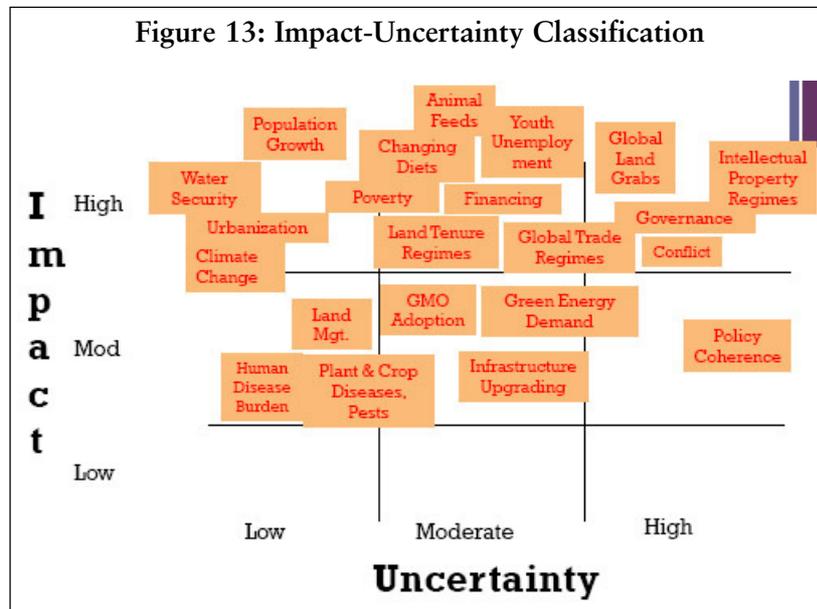
well. Uncertainties, on the other hand, are those elements whose impact we are unclear about. There are a number of plausible directions in which they might evolve, both in positive and negative terms.

In Figure 12, a number of variables have been classified according to how the workshop participants and the team felt they might impact food security in the region. The top-left corner of the diagram is populated by those challenging issues which could be classified as ‘inescapables’ which will have high impact on agricultural development and food security, whereas the top-right quadrant is populated with the ‘uncertainties’. They describe the variables whose future directions we are not certain about, but, if they occur, they will have a high impact (positive or negative) on EAC agricultural development and food security.

The most important variables for any scenario-building process are those issues which lie on the upper quadrants, particularly those on the top-left and top-right corners of the impact-uncertainty graph. They tell us which variables we are relatively certain about their occurrence (the inescapable challenges) and which ones we are less certain about their directions (hence our uncertainties), but that both will have a high impact on food security.

Key Challenges to Food Security over the Next Decades

As participants explored the consequences for the region’s policy makers of the different drivers affecting the food system, the team found it useful to define the key challenges, which are described in Table 13 (page 85). These challenges interact with one another within the entire food system and possible interventions to address them should be viewed in this wider context.



Synopsis of Scenario Stories on EAC Agriculture and Food Security

The scenario stories presented in the subsequent pages are built on the Society for International Development's East Africa Scenarios to 2040. These stories sought to respond to the questions 'What do we want' and 'What will we become?' In asking these questions, the scenario process sought to challenge the region's citizens to discuss and to reflect upon the content and trajectory of the deepening integration process. It proposed three stories, each reflecting possible futures that the region might have to face, but each with very different outcomes. This research has sought to integrate questions around agricultural production and food security in each of the regional integration scenario stories so as to understand how these issues might fare in each of the three worlds depicted.

Whilst these stories do not seek to pass for predictions or the truth, they challenge us to imagine what responses we might want

to consider, depending on our individual and corporate goals in whichever world or set of circumstances we might find ourselves living in. But, one thing is clear: we might have the best thought-out plans that man can devise. However, we live in a dynamic world and ever-changing external context. Will our plans be able to adapt and survive, given the changes taking place?

Thus, we will continually be challenged and surprised – both in positive and negative terms – by the obstacles and opportunities that we might find along the way as we work towards implementing our various plans. Therefore, the scenario stories presented here seek to prod us gently to consider some of these elements. You, the reader, may not agree with some or most of the scenario dynamics presented.

However, this is much less a function of ‘being right’ or ‘being wrong’ – it is more about being able to stretch our minds to think about how we might respond should we find ourselves facing the circumstances that are described in the stories. Herein lies the value of scenarios. A synopsis of the three scenario stories is presented in Table 13.

<i>Scenario 1</i>	<i>‘I Want to be a Star’</i>
General story outline	This is a scenario story about the seduction of beauty and wealth that embodies EAC (here in called CEA). It tells of a beautiful CEA that is so spellbound by the promise of her natural beauty and resource wealth that she welcomes all suitors (foreign investors and influential institutions) and relinquishes to them all control over her destiny. At the beginning, CEA was seduced and she felt like a super star. But, 30 years later, in 2040, CEA loses all her suitors, as she realises that she has been raped and abandoned.
Agriculture in this story	In this story, there is utter neglect of smallholder agriculture, leading to failure and increased rural-urban out-migration. Policy favours are highly visible and high value agricultural investments are welcome, with land sell-offs to foreign investors

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	<p>who produce on CEA's land, but export to their countries. Residual harvests are left for the local population, as high quality, high value products are exported. Bio-fuels and carbon farming are welcomed and this drives people off their land. Large-scale irrigation investments are brought that deliver quick returns initially, but increasingly devastate the wild biodiversity and water shortages become more acute over time. Population increases beyond the rates of food production and, in the end, drought and increased pressure on the land have led to poor, exposed soils. Agricultural capacity collapses.</p>
Food security in this story	<p>There are visible inequalities in access to food markets. The urban wealthy can access supermarkets, which are increasingly stocked with imported foodstuffs. The urban poor are increasingly eating less and nutrition levels are worsening. Pastoralists have been displaced off their land and they have lost their livelihood. In the rural areas, declining and erratic yields mean that people are more reliant on food markets than on their harvests, but their low income levels mean that they are not able to purchase much of their needs. Poverty, hunger and disease deepen.</p>
Conflicts and tensions	<p>Conflicts proliferate. Resolution tends to favour those with money and connections. There is a lean towards serving global needs and wealthy elites, to the utter neglect of the locals.</p>
Resources	<p>Money, science and credit are available to the wealthy and the outside investors. Little credit is available for smallholder agriculture. Labour is largely unskilled and underpaid, available in large quantities. Most populations do menial jobs on farms owned by foreigners.</p>
Technology	<p>Insertion of technology is largely determined by investors and financial return. Low investment in local R&D and extension. Emphasis on importation and replication of what has worked elsewhere, with little regard to local context and conditions.</p>
Regional cooperation	<p>Rhetoric masks active collaboration with outside interests, at the expense of the region's agriculture and citizens.</p>
Land	<p>Rapidly degraded, high value land alienated and handed to foreign investors. Customary rights overruled and ignored.</p>
Water	<p>Rainfall erratic and extreme. Water resources increasingly depleted (quantity and quality). Best water reserved for high value agriculture and the wealthy. Uncontrolled extraction and depletion of aquifers, lakes and rivers have depleted what is now a liquid gold water.</p>

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External world	Interest driven by quick returns from export-led production. Erratic and ineffectual donor inputs result in no, or limited, gains. Global food prices continue to rise, complicating food security. Little and chaotic regulation results in greater damage to the land and the people.
Beliefs	Successful markets and high productivity have damaged East Africans and reduced resilience. Conflicts multiply and the future looks less like the past.
Scenario 2	<i>I Want a Visa'</i>
General story outline	In this scenario story, we depict an East Africa that trusts in its executive elite, motivated by enlightened self-interest, deploys its intellectual skills and state power to deliver development through the coordinated execution of what appears to be a visionary and progressive strategy. Eventually, it discovers that confidence in control has its limits.
Agriculture in this story	The local executive elite regard smallholders as important to increase food production. Increased investments in R&D and extension services initially see increased outputs. This process, however, runs into the limits of climate change and failed rains, followed by heavy floods result in crop failure. Damaged infrastructure is rapidly fixed, with a view to returning things to normality as fast as possible. But, persistence of crisis demonstrates limits of policy. Mindset changes and now policy slowly shifts to favouring urban development and to discouraging smallholder farming, but professionalises agriculture (favouring larger holdings). Labour leaves the fields and joins the infrastructure construction boom. Modern and new technologies are seen to hold the key to producing sufficient food for the region. Increased use of hybrids, GMOs and irrigation. As incomes decline at the end of the construction boom, food producers begin to eye external markets to absorb their surplus, given the collapse of the internal market and the need to support the cost of their high inputs. By 2034, the region faces a prolonged water crisis (stock and quality), with dire consequences for food production. Irrigated areas are increasingly devastated, thanks to run-off pollution and rising saline levels. Reduced water supply to urban areas adversely affects sewer and drainage systems. Rise in fossil fuel prices makes fertilisers unaffordable to average farmers.
Food security in this story	High global demand sees increase in food prices. Prices of staples are out of reach of the majority. Floods displace thousands who now face the spectre of prolonged hunger and disease.

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	Food riots are prevalent; young children succumb to diarrhoeal diseases. Massive international appeal sees food deliveries to famine stricken areas. The construction boom sees incomes and food security improve initially and people are increasingly buying their food rather than producing it themselves. The end of the construction boom sees an increase in unemployment and informal subsistence. The newly unemployed in the urban areas are hardest hit as the rising food prices are now out of reach for most. The lack of unemployment insurance means that people have no or fickle safety nets to count on. Increasingly, the unemployed in the urban choose to migrate back to the rural areas, but there isn't much land left to farm as it has either been constructed over or taken over by commercial farms.
Conflicts and tensions	Policy decisions resolve conflicts in favour of commercial agriculture, industrial development and urbanization.
Resources	Money, science and credit available to the wealthy and the outside investors. Credit available for land consolidation and commercialization. Less labour available for agriculture (during construction boom), increases after the end of the construction boom and now lying idle.
Technology	State encourages and directs choice of technologies and investments. Adaptation driven. Donors cheer, support and help pay for choices. Strengthening of local agricultural colleges and extension services.
Regional cooperation	Genuine attempt to create and enforce food and production standards; to share the costs of the institutions and infrastructure to support agriculture.
Land	Land rights formalized, customary rights invalidated. Attempts made to keep land as productive as possible through infusion of fertilizers and agrochemicals; damaging agricultural practices penalized.
Water	Rainfall erratic and extreme. Water resources increasingly depleted (quantity and quality). Technocratic solutions are sought for water management, increased irrigation. However new and evolving challenges test the capacity of the system to ensure adequate and appropriate water supplies for agriculture, industry and settlement.
External world	Support the policy makers and their plans. Helps to provide finance and scientific advice. Key external backers and sovereign wealth funds from the Middle East & Asia; reduce traditional

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	donor dependence. Global food markets are welcoming of the contribution of the region. High prices affordable as long as jobs are available.
Beliefs	Markets are insufficient. Resilience is possible but undermined by existing tools and habits. Conflict is a risk that can be managed. The future is much more surprising. Complexity means that our best plans don't always work.
Scenario 3	<i>'Usiniharakishe' (Don't Rush Me)</i>
General story outline	The story explores ordinary East Africans struggling to retain and reclaim control over their most local assets – land, water, trees and creativity in an effort to determine their own futures. Success is not assured as small units grapple with and risk being overwhelmed by the big challenges. But eventually, it proves that with resilience and adaptation one can go far.
Agriculture in this story	Sustained competition for the region's agricultural resources. Outsiders want resources for export to their countries and leave residues of low quality for local consumption. However locals are reluctant to cede control of their resources to local elites and their outsider partners. Small holders use local knowledge to improve yields and also reintroduce traditional crops that are more adapted to the increasingly harsh/variable conditions. Success will also largely be in those areas with natural fertility and water availability, since they will not have the resources for technological solutions to low productivity. There are various creative attempts at the local level to increase productivity at all levels by diversifying family incomes. Politics and the policy process remain distant and unresponsive to their needs. There is a creative search for local solutions. Increased collaboration and cooperation at the local level sees new forms of organization and cooperatives emerge. These groups consolidate their resistance to the predatory elites. The local producers increasingly rely on non-formal markets for their produce, rather than big aggregating firms/buyers/distributors. The bulk of the produce is consumed locally and there is limited processing applied –this is a short-distance food value chain story. Urban dwellers will rely on and get 'fresh food' but over time, they also turn out to be extremely vulnerable to supply disruptions for all sorts of reasons (disease, poor transport). Food prices oscillate wildly further compounding urban food insecurity (as well as that in non-producing areas.) Indeed, there may be a domestic land rush of sorts, making land prices and values rise even further. The inability of the

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	<p>formal economy to absorb surplus labour means that increasingly people look to the land for their livelihoods. The connections between rural and urban remain strong and allow for the consolidation and take off of new ideas such as the Nairobi Environmental Exchange. The proliferation of IT and environmental markets create new rights and new deals. The local communities find new ways of valuing their productive processes. Region is punished by a series of ecological crises. Local, indigenous knowledge is key to ensuring resilience and this becomes critical to a recovery. Food production progressively increases, intensifies and diversifies, stimulated by grassroots innovations and is able to meet local demands. Communities are forced to innovate to ensure they can retain the fertility and productivity of their land and other productive resources. Fossil fuel-based fertilizers are unaffordable and largely become irrelevant. Incomes from the farm and environmental investments increase and this makes agriculture respectable to the youth.</p>
Food security in this story	<p>Food security slowly improves in a patchy and uncoordinated way. There is no single explanation for this. In some areas, it is largely due to shorter supply chains and improved availability. In other areas, the improved affordability of food ensures enhanced food security. There is an increasing reliance on 'traditional' crops as opposed to grains. Local markets are key to ensuring access. Older customs that ensured food security are rehabilitated and adapted to meet new conditions. Cost of food remains high but more diversified incomes ensure that the many can afford it. Those whose incomes are linked to the land, may have more stable income profiles, while those who depend on other sources (services, industry) with fixed income, may find themselves squeezed.</p>
Conflicts and tensions	<p>Conflicts resolved by protracted negotiation between urban elites, outside investors and local leaders. Limited central influence and lots of variety in the types of accommodation.</p>
Resources	<p>Limited availability of money, science and credit. Increasing reliance on own resources. Labour more mobile and picking up a variety of skills. Increasingly involved in transforming agricultural base.</p>
Technology	<p>Increased use of mobile IT to access new markets. Increased appreciation and application of traditional knowledge systems. Adoption of new technologies informal, ad-hoc and price</p>

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	sensitive. Engagement and experimentation across boundaries. Skilful negotiation provides access to technology at reduced costs.
Regional cooperation	Formal/official regional cooperation discredited, distrusted and eventually rejected. However, cooperation amongst peoples across boundaries deepens and prospers.
Land	Formal land rights challenged and shaped by local realities and customs. Land badly degraded but slowly improves thanks to environmental markets and a combination of old and new management skills. Land grabs actively and (mostly) successfully opposed.
Water	Rainfall erratic and extreme. Water resources increasingly depleted (quantity and quality). Acute water problems persist. Slow, improving watershed management improves water supply and availability. Limited irrigation. Agricultural production adapts to available natural water supply.
External world	External world has fractured; East Africans able to play off against the world at all levels of society. Resource grab opposed and resisted by locals. Donor authority has slipped. Markets remain high. External markets looking for new production bases and markets in East Africa. Environmental markets provide new opportunities and incomes. Informal personal networks have strong influence on external negotiations.
Beliefs	Markets are a double-edged: they can harm and help. New markets can help but they need new rules. Resilience is essential and needs to be nurtured rather than ignored. Conflict is normal but increasingly negotiated at local level. The future looks nothing like the past.

6

Conclusions and Recommendations

Perhaps, the deepest assumption is about the path to prosperity. In East Africa, policy makers and many professionals seem to be convinced that prosperity and development will flow from industrialisation and a more complete immersion into the global economy. So, emphasis is made on the need to add value to subsistence agriculture through agro-businesses. Countries are keen to upgrade their infrastructure to reduce the costs of doing business and to attract investors and enhancing human capacity occupies an important place in policy discourses, but less so in actions.

And yet, a tangible improvement in the standards of living for most of East Africans is still elusive. The region's policy makers' revel in economic growth statistics, oblivious to the risk they carry of both seducing and sedating them. They are dazzled by the ratios and percentages, but pay scant attention to the absolute numbers of real people that they represent and where the true picture is most visible. Despite the impressive growth rates recorded, the absolute number of East Africans living in poverty has remained largely unchanged, at best, and may have even increased over the decades.

Is the current development model working? As the cost to our natural environment becomes increasingly apparent and our social fabric is strained to breaking point by rising inequality, we are beginning to count the cost of development.

East Africans face a tremendous complexity of systemic pressures on agricultural development and food security. However, it is far from clear that our institutions are up to the task of discerning and articulating the choices, navigating and arbitrating between competing interests, resolving conflict and mobilising us by finding common ground on which to enlarge the space for vision and action. As we face the future, we must find a clear answer to the question ‘what kind of society do we want to create?’ And, with respect to questions of food security, there are a set of fundamental questions around what the region’s citizens will be eating and who will be in control of their food supply.

Perhaps, the greatest challenge for EAC is to ensure that the food system continues to supply affordable and nutritious food for its growing population. As trends show, however, increases in population, per capita income and demand for grain-intensive meat could combine to create a rise in total demand for food, hence the price of food. How to balance food production with this rising demand remains a fundamental challenge for the region’s policy makers.

The other challenge facing the region’s policy makers is how to avoid the threat of future price volatility in food markets. Since early 1980s, the region has been relying on imports of rice and wheat to supplement local production to meet domestic consumption requirements. The same applies to maize, where amounts available for domestic consumption have been higher than the local production, suggesting an increasing trend of maize imports to supplement local production since mid-1990s.

High volatility in import commodity prices will, therefore, have adverse effects not only for consumers and producers but also for the macro-economy due to reduced public finances and ability to import other foods. Some of the drivers and trends described in Chapter 4 could increase price volatility (e.g., extreme weather events and land degradation resulting from climate change), whereas other factors (such as new technology leading to new varieties of crop that are resistant to diseases, drought or flooding)

will tend to reduce volatility, but their environmental impacts could also be huge and may further reduce their potential.

Climate change will make the goal of eliminating hunger more difficult to achieve. But, there are also political, social and economic issues that particularly affect questions of hunger. For instance, how will the political leadership of the region respond to the question of the role of agriculture in rural development and to the needs of smallholder farmers? How does the leadership respond to market inefficiencies affecting rural price of food commodities and their relationship to local incomes? How does the leadership respond to the questions of local access to food and land resource? How will the region respond to issues of conflict and human displacement that disrupt access to and price of food?

Certainly, as the region struggles to match production to demand for food, the greatest challenge will remain whether it will afford to produce through technologies that ensure low emissions of green house gasses (GHG). It is thus expected that policies for climate change mitigation, depending on how they are crafted, will affect the food system, both positively and negatively.

The other emerging challenge is about competition for scarce agricultural resources. The paper finds that food production will be constrained, especially where bio-ethanol production, increased urbanisation and industrial development will mean competition for critical resources such as land, water and energy. These are critical questions that the EAC Food Security Policy should address adequately.

Ultimately, it should not evade readers that hunger continues to cause increased morbidity and mortality in EAC. It also leads to distress behaviour in ways that, if left unattended, could undermine development in the region. For instance, hunger leads households to sell their assets to raise income to buy food and withdrawal of children from school (particularly girls) to help with doing jobs (child labour) to help parents raise income for the family. Hunger, therefore, prompts destitution, prostitution, child-trafficking and it is a strong contributor to the onset of armed conflict.

A number of challenges and gaps have been identified and discussed in this report that are thought to be the leading causes and threats to agricultural development and food security. These include the following:

- a) Access to markets: Low farm-gate prices to farmers have a string effect of making agriculture less remunerative and leaving farmers with low bargaining capacity. Stringent standards compliance requirements and non-supportive and incoherent market policies all combined stand in the way of smallholder prosperity. In addition, constrained economic access to food, given high marketing cost of produce (transport, poor roads), tends to discourage efficient marketing.
- b) Low access to affordable and good quality inputs by farmers.
- c) Changing consumer diets and eating habits, which escalate demand for high-value food and grain-fed food – all tend to drive up food importation, in addition to more pressure on food, due to a growing middle-income group and increased urbanisation.
- d) Undercapitalisation of agriculture: Low research and development efforts, extension services, poor rural infrastructure, post-harvest handling and poor agricultural markets; low usage of production enhancing inputs such as fertilisers, improved seeds, agrochemicals and veterinary drugs, all lead to low and unstable production and productivity occasioned by over-reliance on rain-fed agricultural production systems.
- e) Rising energy prices have the effect of increasing demand for alternative energy and energy security. This has led to growth of bio-fuels and land-grabs, but with the result of reduced supply of grains and increased grain prices, as grains are diverted to the lucrative bio-fuel sector.
- f) Constrained financing and access to credit by farmers: Agriculture is viewed by banks as a high-risk venture and most resource-poor farmers do not have the necessary collaterals

to access credit. Hence, the challenge of agriculture financing is further strengthened.

- g) High population growth rates above food production growth also exert pressure on food demand, thus raising food prices.
- h) Labour shortages due to urban migration and loss of suitable labour to the scourge of diseases, mainly HIV/AIDS.
- i) Globalisation of food markets tends to limit supplies from non-compliant farmers and giving access to cheaper imports, which ultimately kill the livelihood of smallholder farmers and economies of agriculture-dependent countries of East Africa.
- j) Land and water constraints, given the impact of climate change that reduces the volumes of low surface water storage per capita in the EAC region.
- k) Environmental degradation from present practices and how to balance food production and environmental conservation remains a real challenge.
- l) Demographic expansion into arable lands reduces the amount of available land for agriculture.
- m) Inefficient utilisation of the available water resources for production, including for irrigated agriculture.
- n) Inadequate and weak farmer's institutions incapable of supporting a vibrant agricultural sector.

While the EAC Food Security Action Plan is clear on how to address these issues, it is blind to the fact that the future might unfold differently from the world policy makers would want. What the region, through its food security policy, doesn't seem to tackle clearly is how to develop a staunch strategy against the enormous threats from climate change, water scarcity, environmental degradation and competition for scarce energy resources. How these factors will affect the realisation of the region's food security needs is yet to be understood and addressed. However, what is certain is that, in order to increase agricultural productivity and food production sustainably, the region will have to do more with

less: less water and other natural resources, less energy, less financial resources and a less certain climate. These are not mere predictions, because they are already being experienced anyway. To harness the scarce agricultural resources against the competing demands for them will demand more efforts in finding appropriate technologies and more resilient policies against future uncertainties.

This report has interrogated the possible futures, especially given the challenge of climate change and development that EAC might face and that could positively or negatively impact its dream of achieving sustainable agricultural development and food security. Through the use of scenarios, three main futures are emerging that could enormously impact the vision of the region in terms of poverty and development, both have a direct impact on food security.

Recommendations

Given the varied constraints and the existing scenarios regarding the future status of food security in the EAC region, the following recommendations should be considered when formulating an action plan to address food insecurity in the EAC region;

- a) There is need to encourage investments in productivity by enhancing inputs leading to a better exploitation of good seasons. Such actions will help in avoiding the risk of losing investment loss in inputs among the small holder farmers.
- b) Creating mechanism to enhance credit availability; Due to the risk associated with agricultural production, producers (especially smallholders) have been unable to access credit financing. The administrative cost of financing small, high risk loans have prohibited many smallholders from credit. Hence an insurance arrangement that will pay off part or the entire loan in case of severe drought will thus encourage lenders to provide more credit to smallholder producers as it will reduce the chance of default.

- c) There is need for the regional governments to reduce the need for food aid and hand-outs. This will reduce dependence on welfare-type programmes, thus building the confidence among the smallholders to focus on self supporting programmes. The government will also have less pressure of providing food aid and similar welfare type programmes.
- d) There is need for a regional policy to emphasise on linking the emergency food aid to long-term development. This kind of approach will increase the capital flow to help food producing households and communities build up their asset base, to be able to effectively deal with their own emergences in the future.
- e) There is need to enhance tailor made programmes on food security for marginal groups such as vulnerable communities, households and individuals; and promote women and youth entrepreneurs in food supply.
- f) A regional policy which promotes the use of appropriate technologies/ inputs that are adaptive to climate change impacts should be enhanced. This could be realised by establishing a mechanism that ensure that agricultural inputs are available at affordable prices and promoting the use of appropriate technologies that addresses climate change impacts.
- g) There is need to increase and optimise the use of water for agricultural production by promoting integrated water resources management in the EAC including joint water systems. This could also be realised by constructing appropriate water structures for livestock, irrigated agriculture and aquaculture; optimise land preparation and conservation tillage for agriculture, livestock and rangelands.
- h) There is need to enhance Intra-regional trade share in regional food products market by strengthening the current food information systems within the EAC Partner States. This could be achieved by supporting easy access to trade policy and regulatory requirements for trade in food products; supporting and promoting training/awareness creation on regional trade

opportunities and regulatory requirement and availing trade finance targeting intra-regional trade in food products.

- i) There is need to improve market infrastructure by strengthening storage facilities; facilitating development of community based storage facilities in target areas and Promoting renting/leasing of storage facilities for food commodities/products.
- j) There is also need to streamline gender in the regional food action plan by up scaling access to credit for rural communities, including women and youth associations, through the provision of microfinance services; formulating training programmes for women in agro processing sector to enhance value addition; fostering effective participation of men in agricultural activities so as to reduce the burden of rural women; promoting participation of women in decision-making processes in relation to agriculture and food security; provision of appropriate technology to reduce women work load.

Endnotes

- 1 Citing World Bank, World Development Report 2008 (October 19, 2008) and FAO's "World Agriculture Towards 2030/2050"
- 2 <http://www.fao.org/news/story/en/item/35571/icode/>
- 3 Presently, there are widespread problems with soil loss due to erosion, loss of soil fertility, salination and other forms of degradation; rates of water extraction for irrigation are exceeding rates of replenishment in many places; over-fishing is a widespread concern; and there is heavy reliance on fossil fuel-derived energy for synthesis of nitrogen fertilisers and pesticides. In addition, food production systems frequently emit significant quantities of greenhouse gases (GHG) and release other pollutants that accumulate in the environment.
- 4 This is the number that lacks sufficient consumption of major macronutrients such as carbohydrates, proteins and fats. The data was obtained from: "The State of Food Insecurity in the World 2009 (2009), found at <http://www.fao.org/docrep/012/i0876e/i0876e00.htm>.
- 5 This is the number of people with insufficient consumption of important micronutrients (such as vitamins and minerals). Data is from UN Standing Committee on Nutrition (2004); World Bank (2006a)
- 6 USAID, Global Food Insecurity and Price Increase Update #3 (May 30, 2008), found at http://www.usaid.gov/our_work/humanitarian_assistance/foodcrisis/documents/053008_USAIDFoodInsecurityUpdate03.pdf.
- 7 World Bank, Repositioning Nutrition as Central to Development: A Strategy for Large- Scale Action (2006), found at: <http://siteresources.worldbank.org/NUTRITION/Resources/281846-1131636806329/NutritionStrategy.pdf>.
- 8 These statistics refer to ODA official development assistance from the 22 countries that are members of the OECD Development Assistance Committee (DAC). OECD-DAC, Measuring Aid to Agriculture (April 2010), found at <http://www.oecd.org/dataoecd/54/38/44116307.pdf>.
- 9 Javier Blas, "Food Aid Declines to Near 50-Year Low," *Financial Times*, June 9, 2008.

- 10 World Bank, "Rising Food Prices: Policy Options and World Bank Response" (April 2008).
- 11 In this context scenarios refer to stories about futures that we might have to face independently of whether or not we like those futures.
- 12 <http://www.state.gov/r/pa/ei/bgn/2821.htm>
- 13 NISR, July 2008 Population Projections.
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- 17 <http://www.fao.org/news/story/en/item/43412/icode/>
- 18 United Nations Population Fund (UNFPA), *Statement of the UNFPA on the Global Food Crisis, Population and Development* (2008), accessed online at www.unfpa.org, on July 7, 2008.
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- 20 Nafis Sadik, "Population Growth and the Food Crisis," *Food, Nutrition, and Agriculture* 1 (1991).
- 21 See Chapter 3 the section on state of food security in Rwanda.
- 22 George Martine et al., *State of World Population 2007: Unleashing the Potential of Urban Growth* (New York: UNFPA, 2007).
- 23 Gina Kennedy, "Food Security in the Context of Urban Sub-Saharan Africa," Internet Paper for Food Security Theme in FoodAfrica Internet Forum, March-April 2003, accessed online at <http://foodafrica.nri.org/urbanisation/urbpapers/GinaKennedyFoodsecurity.pdf>, on Aug. 5, 2008.
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Key Informants

TANZANIA

1. Harrison Chaulo
Tanzania Chambers of Commerce, Industry and Agriculture (TCCIA)
P O Box 19067 DSM, Tanzania
Email: glithaleri@yahoo.com
2. Damian Gabagambi
Research for Poverty Alleviation (REPOA)
PO Box 3007 MOROGORO
Email: Gabagambi2005@yahoo.com
gabagambi@repoa.or.tz
3. Salatiel Moyo Simon
Economic and Social Research Foundation (ESRF)
P.O. Box 31226 –Dar es salaam Tanzania
Email: salatielmoyo@yahoo.com, smoyo@esrf.or.tz
4. Ombaeli O Lemweli
Ministry of Agriculture Food and Security
Post Box:9192 Dar es Salaam
Email: lombaeli.lemweli@kilimo.go.tz
Email: mfin@minecofin.gov.rw
kampeta.sayinzoga@minecofin.gov.rw
5. Aiden Eyakuze
Society for International Development
Dar es Salaam, Tanzania
Post Box:105620 Dar es Salaam Tanzania
Email: aiden@sidit.org

UGANDA

6. Alex Lwakuba
Ministry of Agriculture, Animal Industry and Fisheries (MAAIF)
Post Box:102 Entebbe
Email: alwakuba@yahoo.com
7. Andrew Kigundu
National Agricultural Research Organisation
P.O. Box: 7065 Kampala, Uganda
Email: dgnaro@infocom.co.ug
8. Twesigye Morrison Rwakakamba
Agency for Transformation, Post Box: 6213 Kampala
Email: mrwakakamba@gmail.com, rwakakamba@yahoo.co.uk
9. Kenneth Katungisa
Uganda National Farmers Federation, Post Box: 6213-Kampala
Email: katungisakenneth@yahoo.o.uk, kkatungisa@gmail.com
10. Agnes Kirabo
VEDCO, Post Box: 1244 Kampala
Email: agneskirabo@yahoo.com, agneskirabo@vedco.org

BURUNDI

11. Roger Kanyaru
Ministry of Agriculture and Livestock
Post Box: 6308 Bujumbura, Email: rkanyaru@yahoo.fr
12. Banairumuhito Deogratias
AGAKURA/ADIR
Post Box: 2960, Email: aga.bmtdop@yahoo.com

RWANDA

13. John Bosco Kanyangoga
Trade and Development Links, Post Box: 6454
Telephone: +250 788 307 012
Email: jkanyangs@yahoo.com

KENYA

14. Fredrick Njehu
CUTS Africa Resource Centre, Post Box: 8188-00200, Nairobi
Email: fkn@cuts.org, njehufred@gmail.com

15. Booker Owour
SOWER SOLUTION, Post Box:14852-00100, Nairobi
Email: bookerwas@gmail.com
16. Monicah Nyang
FARM AFRICA, Post Box: 49502, 00100 Nairobi
Email: monicah@maendeleo-atf.org, njeri.nyang@gmail.com
17. Geophrey Sikei
Kenya Institute for Public Policy Research and Analysis
Post Box: 56445,00200 Nairobi.
Email: goosikei@yahoo.com, gsikei@kippra.or.ke
18. Victor Ogalo
CUTS Africa Resource Centre, Post Box: 8188-00200, Nairobi
Email: voo@cuts.org
19. Joseph Karugia
International Livestock and Research Centre (ILRI),
Nairobi, Kenya, Post Box: 30709,0010 Nairobi
Email: j.karugia@cgiar.org, j.karugia2@hotmail.com
20. Mary Goretta Kamau
Eastern Africa Farmers Federation
Email: goretta@eaffu.org
21. Francis Zabaiwa Karin
Tegemeo Institute, Egerton University
Post Box: 204987, Nairobi
Email: Karin@tegemeo.org, franciskarin@yahoo.com

ITALY

22. Arthur Muliro
Society for International Development, Rome Italy
Email: artm@sidint.org

UK

23. Oliver Sparrow



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