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A GLIMPSE™ into the Future: A Lens through Which to Consider 'Africa's Rising'

Aidan J. Connolly

Vice President Corporate Accounts, Alltech, Morrison St. NW, Washington, DC, USA
Adjunct Associate Professor of Marketing, UCD Michael Smurfit Graduate Business School, Dublin, Ireland

Abstract

By 2050, there will be two billion more people living on the African continent. GLIMPSE™, an acronym that was introduced in this journal in 2012, identified the seven biggest obstacles to providing enough food to feeding the nine billion people who will be living on earth in 2050. Here, we review the GLIMPSE™ challenges specifically in an African context, examining how they apply and in what ways agribusiness can contribute to meeting these challenges. The paper places agribusiness alongside governments, non-governmental organizations and charities as important players in addressing the 'wicked' problem of feeding the growing population, and identifies specific areas where agribusiness can make a difference.

Keywords: African agribusiness; food supply; science, innovation, economy

Corresponding author: Tel: + 1.859.494.3978
Email: A. J. Connolly: aconnolly@alltech.com

Just over 18 months ago, an article in this journal (Connolly & Phillips Connolly 2012) used a modified Delphi approach (involving survey, interviews with a panel of two dozen agribusiness experts and independent research) to identify seven key barriers that impede the ability of agribusiness to meet the food needs of the rapidly growing number of people on earth. Collected under the acronym GLIMPSE™, these seven factors help frame the obstacles and identify the opportunities of trying to feed 9 billion people:

Since then, the interest in the potential of African agribusiness has led to the Economist magazine coining the phrase 'Africa rising', referring to Africa's economic growth in general, the role of agribusiness in particular, and the importance of the increasingly urban population. The World Economic Forum also recognizes the importance of agriculture, noting that the ten countries which have invested 9-10% or more of their budgets in agriculture are on track to reduce extreme poverty by 50% by 2015 (Suzman 2014).

As the majority of the population growth is expected to be in sub-Saharan Africa, it is useful to get a GLIMPSE™ of the region.

Introduction

GLIMPSE™ was driven by the recognition that the population of the world is due to increase by 50% in the next 30 years, from 6 billion to 9 billion people. Sub-Saharan Africa alone will account for 1/3 of that growth, as the population more than doubles from over billion in 2013 to at least 1.9 billion in 2050 (World Population Review 2014).

The region also has a very young population, with nearly half the population under the age of 25 in some states—a young population that will soon make up the world's largest work force. (World Population Data Sheet 2013). In 2013, six of the top 10 fastest-growing economies in the world were in Africa, including the No.1 and No. 2, South Sudan and Libya, with GDPs of more than 30% and 20%, respectively (International Monetary Fund 2014).

Overall, the continent has averaged GDP growth of 5% annually throughout the past decade, and that pace is expected to continue, with GDP projected to triple by 2030, and achieve a sevenfold increase by 2050 (International Monetary Fund 2014).

Moreover, Africa has ample land: along with South America, it is the continent with the most potential for the development of new agricultural land and (outside the Sahara Desert) much of the continent has ample water resources. Thus, it has the potential to produce not just enough food to meet the needs of its own population, but to help meet the demands of the global population.

The United Nations' Economic Commission on Africa says that 'scaling up agribusiness should be Africa's next growth frontier' (Lopes 2014). The question is, can Africa achieve its own version of the Brazilian "miracle of the cerrados"? And if so, what steps are needed?

Despite The Economist's optimistic headline 'Africa Rising: The Hopeful Continent' the obstacles identified under the GLIMPSE™ model account for much of the failure of food production and farm prices to keep up with the overall growth rate in the continent's economies. The continent needs not just growth but transformation: much of the economic growth has come from extractive industries, rather than building a business environment that adds value. As a result, growth has failed to produce jobs and in turn a strong middle class has been slow to develop. Agribusiness can help effect that transformation.

It will take change on the part of virtually every constituent in the food chain—governments, nongovernmental organizations (NGOs), farmers, agribusiness and consumers—to successfully solve this wicked problem. It will also take cooperation, among these constituent groups, but it can be done.

Agriculture in Africa

Nearly three-quarters of the population of Africa rely on agriculture for their livelihoods (UNdata.org), and agribusiness and agro-industries account for more than 30% of national incomes, as well as the bulk of export revenues. Yet, "agribusiness" is often seen as being part of the problem, pursuing short-term gains at the expense of human development and the environment. NGOs in particular often see the interests of agribusiness as being in direct conflict with the interests of the population. For example, Greenpeace has argued that sustainable agriculture can deliver food for 9 billion people- if governments will listen to people, not agribusinesses (Oram 2012). We take a different perspective: that market-driven, private-sector solutions can not only complement the efforts of governments and NGOs, but also play an essential role in meeting the challenge.

Some of the GLIMPSE™ factors are equally intractable for governments, NGOs / charities and agribusiness, such as volatile weather (including climate change) and changing eating habits. Others, such as political or economic instability, require government action. Some challenges pose issues for which agribusiness can play a limited, but important role (such as regulations, resources, and infrastructure). However, there are some challenges for which agribusiness is actually the best hope for progress, most notably in supply chain management, markets and innovation.

The original GLIMPSE™ paper looked at these factors through a global lens. Here, we review the factors that are particularly relevant to Africa, with an emphasis on the role of agribusiness. Examples of some of these elements that are already in play are also noted.

Government

Africa, both within and between the various countries, faces substantial problems with government bureaucracy and regulations. In particular, in many countries, the cost of establishing and operating a business and transporting goods across borders is a serious barrier to growth. Some complexity is inevitable, given that there are more 50 countries included as part of the African continent, whose peoples speak more than 1,000 languages.

The World Bank estimates that African farmers could grow enough food to feed the continent—and generate an estimated $20 billion in earnings for their countries—if policy makers can agree to lift cross-border restrictions, simplify the rules and fees involved in food trade, and permit uncultivated land to be put into use.

Progress is being made, and in many countries, red tape is being reduced (Global Post 2012). Rwanda, South Africa, and Botswana are now rated as in or near the top 50 (of 189) easiest countries in which to do business (International Finance Corporation 2014). However, there is considerable scope for improvement: virtually all of the bottom 20 countries are in sub-Saharan Africa. To do something as simple as finding out the types of documents that are required to ship a container abroad, or what the fees are, requires a meeting with an official in most African countries (Ship Overseas 2014).

A number of regional initiatives among the countries of Africa, such as the African Union (which aims to transform the African Economic Community, a federated commonwealth, into a state under established international conventions), have sought to address such challenges. The AU's goals include an African Renaissance and an end to hunger on the continent by 2025. Within those goals, progress is being sought to promote peace and reduce red tape (African Union 2014).

In addition to laws, government corruption (whether informal payments that 'expedite' government paper work or larger payoffs for contracts), or simply being told with whom one can do business raises the cost of doing business.

Finally, property rights in most African countries are informal- it has been estimated that less than 10% of the continent's land is formally owned (The Economist 2004). This can make it difficult for investors to be confident that their investment is safe and legal, and leaves considerable scope for local leaders to make land deals at the expense of the local citizens. One example of a government working to alleviate these issues is Ghana, which is trying to create a land bank for investors (Reuters 2014).

However, there is also scope for agribusiness firms to work with both governments and citizens to establish efficient operations. EmVest, a diversified agricultural investment company operating in Sub-Saharan Africa, says that these challenges represent opportunities. EmVest grows an array of grains, vegetables and nuts on about 25,000 acres at 10 sites. From onions to melons and sugarcane, their "turf to table" operation – growing food for Africans and exporting some produce – is all about increasing food production while building relationships with governments and strengthening communities, according to their executive chair, Susan Payne (Susan Payne 2013). EmVest's business model includes employing farm managers and local farm workers, but also includes ensuring access to fresh water, electricity, job training, medical services and other benefits for the African communities in which it operates.

Another challenge for governments is keeping up with changing technology. Whether it is approval of a new type of crop protection chemical or regulation of the ownership of data collected in a field, agriculture requires dealing with complex scientific and legal matters.

This is a challenge that agribusinesses are in a good position to help address: not only do companies have a direct interest in having their innovations accepted, but scientists in the agribusiness community are well-positioned to help reduce the scientific gap among industry, academia and government.

Losses

The UN's Food and Agriculture Organization estimates that one-third of all food produced globally is lost or wasted. Food waste in South Africa alone is estimated at 10.2 million tons a year (Babalola 2013). Post-harvest grain losses due to poor storage, transportation cause more than 15% of grain production to be lost (Aphlis 2014). A report from FAO/World Bank estimates that recovery of postharvest grain losses could meet the minimum annual food requirements of at least 48 million additional people (World Bank 2011). In a world with a rapidly growing need for food, reducing such losses at each stage of production, processing and distribution is obviously the first priority.

Losses in African countries can be largely attributed to on-farm issues (especially harvesting techniques); storage (in particular mold, insect and animal infestation) during post-harvest storage; transport (length of time from the farm to processing centers); and packaging and marketing. These are all areas in which agribusiness can be particularly helpful, as the large firms have substantial expertise in getting food safely and efficiently from farm to processors to consumers (ADM Institute for the Prevention of Postharvest Losses 2012).

Infrastructure

Infrastructure such as railways, highways, bridges, and ports are a core function of central government, due to the high costs, the need for standardization and sometimes cross-border issues. Given the perishable nature of produce, logistics is critical for agriculture, yet most of the continent lacks roads, railways, and navigable waterways. The example of Brazil, where large grain companies and farms built roads and ports, demonstrates that in the absence of government action, agribusiness can make the difference. Companies that supply smaller infrastructure needs, such as grain storage units or refrigerated trucks are even better positioned to provide solutions to postharvest–pre-consumer losses.

The Infrastructure Consortium for Africa (ICA) promotes increased investment in water, energy, transport and communications. Launched at the G8 Gleneagles Summit in 2005, ICA members include the G8 countries, the World Bank Group, the African Development Bank Group, the European Commission, the European Investment Bank and the Development Bank of Southern Africa. ICA is not a financing agency, but acts as a platform to catalyst donor and private sector financing of infrastructure projects (icafrica.org).

There are other infrastructural issues as well. For most regions, both the supply and quality of electricity and water are so variable that they act as fundamental barriers to growth. Similarly, poor banking and supermarket systems hinder the development of agribusiness in all its forms, including the food and beverage industries (Amadou 2014).

Markets

Markets present some of the biggest challenges to the food system. The issues are complex, and can involve a number of the GLIMPSE™ factors. Governments and their policies can raise barriers to trade, and poor infrastructure limits access to markets and customers. Price volatility may raise barriers to entry and makes longer term planning more difficult. Many markets are fragmented and lack transparency, leading to inefficient pricing, while some require middlemen, making markets less efficient. Small holders typically have difficulty accessing markets for cheap farm inputs (fertilizer, seeds, feedstuffs) and competitive markets for their food (Hoevel 2013).

In an effort to address the impediments at the government and policy levels, the African Union (AU) aims to harmonize conditions and promote trade within the African continent, along the same lines as the European Union. There currently are eight regional economic communities recognized by the AU, as well as at least a dozen other partnerships. Many countries are involved in multiple economic and trade partnerships.

Globally active agribusiness firms have experience in structuring a range of business, including partnering with local companies and in some cases, buying smaller, local companies to boost market efficiencies. These can be as simple as multi-year production contracts, or as complex as investment at several points in a supply chain. In some cases, it means overcoming behavioral constraints in markets, whether from old antagonisms, poor communication or simply the resistance to change along the food chain, from producer to consumer (Sanghvi 2011).

Policies

Most importantly, governments should pursue policies that support the private sector and the development of businesses by local entrepreneurs.

One of the areas most responsible for distortions in agricultural production and marketing is policy and regulation. Government policies frequently can help or hinder the development of productive and competitive agribusiness sector, and in many cases, governments have supported the wasteful use of resources or subsidize environmentally destructive practices. Governments can support the private sector and the development of businesses by local entrepreneurs by supporting and encouraging the use of modern hybrids of seeds or animals, ensuring the availability of fertilizer, supporting biofuels where appropriate, and encouraging the movement of goods, including imports and exports (All Africa 2014).

Whether blue (water) or green it is important for government policies to be specific and targeted. Too many initiatives can be counter-productive, as Liberia found when it created 21 separate initiatives across multiple sub-sectors (Sanghvi 2011). More targeted initiatives, involving key players in the private sector can be more effective. For example, Cote d'Ivoire and Ghana cut export taxes on processed goods, increasing the proportion of cocoa processed in-country from less than 10 percent in 2000 to nearly 50% today (Ibid).

Policies regarding the recognition of patents and the ability to protect intellectual property also have an effect on agricultural production in many regions. Best-yielding seeds may not be available in a country where there is no guarantee that a company's investment in developing them will be protected.

Finally, health and education policies are an important part of developing the human capital needed for realizing the potential of the agricultural sector. Extending more schooling to more children creates a workforce that is prepared for more complex agricultural processes. At least seven countries have increased the level of schooling by 5 years or more over the last 30 years- and Burundi has moved from an average of less than 2 years of schooling to 11 years (Altman 2012).

Science and Innovation

The benefits of the scientific breakthroughs of the "green revolution" of the 1960's and 70's (notably fertilizers, chemicals that reduced losses to weeds, insects and disease, and plant breeding) have plateaued. In the meantime, distrust and antagonism has grown between society and scientists. This has been fed by scandals such as BSE and Angel Dust in Europe; by growing global concerns about hormones in animals and antibiotics in

animal feed; by fears of corporate rapacity; and by uncertainty about gene technology. In particular, genetically modified organisms (GMOs) have become a proxy for being pro-environment and anti-corporate greed. More than half of the countries of Africa have ratified the Cartagena Protocol on Biosafety, an international agreement that "seeks to protect biological diversity from the potential risks posed by living modified organisms resulting from modern biotechnology" (Bch.cbd.int/protocol).

Two countries (Kenya and South Africa), require labeling of many GM foods based on undefined amounts or a cutoff of greater than 1%, while another five have mandatory labeling of some food. At least seven countries have rejected food aid if it includes GMO grain (Center for Food Safety 2013).

However, although much of the focus has been on GMOs, science has a lot more to offer to the countries of Africa, including microirrigation, precision farming (using GPS and Big Data) and the use of drones and sensors to precisely detect yield, fertility and moisture of soils. The development stages of agriculture in other regions can sometimes be shortcut by embracing the latest technologies.

Environment

Resource issues and their implications for the environment are only going to escalate as the pressure to feed 3 billion more people increases. Sound science is needed to produce earth-friendly methods of crop and animal cultivation and protection.

Both land use and water use increasingly pit cities against agriculture. Greater productivity is one answer. Another is making better use of marginal land, such as is occurring in Brazil. As noted in the introduction, these approaches are particularly relevant for the countries of Africa, which have vast, under utilized land resources. The African continent has the same population as India with 10 times the land mass; it has as much land as the United States, China, India and Western Europe, with 1/3 the population. It is estimated that 60% of the world's uncultivated arable land is on the African continent (Briney 2014).

Obviously, there are also challenges. Africa is the hottest continent, and the only one to stretch from northern temperate zones to southern temperate zones, with climate ranging from tropical to subarctic (mountains). With terrain ranging from the Saharan Desert to rainforest, the availability of water is very uneven. Twenty-seven percent of its land is desert and 40% is dry land (Water Industry News 2014). Africa is losing forest at a pace of more than 4 million hectares a year, twice the global deforestation rate, raising fears of loss of diversity. The most promising new agricultural land is in the central and southern half of the continent, where water is more available and the plains are suitable for cultivation.

In many countries, water scarcity is widespread and represents a real threat. The UN Development Program projects that by 2025, almost half of Africans will be living in areas of water scarcity or water stress (defined as less than 1,000 cu. m./person/year), including Kenya, Morocco, Rwanda, Somalia and South Africa (UN Development Programme 2012).

On the other hand, some countries have readily available water. In Nigeria, 79% percent of the precipitation is "green water" that does not return to groundwater and rivers but will eventually evaporate or transpire through plants; 21% is "blue water" that has potential for societal use and environmental water flow (which is needed to sustain ecosystem services). There is substantial potential to increase withdrawal for irrigation and food

production: currently only 0.35% of water is used for irrigation and of that, nearly half represents return flow (UN Development Programme 2012).

Moreover, African interest in global climate change is strong. The potential to use solar power, implement hydroelectric power stations, and biofuels are all ventures with significant potential that are being undertaken throughout the continent (CGIAR 2014). The IFPRI has issued three reports on their estimates of the effect of climate change on farming in Africa (IFPRI 2013).

The challenge of creating more food from more difficult environments is one in which innovation, creativity and the desire to succeed that are characteristic of the private sector can be used to advantage, in Africa as elsewhere. Already, companies are at work, developing irrigation systems, building infrastructure and working with local farmers to improve yields, handling, storage and transportation.

Conclusion

Although "Africa" is sometimes referred to as a single unit, in fact it is arguably the most diverse of all the continents. The GLIMPSE™ framework, developed to help break down a 'wicked' problem (how to feed 9 billion people), is a useful way to look at both the general and the particular circumstances of the region.

Governments and government failure are typically seen as the root of the struggle for many African nations to produce enough food to feed their citizens, despite adequate natural resources. Not coincidentally, they also have been a decisive factor in the willingness to embrace investments by other countries. But there are success stories as well (World Bank 2014): policy reform in Ghana has led to strong growth in the cocoa sector, with more of the price reaching producers; in Rwanda reforms have transformed the coffee sector and boosted impacts and so on (ASFG 2014). The food and beverage industry on the continent is on course to top $1 trillion USD (up from 300 billion) by 2030 (World Bank 2013). The expertise and resources of agribusiness firms, brought to bear on the GLIMPSE™ factors identified here can be an important part of the transformation of agriculture across the continent. Working with the best asset any country can have- its human capital, i.e. the people- creates stronger economies that are resilient through resource and commodity booms and busts.

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