

Insights from the Global Food Security Index for Long-Term Planning:

Report for the Aspen Institute Food Security Strategy Group





Contents

	Foreword	2
1	Executive summary	3
2	Trend analysis: Key Indicators	5
3	Trend analysis: Key Countries	12
4	Focus on Africa: General developments in food security across Africa	15
5	Focus on Africa: Country profiles	17
	Appendix I	28
	Appendix II	29

Foreword

The Aspen Institute's Food Security Strategy Group identified the Economist Intelligence Unit's *Global Food Security Index* (GFSI) as a critical tool in prioritising target areas for action and leadership on global food security. This paper summarises a body of analysis of the index undertaken by the EIU for the Strategy Group to understand, based on three years of compiled index data and longitudinal aspects, the most important drivers of food security systems at the country level. The analysis is intended to provide a useful issue-level roadmap for action by global leaders on food security.

A second goal of this work was to understand which countries in the middle and low-income segments are in a position to make rapid progress with their food security outlook. This set of countries will provide a foundation for future

dialogues and country-level work for the Strategy Group.

The GFSI, created by the Economist Intelligence Unit, has tracked the food systems of 109 countries over the past four years, examining the Affordability, Availability and Quality & Safety of the food each country provides to its people. This global index provides a range of action points for users—from governments and policymakers to agriculture sector stakeholders and public and private sector firms and participants.

The GFSI is sponsored by DuPont, who has generously supported the project and its relevance to food security stakeholders since its initial development in 2011 and first release in 2012. ■

June, 2015

Sponsored by



1

Executive summary

Global food security is improving... Overall economic growth in the developing world has led to structural enhancements that are increasing access to a wider range of affordable, nutritious foods, thanks to improvements in such areas as food safety net programmes and crop storage capacity.

...but has a long way to go. An estimated 805m people were chronically undernourished during the period of 2012-14, a decrease of 4.4% from 842m during 2011-13. Most of these people—a full 791m—are in developing countries. According to the United Nations (UN) Food and Agricultural Organisation (FAO), about one in eight people in these regions remains chronically undernourished.

Yet, food security relies on a complex balance of factors, and many still-fragile food systems are overtaxed — even as new challenges emerge. By 2050, the earth's population is expected to soar from the 7bn to 9.6bn, with much of this growth coming from the developing world—which is just beginning to make strides in food security, due in large part to macroeconomic improvements paired with infrastructure investment. The goal is to determine how to double food production by mid-century to sustainably and equitably feed a burgeoning population without exceeding the carrying capacity of the planet's natural resources. We know that at these moments in history, where rapid changes are needed and there are few

resources to work with, human ingenuity has stepped in to address the needed innovations.

A global index provides a framework for action and dialogue. The Global Food Security Index (GFSI), created by the Economist Intelligence Unit (EIU), has tracked the food systems of 109 countries over the past four years, examining the Affordability, Availability and Quality & Safety of the food each country provides to its people. With four years of data and experience, we have some key learnings into the complex functioning of food systems and which aspects of these will provide the levers for future success.

Key learnings from the Global Food Security Index

1. Key drivers of food security - these factors have been identified as the key drivers of food security overall:

1. Spending on food as a share of household expenditure (Affordability)
2. Presence of food safety net programmes (Affordability)
3. Access to financing for farmers (Affordability)
4. Political stability risk (Availability)
5. Agricultural infrastructure (Availability)
6. Food loss (Availability)
7. Micronutrient availability (Quality & Safety)

54%
of the world is
already urban,
and this
percentage is
expected to
grow to
66%
by 2050.

2. Key trends: What have we learned over the past four years of evaluating food systems across a wide range of countries?

Nutritional standards have improved significantly in almost every region. Except in North America, where standards were high already, all regions improved their scores at least to some extent, largely due to the implementation of nutritional monitoring and surveillance programmes. While 85 of the 109 countries had such programmes in 2012, an additional 18 have added them since.

Low-income countries are increasing their diet diversification and access to high-quality protein. For example, Sub-Saharan Africa (SSA) has seen impressive gains in high-quality protein. Both governments and NGOs are emphasising the importance of increasing the availability and consumption of nutrient-dense foods and essential vitamins across the developing world.

Political stability has a direct and profound relationship to food security. Throughout the GFSI, the countries with the most instability had the lowest scores on food security; and as such conditions disrupt access to food through transportation blockages and waylaid food aid commitments. This has important implications for both domestic policies and aid effectiveness.

Improving the structural elements of food security requires multifaceted aid. Government

focus and public-private partnerships (PPPs) can have an enormous impact on areas such as infrastructure as well as programmes to improve nutrition, implement nutritional standards, enhance food safety and increase farmer financing. While the effects of these improvements are not always immediate, investments in these areas have a significant long-term impact. For instance, all the countries that scored 50 or better (out of a possible 100) on the GFSI indicator relating to farmers' access to financing were more food-secure overall than countries that scored below 50.

Agricultural poverty alleviation. Smallholder farmers, as both producers and consumers of food, stand to benefit the most from interventions. We see this in low and lower-middle income populations in Sub-Saharan Africa, Asia/Pacific, the Middle East and North Africa who are the most vulnerable to food price shocks. Countries where innovations and public/private partnerships between cooperatives, NGOs and large food companies are paying off—especially for women smallholder farmers.

Urbanisation remains a critical challenge. Urbanisation is putting strain on cities where access to fresh, nutritious food is already limited. 54% of the world is already urban, and this percentage is expected to grow to 66% by 2050. A country's ability to absorb a growing urban population has a crucial impact on its food security. ■

2

Trend analysis: Key Indicators

The four years of experience measuring and evaluating food systems across a range of economies worldwide with the Global Food Security Index model provides a basis for understanding the factors that are most critical to improving and maintaining food security. Based on a largely quantitative analysis of the 18 factors¹ used by the GFSI to evaluate and compare each country's food

system, the following seven indicators emerge as the key drivers of food security. This analysis is based on the factor weightings provided by the multivariate analysis (higher weighting indicates a larger impact on food security outcomes). These factors have, then, the largest impact on a country's food security score, and as such, constitute the key drivers of food security:

Indicator	Definition
Presence of food safety net programmes (Affordability)	A measure of public initiatives to protect the poor from food-related shocks. This indicator considers food safety net programmes, which include in-kind food transfers, conditional cash transfers (i.e. food vouchers), and the existence of school feeding programmes provided by the government, NGOs, and the multilateral sector.
Agriculture infrastructure	Considers roads, ports and crop storage infrastructure
Access to financing for farmers	A measure of the availability of financing to farmers. This indicator considers financing from the public sector. Looks at the availability of insurance as well as credit.
Political stability	A measure of general political instability. Political instability has the potential to disrupt access to food through such factors as transport blockages or reduced food aid commitments.
Micronutrient availability	A composite indicator that measures the availability of micronutrients in the food supply. Sub-indicators include dietary availability of vitamin A, iron from animal and vegetal sources.
Household expenditure on food	A measure of the national average percentage of household expenditure on food.
Food loss	A measure of post-harvest and pre-consumer food loss as a ratio of the domestic supply (production, net imports and stock changes) of crops, livestock and fish commodities (in tonnes).

Note: A full GFSI Indicator Framework is included in the appendix.

1. 19 in total, but GDP per capita is excluded for the purposes of this analysis

Key indicator highlights

We have provided some detail in the following pages to highlight the indicators and correlations for the set of 76 middle- and low-income countries in the index; these face different food security challenges from those of the high-income group. Each chart in this series presents the regression analysis examining the relationship between overall food security performance (score) and the indicator being explored, eg GFSI overall score and political stability risk.

1: Political stability risk: Countries with the highest political stability risk levels have the lowest food security scores. The political stability risk indicator looks at a combination of social unrest, non-orderly transfers of power and international tensions. These factors have the potential to disrupt access to food through transportation blocks and food aid commitments.

What the visualisation shows:

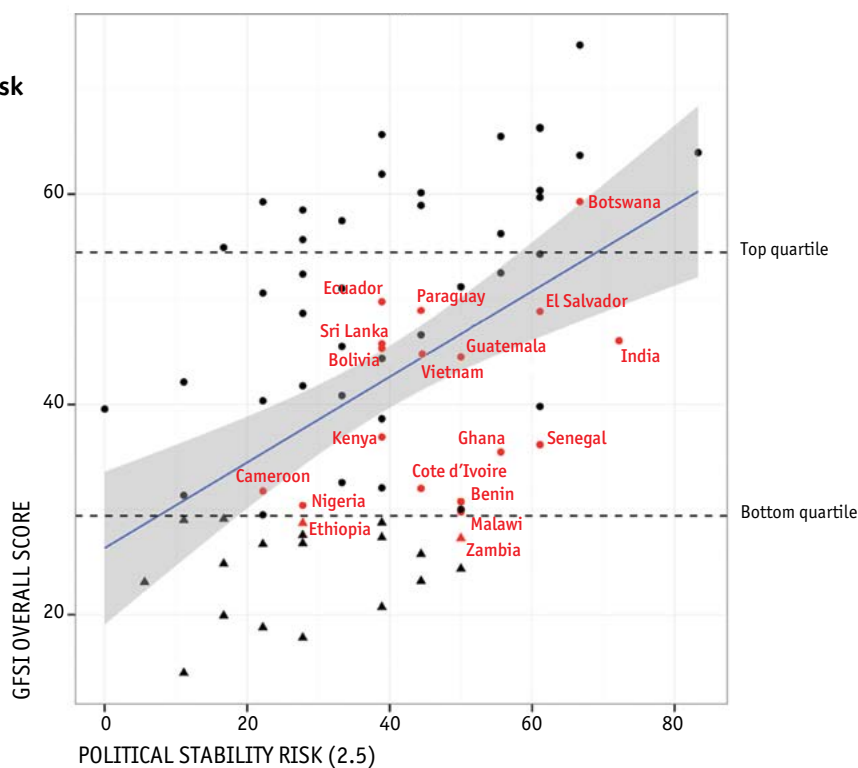
- Countries in the key country set that have very high political stability risk—Cameroon, Nigeria and Ethiopia—have the weakest food security scores compared with the rest of the set of middle- and low-income countries in the larger group.
- Though countries that have lower levels of

political stability risk may have low overall food security (Zambia, Malawi, Benin and Cote d'Ivoire, for example), it is unlikely that countries that have great political instability will score well in food security.

Why this is important?

- Political instability affects supply systems and imports and exports of food. It also can prevent crucial policy developments from being implemented.
- Political stability and food security have a very direct relationship in most of the countries under consideration in this analysis. This has implications for both domestic policy and aid effectiveness.

Figure 1:
**GFSI score vs.
political stability risk**



Source:
Economist Intelligence Unit

**Fig. 1: GFSI score
(PCA) vs. Political
stability risk**

Dashed lines indicate upper and lower quartiles (of the score); regression lines are in blue with standard errors in grey; target countries are in red and countries in the bottom quartile are triangles.

2: Food safety net indicator: More extensive food safety nets are a key factor in increasing food affordability for those most in need.

The presence of food safety net programmes indicator measures public initiatives to protect the poor from food-related shocks. It considers in-kind food transfers, conditional cash transfers and other NGO, multilateral and government programmes.

What the visualisation shows:

- Middle- and low-income countries in the index have a wide distribution of normalised scores—covering the entire spectrum between 0 and 100. The key country sets all have scores above 25 out of 100, but none of them receive the top score on this indicator (a score of 100 indicates that there are national government-run food safety net programmes and that the presence of NGOs/multilaterals is not critical to national coverage for this factor).
- There is a clear, positive relationship between the breadth and depth of food safety net programmes and overall food security scores. The countries that receive the lowest possible

score for this factor also tend to have some of the weakest food security environments. Conversely, those countries that obtain either the second-highest or highest score (75 and 100 respectively) have much higher GFSI scores.

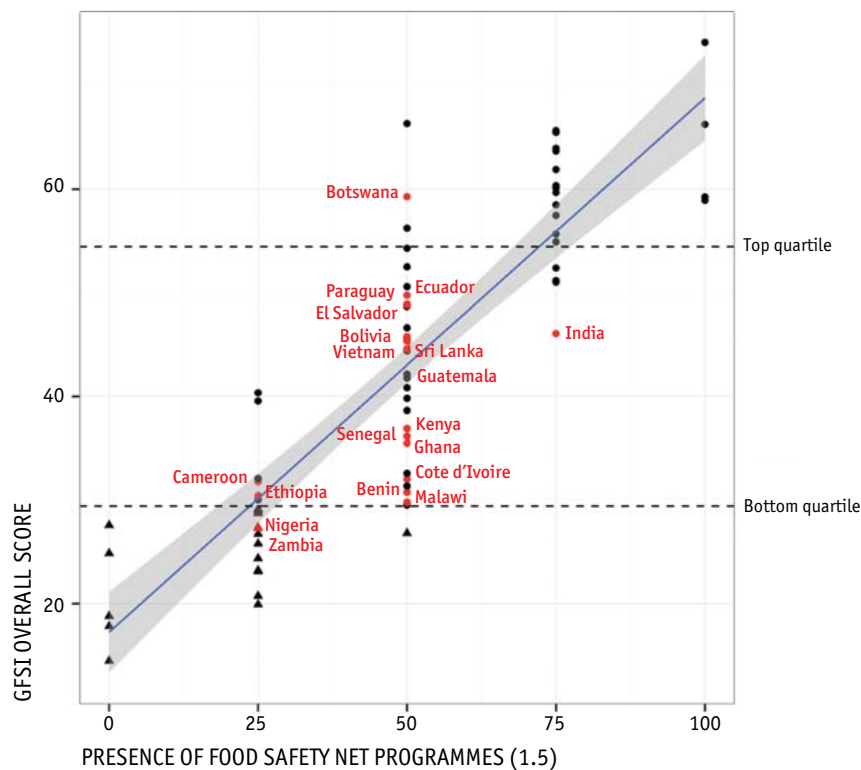
- India is the only key country set member that has broad national coverage of food safety net programmes.
- Cameroon, Nigeria, Ethiopia and Zambia have inadequate prevalence of programmes, with limited government support, leaving the burden to NGOs/multilaterals.

Why this is important?

- Improving food safety nets is an actionable priority for policymakers as they seek to improve food security. Government-run and -supported programmes are assigned higher credit in the index because they show a national commitment to ensuring affordable food for the poorest members of the population. Only four of the middle- and low-income countries in the index have government-sponsored programmes that

Fig. 2: GFSI score (PCA) vs. Indicators. Dashed lines indicate upper and lower quartiles (of the score); regression lines are in blue with standard errors in grey; target countries are in red and countries in the bottom quartile are triangles.

Figure 2:
**GFSI score vs.
presence of food
safety net
programmes**



have both depth and breadth, indicating room for growth in this policy area.

- Though India has a mid-range overall food security score, it has more extensive food safety net programmes than many of its peers. This could be the result of extensive international focus on addressing poverty alleviation in India; however, existing programmes are not sufficient. Though national coverage is broad, it is not deep enough to cover the entire population, and India is still dependent on NGO/multilateral relief. Also, India's lower overall food security score in comparison to its food safety net score indicates that the country must prioritise other areas of weakness to enhance its food security environment.
- Though Zambia and Nigeria have higher per capita incomes than many of the other Sub-Saharan African (SSA) countries in the key country set, they have not implemented the policy structures necessary to address key aspects of food security.

3: Access to financing for farmers: Better financing for farmers is an indication of a supportive agricultural sector, and helps to mitigate other shocks that would impact the affordability of food.

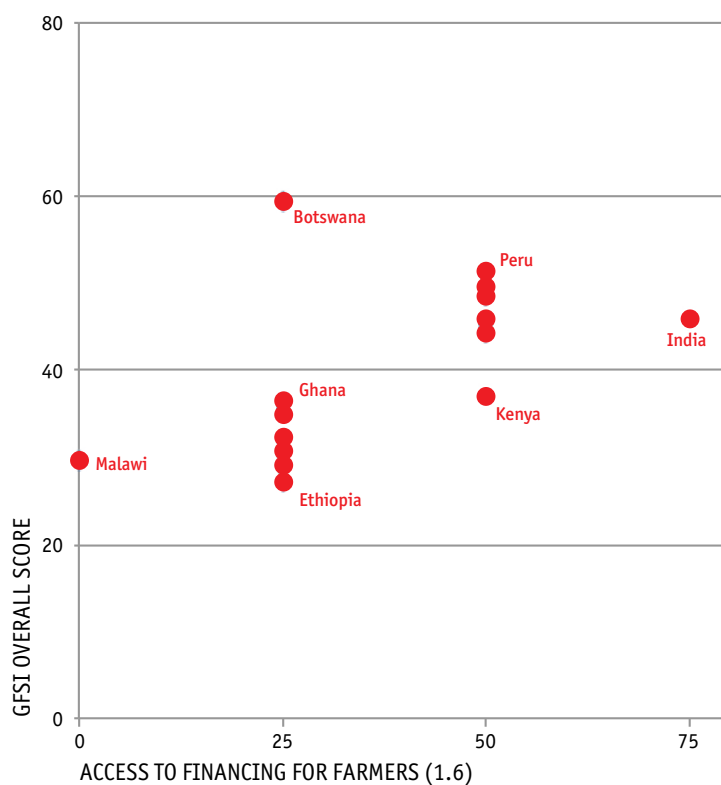
The access to financing for farmers indicator looks at both the breadth and depth of financing programmes and options for farmers. Government and multilateral/NGO financing programmes are considered.

What the visualisation shows:

- Among the countries explored, countries with higher scores in access to financing for farmers tend to have better food security scores overall. For example, Malawi has no access to government or multilateral farmer financing programmes and has one of the weakest overall food security scores (Ethiopia, which has limited financing, is the only country with a weaker food security score).
- All of the countries that score 50 or above on this indicator are more food secure than their

Fig. 3: GFSI score (PCA) vs. Access to financing for farmers. Dashed lines indicate upper and lower quartiles (of the score); regression lines are in blue with standard errors in grey; target countries are in red and countries in the bottom quartile are triangles.

**Figure 3:
GFSI vs Access to
financing for
farmers**



Source:
Economist Intelligence Unit

peers that score below 50.

- India scores better on access to financing for farmers than the other countries in the set, despite its mid-range overall food security score. As with food safety net programmes, this could be a result of extensive international focus on improving smallholder farming methods in India, a crucial aspect of which is ensuring that farmers have access to the necessary loans and financing measures.

Why this is important?

- Better financing for farmers is an indication of a more developed and prioritised agricultural sector. If farmers have access to financing, they can generally produce more crops. Countries that are richer tend to be able to provide better and more diverse government financing options; however, NGO and multilateral programmes are also considered in this indicator.
- Policy innovations have the potential to make the greatest impact here.

5: Agriculture infrastructure indicator:

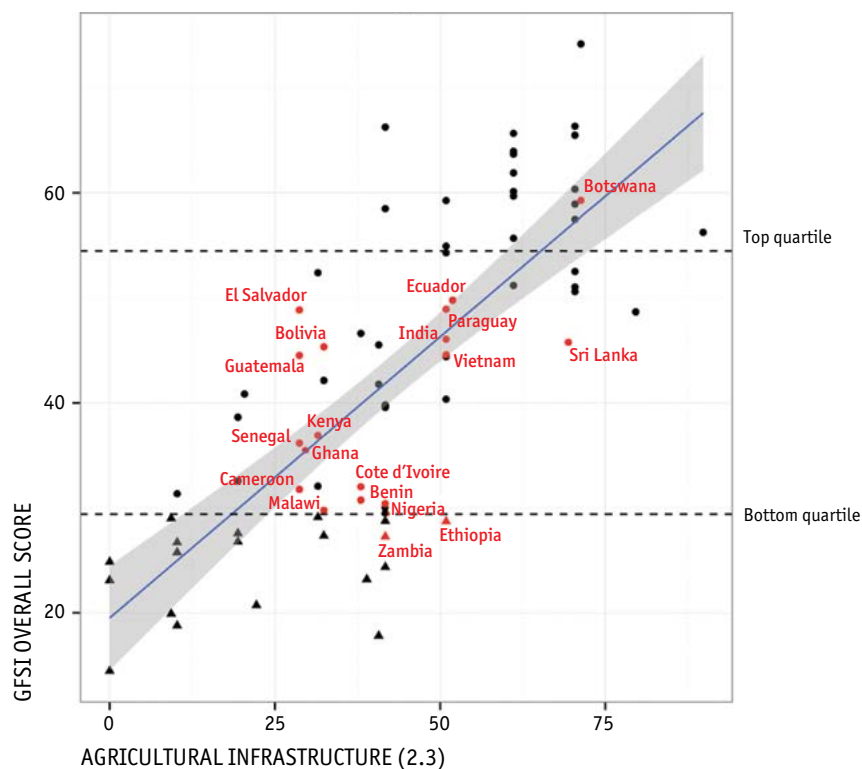
Infrastructure development is the most important factor in market access and the availability of food throughout the system, and mitigating food loss. Policymakers and governments understand this, and political will is often a factor. The agricultural infrastructure indicator examines the existence of adequate crop storage facilities and road and port infrastructures in a country. When coupled with the food loss indicator (2.8), it measures a country's food system infrastructure and efficiencies across the post-harvest/pre-consumer supply chain.

What the visualisation shows:

- The key country set of countries fall into the middle range of scores on this indicator: all have scores above 25 but below 75.
- Most of the countries that have high normalised scores on the agricultural infrastructure indicator—Ecuador, Paraguay, India, Vietnam, Sri Lanka and Botswana—have better overall

Fig. 4: GFSI score (PCA) vs Agricultural infrastructure (2.3)
Dashed lines indicate upper and lower quartiles (of the score); regression lines are in blue with standard errors in grey; target countries are in red and countries in the bottom quartile are triangles.

Figure 4:
GFSI score vs. Agricultural infrastructure



Source:
Economist Intelligence Unit

food security scores. There are no countries that score below a 25 (in normalised scores) in agricultural infrastructure that score in the upper half of food security scores. There are almost no countries that score above 50 (in normalised scores) in agricultural infrastructure that score in the lower half of food security scores.

- Ethiopia is a notable exception: despite scoring well relative to the key country set in the agricultural infrastructure indicator, it falls into the bottom quartile of overall food security scores. This reflects the fact that while Ethiopia has prioritised agriculture infrastructure development, there are other structural, risk and/or income weaknesses that affect the country's overall score.

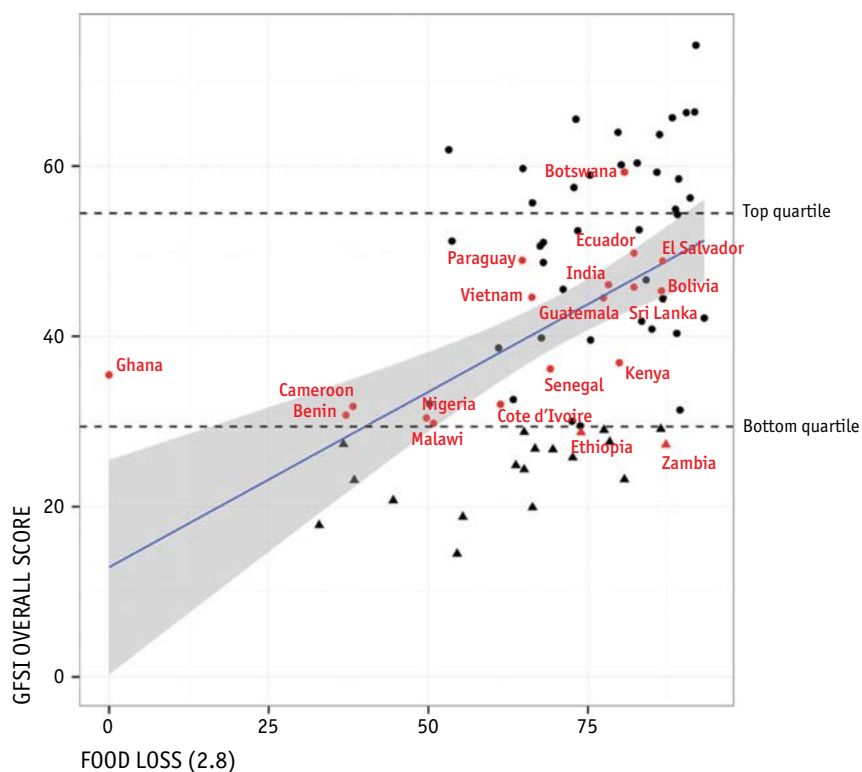
Why this is important?

- Agricultural infrastructure is necessary, but not sufficient to ensure food security. If countries do not invest in developing roads, ports and storage facilities that ensure that food can be safely stockpiled and can be easily transported to all members of the population, they cannot move into the group of countries that have good or moderately good food security scores; however, mild improvements and investments in infrastructure will not necessarily guarantee strong food security environments.
- Policymaker advocacy for extensive and comprehensive investments in infrastructure is well placed. There is a clear relationship between this factor and food security, and investments yield direct and effective returns.
- Expansion of crop storage facilities has been a priority and an area of progress for many countries over the past few years; however, the focus on road and port infrastructure development and maintenance in developing countries—especially countries in SSA—has been limited. Some countries have even seen their road and port infrastructure deteriorate. For example, since 2012, Ethiopia, Ghana, India, Nigeria and Zambia have experienced declines in their road or port infrastructure.

- Food loss. While the food loss indicator is well aligned with agricultural infrastructure, a very strong direct correlation has not been shown between food security scores and food loss scores for the countries being considered (see below). For example, Ghana scores the worst of all countries in the index on the food loss indicator; however, it scores in the middle quadrant in overall food security. Zambia, on the other hand, scores very well in food loss, but scores in the bottom quartile in food security.

The density of countries with strong food loss scores (e.g. relatively lower levels of food loss), however, is greater for countries that have higher food security than for those that have lower food security. This does suggest then that when countries focus on developing strong structures to move crops and store crops, and set up packaging procedures/processing procedures that prevent against rotting and loss, they have a high likelihood of increasing food security.

Figure 5:
GFSI score vs. food loss



Source:
Economist Intelligence Unit

**Fig 5. GFSI score (PCA)
vs Food loss (2.8)**

Dashed lines indicate upper and lower quartiles (of the score); regression lines are in blue with standard errors in grey; target countries are in red and countries in the bottom quartile are triangles.

3

Trend analysis: Key Countries

The following 15 countries, all middle- and low-income, have been identified as those that have made extensive improvements since the inception of the GFSI in 2012. The “biggest improver” evaluation is based on the multivariate analysis that considers score changes over time, along with shifts in quartiles within the index. Beyond this quantitative assessment, the EIU’s country analysis team added a qualitative perspective that recommends that the following countries be considered as well: Algeria, the Dominican Republic, Jordan, Nepal and Pakistan.²

Where have the key improvers made the biggest gains?²

Country	Areas of greatest improvement
Benin	• Food consumption as a share of household expenditure (1.1) • Presence of food safety net programmes (1.5) • High-quality protein (3.4)
Bolivia	• Food consumption as a share of household expenditure (1.1) • Average food supply (2.1.1)—a component of sufficiency of supply (2.1) • Political stability risk (2.5) • High-quality protein (3.4)
Botswana	• Existence of adequate crop storage facilities (3.2.1)—a component of agricultural infrastructure (2.3) • Nutritional standards (3.2)
Cameroon	• Food consumption as a share of household expenditure (1.1) • Average food supply (2.1.1)—a component of sufficiency of supply (2.1) • Nutrition monitoring and surveillance (3.2.3)—a component of nutritional standards (3.2) • High-quality protein (3.4)
Cote d’Ivoire	• Food consumption as a share of household expenditure (1.1) • Average food supply (2.1.1)—a component of sufficiency of supply (2.1) • High-quality protein (3.4)
Ecuador	• Political stability risk (2.5)

2. Based on raw data changes, 2012, 2013 and 2014 GFSI

Country	Areas of greatest improvement
Ethiopia	• Food consumption as a share of household expenditure (1.1) • Proportion of the population under the global poverty line (1.2) • Average food supply (2.1.1)—a component of sufficiency of supply (2.1) • Existence of adequate crop storage facilities (2.3.1)—a component of agricultural infrastructure (2.3) • Nutritional standards (3.2) • Diet diversification (3.1) • High-quality protein (3.4)
India	• Food consumption as a share of household expenditure (1.1) • High-quality protein (3.4)
Kenya	• Average food supply (2.1.1)—a component of sufficiency of supply (2.1) • Political stability risk (2.5) • Nutritional standards (3.2) • High-quality protein (3.4)
Malawi	• Food consumption as a share of household expenditure (1.1) • Proportion of the population under the global poverty line (1.2) • Presence of food safety net programmes (1.5) • Political stability risk • Nutrition monitoring and surveillance (3.2.3)—a component of nutritional standards (3.2) • High-quality protein (3.4)
Nigeria	• Food consumption as a share of household expenditure (1.1) • Presence of food safety net programmes (1.5) • Nutrition monitoring and surveillance (3.2.3)—a component of nutritional standards (3.2) • High-quality protein (3.4)
Peru	• Presence of food safety net programmes (1.5) • Average food supply (2.1.1)—a component of sufficiency of supply (2.1) • Public expenditure on agricultural R&D (2.2) • Political stability risk (2.5) • High-quality protein (3.4)
Senegal	• Presence of food safety net programmes (1.5) • Average food supply (2.1.1)—a component of sufficiency of supply (2.1) • High-quality protein (3.4)
Sri Lanka	• Food consumption as a share of household expenditure (1.1) • Proportion of the population under the global poverty line (1.2) • Port infrastructure (2.3.3)—a component of agricultural infrastructure (2.3) • Diet diversification (3.1) • High-quality protein (3.4)
Vietnam	• Political stability risk (2.5) • Diet diversification (3.1) • High-quality protein (3.4)

Countries that should be improving but have not. The following countries have not improved—in fact, many of them have experienced score deteriorations—since the first edition of the index, but they are in the income range of countries that should be experiencing economic growth and are able to focus on investing in improvements. They have been included in the decision set:

- El Salvador
- Ghana
- Guatemala
- Paraguay
- Zambia
- Morocco
- Yemen

What held these countries back?

Country	Indicators with biggest declines
El Salvador	• Food consumption as a share of household expenditure (1.1) • Average food supply (2.1.1)—a component of sufficiency of supply (2.1) • Diet diversification (3.1)
Ghana	• Access to financing for farmers (1.6) • Existence of adequate crop storage facilities (2.3.1)—a component of agricultural infrastructure (2.3) • National dietary guidelines (3.2.1)—a component of nutritional standards (3.2)
Guatemala	• Dependency on chronic food aid (2.1.2)—a component of sufficiency of supply (2.1) • Existence of adequate crop storage facilities (3.2.1)—a component of agricultural infrastructure (2.3)
Morocco	• Food consumption as a share of household expenditure (1.1) • Urban absorption capacity (2.7) • Protein quality (3.4) • Food safety (3.5) and % of population with access to potable water (3.5.2)
Paraguay	• Average food supply (2.1.1)—a component of sufficiency of supply (2.1) • Corruption (2.6) • High-quality protein (3.4)
Yemen	• Political stability risk (2.5) • Dependency on chronic food aid (2.1.2)—a component of sufficiency of supply (2.1) • Diet diversification (3.1) • Protein quality (3.4)
Zambia	• Access to financing for farmers (1.6) • Port infrastructure (2.3.3)—a component of agricultural infrastructure (2.3)

4

Focus on Africa: General developments in food security across Africa

North Africa has made progress in food security, driven primarily by gains in Affordability, as a result of lower household spending on food and higher GDP per capita. Lower levels of food loss and increased access to high-quality protein resulted in marked improvements in the other two categories used to measure food security, Availability and Quality & Safety. The political environment has improved in most countries. However, improvements in Availability have been hampered by drops in urban absorption capacity, as the gap between GDP growth rates and urbanisation rates have narrowed. The region's major economies of Egypt and Morocco are large exporters of food, with the latter self-sufficient in most food products.

While SSA has improved in food security, it continues to lag others regions. Importantly, improvements in the structures that affect food security, rather than just income gains, have begun to drive positive changes. The high economic growth rates that SSA has experienced in recent years have resulted in increased investment in the structures that are necessary to ensure food security. Both public and private investment in SSA's agricultural and food systems have begun to pay off: major improvements have occurred in the presence of food safety net programmes, the existence of crop storage facilities, the percentage of food loss and the existence of nutritional standards. Also, lower political stability risk across the region and increased access to high-quality

protein—a result of economic development—have resulted in regional improvement.

Nevertheless, SSA still lags behind in terms of Affordability, due to low incomes and rapid population growth (thus keeping GDP per capita down). Although only a few countries in the region are experiencing real increases in the proportion of household expenditure devoted to food, the improvement on this indicator has been occurring much more slowly than elsewhere in the world. Also, corruption, political instability and failure to accommodate urbanisation remain major hindrances to the operating environment for food systems.

Some key trends in food security across Africa (2012-15)

Availability

- Availability has improved due to a lessening of political instability and corruption in many countries across Africa (particularly some countries in North Africa).
- Infrastructure upgrades and improved storage facilities have mitigated some food loss but a failure to make meaningful improvements to ports and roads has kept infrastructure poor.
- The food loss gap between high-income and low-income country averages has narrowed, as low-income countries saw the greatest improvement, led by Ghana, Togo, Benin and Guinea.
- Urbanisation has proved problematic. Africa is

one of the fastest urbanising areas of the world and there is a strong negative correlation between urban growth rates and food security.

- The four-year trend for urban absorption capacity, which measures the ability of economic growth in countries to keep pace with urbanisation rates, has deteriorated.
- SSA has seen much greater spending on agricultural extension, research & development (R&D) and other initiatives to improve inputs and increase productivity.
- Agricultural financing programmes are more evident, and together with foreign direct investment, are supporting agricultural output growth.

Affordability

- Rapid economic growth in SSA has reduced household expenditures on food, albeit more slowly than in other regions given rapid population growth rates.
- Introduction of food safety net programs has been a positive feature of SSA. In particular, Algeria, Benin, Senegal, Sudan and Togo have seen improvement here through better government focus and aid spending:
 - Benin has improved due to dedicated aid from the World Food Programme (WFP) and the government's commitment to establishing a national school food programme.
 - Sudan has benefitted from the United States Agency for International Development's (USAID's) financial support for WFP and UNICEF programmes that distribute food aid and vouchers to food-insecure and vulnerable populations.

- Senegal has seen improvement due to the government's National Strategy for Economic and Social Development (2013-17), which is supported by the UN, NGO partners and the WFP.
- Togo has benefitted from renewed WFP operations, including general food distribution, supplementary rations and food-for-work programmes.
- Algeria improvement owes to a boost in aid from the FAO and the WFP in light of the ongoing refugee crisis.
- Low- and lower-middle-income populations in Africa are the least developed and remain the most vulnerable to food price shocks.

Quality & Safety

- Countries in the Middle East and North Africa (MENA) and SSA have made significant strides in the Quality & Safety of food, reflecting the implementation of national nutrition programmes, including nutritional monitoring and surveillance.
- SSA is the most improved region in terms of Quality & Safety, but 75% of the 20 lowest-performing countries in Quality & Safety are in SSA.
- African countries have experienced the largest score increase in dietary intake of quality protein, but remain far behind in terms of dietary diversity and access to nutrient-rich foods.

5

Focus on Africa: Country profiles

During its analysis of the GFSI over the period 2012–14, the EIU identified, through quantitative analysis and EIU Country Assessments, the following 14 African countries as those where the ‘Strategic points of intervention’ approach of AI FSSG could have the greatest potential impact:

North Africa: Algeria, Egypt, Morocco and Sudan

SSA: Cameroon, Cote d’Ivoire, Ethiopia, Ghana, Kenya, Nigeria, Rwanda, Senegal, Uganda and Zambia

The EIU selected these countries based on the following criteria: All were low- or middle-income countries falling into the third quartile of the GFSI or showing positive movement from the fourth to the third quartile or the third to the second quartile during the period of study. These countries combine a strong need for food security enhancements with an opportunity to build on some important improvement already made in the categories of Affordability, Availability and Quality & Safety.

Profiles for each of these 14 countries follow.

(**Note:** The highest-scoring African economies in the GFSI, South Africa and Botswana, were excluded, as they already have stronger food security environments and less need for intervention. Conversely, countries that consistently rank at the bottom of the index, Burundi, Chad, Madagascar, Sierra Leone and DR Congo, were excluded as it was believed they were not yet ready for intervention.)

COUNTRY PROFILES: NORTH AFRICA

ALGERIA

Algeria has seen a gradual improvement in its food security situation over the past few years. This has been driven by better scores in Affordability and Availability, despite a slight deterioration in Quality & Safety.³ Algeria has seen an increase in food safety net programmes in recent years, owing to government spending and a boost in aid from the FAO and WFP. The government's renewed focus on agriculture and agribusiness, which includes infrastructure development, has also helped.

Algeria imports a substantial portion of its food and is extremely vulnerable to shifts in commodity prices (food prices have a 43% weighting in the inflation basket). Agricultural volatility in Algeria can be extreme, as highlighted by droughts in 2013/14, which hit domestic crop yields and ramped up imports. The road network is sparse but being upgraded, while port facilities are reasonable although poorly managed.

Governance

Effective and progressive governance can be an issue in Algeria, where there is a powerful security-military establishment. Most of the military elite have probably been convinced, to a degree, of the value of foreign investment (as long as it does not impinge on their own retail operations or import concessions). In sectors such as power, water, roadbuilding and housing, foreign firms are involved in build-own-operate-style projects, and the process is reasonably transparent. However, more broadly, the quality of the bureaucracy is extremely poor, and red tape and a reluctance to make decisions are major problems. Cronyism plagues government departments, certainly in respect to hiring; less so in the award of contracts. The Ibrahim Index of African Governance 2014 ranks Algeria at 20 out of 52 African states, just

behind Kenya, Benin and Uganda.

Algeria has renewed its focus on agriculture in recent years, implementing an agriculture development programme designed to boost domestic production, and is also tackling food security through a variety of programmes, working with farmers in rural and low-income areas. The 2010-14 Public Investment Program allocated 1,000 billion dinars (out of 21,000 billion dinars) to agriculture and 6,000 billion to infrastructure. Agricultural initiatives included:

- Improving the average agricultural production rate and its integration
- Increasing cultivated areas and use of water-saving irrigation equipment
- Increasing the production of seeds and plants
- Developing regulation systems and new storage silos
- Strengthening sustainable and balanced development of rural areas
- Developing agribusiness and introducing a network of small and medium-sized enterprises (SMEs) in inputs and agricultural services

EGYPT

Egypt has seen a general deterioration in its food security situation due to a drop in Affordability, which has offset improved Availability. Egypt saw a deterioration in diet diversification owing to high inflation rates as economic and political turmoil persisted. However, the instability that erupted in 2011 has finally subsided and the food security situation is expected to improve as the GFSI captures changes that were implemented post-revolution. In particular, the 2015 survey suggests there will be a large improvement in food consumption as a share of household expenditure since 2012.

Egypt has suffered a period of political and economic crisis but remains one of Africa's most food-secure countries. Food availability is generally secure although economic turbulence and low levels of foreign exchange are causes for concern given the country's large food import bill (particularly wheat). Food security remains more an issue of household access to food caused by low

3. Note: Scores presented in the country summary tables are from the Q4 2014 GFSI model.

purchasing power. This financial constraint is also reflected in reduced dietary diversity. Nutritional trends and health outcomes are a major concern. Egypt faces rapid population growth and increasing urbanisation, with the latter threatening agricultural land along the densely populated Nile Valley and Delta.

Governance

The political scene should continue to stabilise, after the passage of the amended constitution by referendum on January 14th–15th 2014, the election of Abdel Fattah el-Sisi as president in May, and a parliamentary election expected later in 2015. Stability should be further assisted by the improving economy. The government has begun to implement potentially significant moves to rein in subsidies and boost tax revenue. Bureaucracy remains a serious constraint on growth and a major problem for investors, especially at the local government level. Corruption is endemic among the underpaid and the ill-motivated civil service, and initiatives drawn up by the government can be undermined by the unresponsiveness of the bureaucracy. The Ibrahim Index of African Governance 2014 ranks Egypt at 26 out of 52 African states, just behind Gambia and Sierra Leone and ahead of Gabon.

Egypt, together with international development partners, is actively pursuing food security policies. For instance, Egypt is one of the largest wheat importers in the world, and the government, in partnership with Blumberg Grain, is developing one of the world's largest integrated food security systems for grain storage to help reduce post-crop losses. The government also plans to expand its cultivated area by utilizing more land (4m undeveloped acres) beyond the Nile Valley and Delta.

MOROCCO

Morocco scores reasonably well on the GFSI by regional standards. Morocco is a major food exporter and self-sufficient in most food products. However, the country has amongst the highest agricultural import tariffs compared with other

countries in the GFSI.

During 2012–14, the food security situation deteriorated slightly, driven by a small drop in Availability and Quality & Safety, while Affordability remained fairly static. Sufficiency of food supply and safety nets are strong points, but R&D spending, income per capita and the volatility of agricultural production are weaknesses.

Infrastructure does not fully meet the needs of business. Roads are generally adequate, but new roads are not being built as fast as needed. Ports, especially at Casablanca, are busy but upgrading is under way, led by the Tangier-Med deep-water port on the Mediterranean coast (the second-largest in Morocco after Casablanca).

Governance

The real source of political power in Morocco is the king, Mohammed VI, who has a firm grip on the government. Policy execution is not strong: pressures from disparate interest groups have led to lengthy delays in the implementation of much-needed reforms. Successive governments have struggled to address high poverty and unemployment, but efforts to cut costly subsidies—with backing from the International Monetary Fund (IMF)—have moved forward since late 2013 and reforms to the state-owned electricity firm are in the works. The quality of the bureaucracy is poor, although the king has pushed forward more dynamic figures to lead several government departments. Corruption is widespread in most sectors of government and bureaucracy; businesses will see evidence of this in the regulatory and legal systems (though the situation is improving). The judiciary is weak, although the king is attempting to address this problem. In general, public officials have not been held accountable for their actions, but this is beginning to change, with several high-profile corruption investigations in recent years. The Ibrahim Index of African Governance 2014 ranks Morocco at 14 out of 52 African states, just behind Rwanda and Zambia and ahead of Tanzania.

Morocco takes a proactive role in support of health and sustainable development by focusing

on production efficiency and pan-African cooperation. Morocco's Green Plan, adopted in 2008, aims to make the agricultural sector more sophisticated. The reform package, which runs through to 2020, includes major projects such as dam building, expanding access to irrigation systems, and coordinating land use strategies. Farmers have been encouraged to shift production for crops that better fit the climate and terrain, with programmes for planting fruit and olive trees in former grain fields. Small-scale farmers are being helped to organise cooperatives and enhance information-sharing to improve yields and returns on production. Morocco is working to promote local value-added food production to create new and better jobs in the country. Generally, the country is attempting to become a more efficient, modern and sustainable agricultural producer, relying on its inherent strengths and cooperation with its neighbors.

SUDAN

Sudan's overall food security index is low across the board, although there has been a slight improvement in recent years. Affordability has improved as the economy slowly recovers from the secession of South Sudan in 2012 and subsequent loss of oil wealth. Availability and Quality & Safety have remained fairly static during 2012-14, ranking at the low end of the GFSI.

Sudan has shown some signs of improved food security since the secession. However, the economic and market environments remain fragile and the availability of most food items depends on good domestic harvests. Food security conditions in much of the country are poor, and particularly acute food insecurity persists among the many internally displaced persons and host communities in the conflict-affected areas of South Kordofan, Blue Nile and the Darfur states.

Sudan suffers from a range of infrastructure constraints, with the country's roads, railways and airports severely dilapidated. However, Port Sudan has been upgraded in recent years, and the

government is building a new international airport near the capital, Khartoum. Railways and roads are slowly being upgraded, and plans have been announced for a paved road between Sudan and Chad (although progress is likely to be slow). There are also a number of new power and water projects, although most of these are located in the north of the country. It is likely, however, that the budget cuts following the southern secession will hit capital spending hard and many of these projects may stall.

Governance

Sudan has followed an IMF-monitored reform programme since 1997, with a broadly successful record of compliance. However, the economic crisis caused by the southern secession and the protracted halting of southern oil exports in 2012-13 (from which Sudan received substantial revenue) presented the government with a significant economic challenge. The regime has introduced a series of austerity measures, and is likely to maintain these throughout 2015-16. However, enforcement will remain subject to political considerations, with the administration withdrawing unpopular measures if it faces substantial domestic opposition. Indeed, the government's commitment to austerity measures could slip due to spending pressures and despite the difficult economic conditions in which the country finds itself. Also, the country has yet to tackle excessive red tape and corruption throughout the public sector, which will continue to act as a drag on economic development.

Sudan is working with development partners such as the FAO, the United States and the European Union in pursuit of greater food security through more efficient and effective agriculture. Sudan has benefitted from food safety net programmes in recent years, owing to factors such as dedicated international aid and strong government focus on such programmes. For instance, in 2014, USAID allocated US\$183.7m to support WFP and UNICEF programmes that directly distribute food aid and vouchers to food-insecure and vulnerable populations in Sudan.

COUNTRY PROFILES: SSA

CAMEROON

Cameroon ranks poorly in the GFSI, and its score remained fairly static during 2012-14. Availability is a major area of weakness, driven by poor scores on political stability risk, public spending on R&D, corruption and, to a lesser extent, sufficiency of supply and agricultural infrastructure. Other major weak areas are low income per capita as well as access to financing for farmers, food safety nets and protein quality.

Cameroon imports large quantities of food, making the country vulnerable to external price shocks. Periods of drought and flooding can undermine national agricultural output and raise food security concerns. Similarly fragile political and security conditions in neighboring countries can also significantly affect food security in Cameroon, particularly through the influx of refugees. The North and Far North areas of the country are suffering most from food insecurity.

Governance

The government has made advances, with economic reforms as part of its ambitious goal to become an emerging market economy by 2035. Attempts at reform and macroeconomic prudence will continue, but progress likely will be held back by political uncertainty and a lack of political will, as well as resistance to change on the part of the administration. The IMF has repeatedly called on the authorities to step up attempts to strengthen public expenditure management. The competence of the civil service is limited, and government administration is characterised by red tape and obstruction. Cronyism and vested interests are entrenched. Law enforcement is weak and the judiciary is a serious impediment to investors, given the slow pace of the legal process, arbitrary judgments and a lack of independence. Cameroon

also suffers from severe corruption and although several senior civil servants and former ministers have been convicted of graft, many accusations have reportedly been politically motivated. Cameroon has significant risks to its political outlook. As stability largely depends on President Paul Biya's patronage networks, his sudden departure could trigger volatility. The Ibrahim Index of African Governance 2014 ranks Cameroon at 34 out of 52 African states, just behind Ethiopia and Madagascar and ahead of Togo and Nigeria.

COTE D'IVOIRE

Cote d'Ivoire ranks poorly in the GFSI, although its score has improved over 2012-14. Quality & Safety is the country's main weak point, which reflects poor dietary diversification, protein quality, micronutrient availability and nutritional standards. Affordability is undermined by very low income per capita and low access to financing for farmers, while Availability suffers from low agricultural R&D and corruption.

Major improvements between 2013 and 2014 have been driven by rapid economic growth, rising incomes and a lower share of income spent on food. Also, the introduction of safety nets, urban absorption capacity and sufficiency of supply have improved most.

Cote d'Ivoire suffers from poor transport and energy infrastructure and a fairly weak logistics environment. Continued public and private investment in infrastructure development is expected as part of the government's long-term ambitions, including improvements in domestic and cross-border transport links (roads, rail and port development) as well as water and energy supplies. The government plans to substantially increase the capacity at the Port of Abidjan by 2021, to relieve growing congestion and secure the port's role as a key transit point for the import and export of goods to and from West Africa.

Governance

Cote d'Ivoire has seen an improvement in its governance and business environment in recent

years, reflecting an improvement in political stability, domestic security and pro-business reforms. However, Cote d'Ivoire continues to suffer from a weak business environment and ranks low in international benchmark studies, which tends to reflect excessive and inefficient bureaucracy, poor transport infrastructure, inadequate power supplies and widespread corruption.

Political and security risks remain high in Cote d'Ivoire, although the situation has improved immensely since the last political crisis of 2010-11, which resulted in around 3,000 deaths following disputed election results. The country faces elections in 2015/16 and has a history of heightened insecurity around election time, although it appears in a better place to manage the political process than in 2010/11. If political stability can be maintained, the civil service possesses considerable financial and technical expertise that could be effective with the right leadership and the absence of interference. The Ibrahim Index of African Governance 2014 ranks Cote d'Ivoire at 40 out of 52 African states, just behind Nigeria, Burundi and Mauritania, and ahead of Congo.

ETHIOPIA

Ethiopia has recorded a gradual improvement in its GFSI score and rank during 2012-14. Availability has remained fairly static, but Affordability and Quality & Safety have posted strong gains, albeit from a low base. Ethiopia's weaknesses continue to be low spending on agricultural R&D, low income per capita, poor nutritional standards, insufficient supply, corruption, poor access to finance, lack of safety nets and political stability risk.

Major improvements between 2013 and 2014 have been driven by Quality & Safety measures including nutritional standards, food safety, diet diversification and protein quality. Rapid economic growth and rising incomes have led to an improvement in Affordability measures of food consumption as a share of household spending, reduced poverty rates and agricultural import tariffs. Urban absorption capacity and income per

capita are the only score declines, reflecting rapid (urban) population growth.

As a landlocked state, Ethiopia is dependent on the Djibouti port for around 98% of its export and import needs. Around 95% of goods and passengers are transported by the road system, but conditions have generally been poor and transport costs high. The government is investing in road schemes as well as a series of rail projects. As part of its Growth and Transformation Plan, the Ethiopian government is seeking to build some 4,750 km of railway, over eight main routes, to forge a national network and increase trade and economic ties with neighbouring states.

Governance

The government's ability to implement policy is above average by African standards, but there are still long delays in the formulation of policy, and between policies being announced and implemented. Dealing with most government ministries and departments can be arduous, with bureaucratic obstacles hindering projects, but in some cases this can be speeded up a little by dealing with the Ethiopian Investment Authority, the "one-stop shop" for foreign investors. Corruption in the public sector is modest, but some sectors are dominated by companies with close ties to the ruling party. Corruption within the tax authorities is often highlighted as a problem when conducting business in Ethiopia. The Ibrahim Index of African Governance 2014 ranks Ethiopia at 32 out of 52 African states, just behind Niger and Liberia, and ahead of Madagascar and Cameroon.

The government has pursued a policy of agricultural growth over the past few decades, which has contributed to a reduction in poverty, an increase in crop yields and availability, and an rise in rural per capita income. Ethiopia has an established Ethiopian Agricultural Transformation Agency (EATA), which combines the capabilities of a research organisation with the political and economic power of an implementing organisation. The EATA has helped enact policies that combine financial support from the government and large-scale donors.

GHANA

Ghana's overall food security situation has remained fairly static during 2012-14, with only a scant improvement, leading to a slight deterioration in the country's rank. Affordability has deteriorated, while Availability and Quality & Safety have both improved. Ghana's weaknesses are related to food loss, spending on agricultural R&D, income per capita, protein quality, access to finance for farmers, diet diversification and agricultural infrastructure.

Major improvements between 2013 and 2014 have been driven by Quality & Safety measures including nutritional standards and diet diversification, while political stability has improved considerably and Affordability measures of agricultural import tariffs, food consumption as a share of household spending, reduced poverty and income per capita are other positive changes. Urban absorption capacity was the largest drag on the country's GFSI improvement.

Ghana's infrastructure is better than that of many African countries, but still poor—especially for the majority of the urban population and despite massive donor spending. The most visible improvement has been in the road network of Accra, the capital, which is now relatively good. However, outside Accra, the road network can deteriorate very rapidly, especially during the rainy season. The power supply has become a problem in recent years, largely because growing demand and stagnant supply have put an ever greater strain on the system, leading to periodic outages. Water supplies can also be erratic.

Governance

Despite various donor-assisted attempts to overhaul the country's government structures and the civil service, the government's decision-making process remains slow and the civil service payroll bloated. Moreover, despite often being amiable on the surface, Ghanaian bureaucracy can, at times, be extremely officious and obstructive. Perhaps the main area of progress in recent years has been in the implementation of legislation to make

government procurement contracts more transparent. Even here, problems persist with corruption and favouritism in some contracts, notably large-scale ones. The development of the oil sector will be a stern test of the regime in this respect and so far the results have been encouraging, with greater transparency in the deals being made. Furthermore, by most measures, such as Transparency International's corruption perception index, corruption is less of a problem in Ghana than in most African countries. The Ibrahim Index of African Governance 2014 ranks Ghana at 7 out of 52 African states, just behind Seychelles and Namibia, and ahead of Tunisia and Senegal.

KENYA

Kenya's overall food security situation has remained fairly static during 2012-14, with only a slight improvement and little change in its country rank. Affordability and Availability have changed marginally for the better, but Quality & Safety has made stronger gains. Kenya's weaknesses are related to low income per capita, insufficiency of supply, low protein quality, corruption, agricultural R&D and poverty. The country performs strongly on food loss and agricultural import tariffs.

Kenya has experienced a number of improvements between 2013 and 2014 that relate to Quality & Safety measures of nutritional standards, food safety and protein quality; Availability measures of corruption, political stability, urban absorption capacity and volatility of productions; and Affordability measures of reduced poverty, agricultural import tariffs and food consumption within household spending.

Kenya's substandard infrastructure likely will remain one its main development barriers, although a raft of new investments should lead to some improvements. The expansion of the transport and energy networks is a top policy priority, supported by financial support from multilateral and bilateral development partners and access to international capital markets. Public-private partnerships and solely private initiatives will be established in some cases, but

donor funding will remain vitally important for many infrastructure projects.

Governance

Kenya exhibits weak political and institutional effectiveness, held back by capacity constraints at all levels of government, although reforms being implemented under the new constitution offer some hope of gradual improvement. Corruption, ranging from minor bribes to major scandals, remains a serious problem throughout the public sector. Despite repeated promises of action, most top officials seem unwilling to tackle the problem because they and their parties are the main beneficiaries. Parliament has sometimes been effective in exposing corruption, but the legislature, like the executive, tends to be self-serving. The Ibrahim Index of African Governance 2014 ranks Kenya at 17 out of 52 African states, just behind Tanzania and Malawi, and ahead of Benin and Uganda.

NIGERIA

Nigeria scores poorly overall within the GFSI. Affordability is a major weak area given the country's low income per capita, high levels of poverty and high proportion of food consumption in household spending, all of which are issues despite vast natural resource wealth and rapid economic growth. In addition, there is little presence of food safety nets and limited access to financing for farmers. Corruption, low levels of agricultural R&D and political instability compound the food security problem. Quality & Safety is held back by protein quality and diet diversification. However, agricultural import tariffs are low.

The food security situation improved slightly during 2012-14, largely driven by gains in Affordability. In particular, between 2013 and 2014, Affordability measures of food safety nets, food consumption as a share of household spending, reduced poverty and agricultural import tariffs, and higher income per capita saw improvement. Quality & Safety measures of nutritional standards (most improved) and food

safety were also encouraging.

Nigerian transport and services are patchy and unreliable following years of underinvestment, and there is little prospect of improvement in the short to medium term. Power supplies are unreliable, often leading to the need for back-up generators. The supplies of essential services (water, electricity, telecoms) can be erratic and often are interrupted for days, if not weeks. Roads between major cities are in a poor state of repair and driving after dark can be hazardous.

Governance

Government effectiveness is extremely low, an issue that has beset Nigeria for decades. Major issues include the tendency for national, state and municipal governments to pursue competing agendas, and the limited capacity of the civil service. For example, national budgets are frequently delayed by disagreement over spending priorities and revenue targets among the various tiers of government, and budget implementation is hindered by capacity constraints. Effectiveness deteriorates even further at election time as politicians concentrate more on prolonging their terms of office. The Ibrahim Index of African Governance 2014 ranks Nigeria at 37 out of 52 African states, just behind Cameroon and Togo, and ahead of Burundi and Mauritania.

RWANDA

Rwanda scores very poorly overall within the GFSI. Affordability is a major weak area given the country's low income per capita, high levels of poverty and high proportion of food consumption in household spending. In addition to this, there is limited access to financing for farmers. Low agricultural R&D spending, poor agricultural infrastructure and insufficiency of supply are other major weaknesses. Poor protein quality undermines Quality & Safety scores. However, agricultural import tariffs are low, nutritional standards reasonably high and food loss fairly low.

The food security situation hardly improved during 2012-14, causing a drop in the country

rank. The main improvements relate to food safety, nutritional standards and diet diversification, presence of food safety nets, political stability and agricultural import tariffs. But food consumption as a share of household spending, urban absorption, income per capita and protein quality all deteriorated.

Governance

Rwanda boasts a multiparty democracy, corruption is low by regional standards, and the civil service is among the most efficient and meritocratic in the region. However, in practice, the democratic process is heavily constrained. Checks and balances are weak, and there is little prospect of either individual politicians or members of the public opposing the government, as people fear arrest. The government aims to improve the business environment and encourage private-sector development and is pushing ahead with market-oriented reforms and measures aimed at deepening regional integration within the East African Community. The Ibrahim Index of African Governance 2014 ranks Rwanda at 11 out of 52 African states, just behind Senegal and Lesotho, and ahead of Zambia and Morocco.

SENEGAL

Senegal has seen a mild improvement in its GFSI score during 2012-14, which has been driven by an improvement in Affordability and, to a lesser extent, Availability, which have been offset by a small deterioration in Quality & Safety. Senegal's main weaknesses are its low income per capita, low levels of agricultural R&D, low protein quality, corruption, poor access to financing for farmers, high level of food consumption in household spending, poor agricultural infrastructure and poor micronutrient quality. On the other hand, agricultural import tariffs are relatively low and food loss scores reasonably well, as do nutrient standards and food safety. Senegal benefits from comparatively low political instability.

Senegal has experienced a number of improvements between 2013 and 2014 that relate

to Affordability and Availability. The presence of food safety nets has improved the most, followed by sufficiency of supply, political stability, urban absorption and agricultural import tariffs. There were also reductions in poverty and household spending on food as a share of total spending.

Senegal benefits from modern port infrastructure at the capital, Dakar, supported by substantial investment by Dubai Ports World. However, other areas of physical infrastructure are severely inadequate. The road system is poor, though the quality of some intercity roads has improved in recent years. The construction of a railway to the Casamance province and the possibility of a proposed bridge over the River Gambia would improve links with the province. The water and electricity supply is unreliable and expensive compared with other countries in the region. Senegal's telecommunications sector is fairly advanced by regional standards, having grown rapidly in recent years.

Governance

The competence and professionalism of civil servants is good by regional standards. However, many of the best public employees often move on to more lucrative jobs in the private sector and non-governmental and international organisations. Salaries in civil service are based primarily on seniority and not performance, contributing to poor motivation and inefficiency. On the political front, Senegal's democratic political culture and long history of the peaceful transfer of power are deeply entrenched. The current administration is starting to address the corruption among public officials and the bureaucracy of its predecessor. The Ibrahim Index of African Governance 2014 ranks Senegal at 11 out of 52 African states, just behind Ghana and Tunisia, and ahead of Lesotho and Rwanda.

UGANDA

Uganda has seen some improvement in its GFSI score during 2012-14, which has been driven by an improvement in Affordability and Availability, but

held in check by a small deterioration in Quality & Safety. Uganda's main weaknesses are its low income per capita, low protein quality, poor agricultural infrastructure, corruption, low levels of agricultural R&D, high level of food consumption in household spending and high poverty rates. On the other hand, nutrient standards are high, the presence of safety nets is reasonably good, and agricultural import tariffs are fairly low.

Uganda has experienced a number of improvements between 2013 and 2014 that relate to Affordability, Availability and Quality & Safety. The volatility of agricultural production fell considerably, as did food consumption as a share of household spending. Other notable areas of improvement were political stability, food safety and urban absorption capacity.

Landlocked Uganda is heavily dependent on ports in Kenya and Tanzania, where the infrastructure is poor and subject to disruption, which can cause high inflation, damage industry and lower government revenue. Around 90% of goods are transported by the road system, but the conditions are poor and so transport costs are high. The Bujagali hydroelectric power station came onstream in 2012, boosting the national grid to 600 mw, higher than the peak demand of around 450 mw. But with annual growth in energy consumption running at 10-15%, a power deficit is likely to re-emerge.

Governance

Senior members of the civil service tend to be well-educated technocrats, creating a positive climate for economic reform. Most reforms are broadly in line with those advocated by the IMF, and consultation with business often occurs. At less senior levels, capacity is much weaker, hampering policy implementation. Corruption is a major problem, with government expenditures inflated by procurement irregularities. Many politicians and their families have extensive business interests, and links to government are often used to gain unfair advantage. Anti-corruption measures brought in by the government have been weakened by bureaucratic obstruction

and adverse court decisions, both largely due to a general lack of resources to provide more thorough investigations. The advent of oil revenue is likely to make the government increasingly confrontational in dealings with foreign donors and companies as it exerts its economic independence. The Ibrahim Index of African Governance 2014 ranks Uganda at 19 out of 52 African states, just behind Kenya and Benin, and ahead of Algeria and Burkina Faso.

ZAMBIA

Zambia has experienced a marginal deterioration in its GFSI score during 2012-14, which is placed towards the bottom end of the global rank. Affordability improved slightly, Availability deteriorated slightly and Quality & Safety was essentially static. Zambia's main weaknesses are its low levels of agricultural R&D, low income per capita, poor protein quality, high poverty rates, little diet diversification and micronutrient availability and insufficiency of supply. Corruption, poor access to finance for farmers and lack of food safety nets compound Zambia's food security position. On the other hand, nutritional standards are high, food loss fairly low and agricultural import tariffs relatively low.

From 2013 to 2014, Zambia experienced an improvement in food consumption as a share of household spending, food safety, diet diversification, agricultural import tariffs and urban absorption capacity.

Infrastructure is inadequate and unreliable, reflecting a record of low investment. Zambia's landlocked position makes transport costs high and leaves it reliant on the ports of other countries, primarily South Africa and Tanzania. Both the power and telecommunications sectors suffer from underinvestment. Large public infrastructure investments are planned, especially in power and roads. These will be funded by a combination of public funds, external concessional loans, public-private partnerships and the highly successful sovereign bond issuances. China is playing a leading role in funding infrastructure projects.

Governance

The government has a tendency to make abrupt changes to policy and to intervene directly in the economy to achieve its goals, contributing to policy uncertainty. President Edgar Lungu has pledged to try to end some of this uncertainty, but policy implementation is likely to stay weak. There are some highly skilled technocrats in the bureaucracy, but it is unclear how much influence they have on policy outcomes (as decisions are often politicised). Zambian politics is largely based on patronage, which results in overstaffing, inefficiency and the use of public funds for private ends. Corruption remains rife. The Ibrahim Index of African Governance 2014 ranks Zambia at 13 out of 52 African states, just behind Lesotho and Rwanda, and ahead of Morocco and Tanzania.

Appendix I

Methodology

For the past four years, the EIU has conducted a research programme on global food security. The key results of this research are compiled in the Global Food Security Index (GFSI), an interactive benchmarking model that looks at food systems in 109 countries worldwide. By employing a set of common measures for food systems, the study's framework facilitates several dimensions of food security analysis. A summary of the index and the research programme, which is sponsored by DuPont, can be found at foodsecurityindex.eiu.com.

This paper summarises the findings of a body of analysis, largely quantitative, that provides deeper insight into a comparative, benchmarking approach. This report includes the key findings of the index validation process, conducted mainly through a series of regressions and multivariate analyses, including principle components analysis (PCA). The immediate objective is to use the GFSI as tool to inform the Aspen Institute Food Security Strategy Group's efforts to validate its selection of countries as candidates for potential diplomatic engagement. Central to this is an understanding of the key drivers of food security and how countries have progressed across this spectrum over the past three years of GFSI. This paper presents an evidence-based rationale for country selection for future dialogues and interventions.

For this study, we:

- We looked at three years of index data (2012–14).
- We conducted multivariate analyses and regressions to determine, on a mathematical basis, which of the 18 indicators drive country performance in the index overall.
- The GDP per capita indicator (the 19th indicator in the study) was excluded from this analysis because it is strongly related to the other elements in the Affordability category, and has a disproportionate impact on outcomes.
- To focus on best practices in improving food security, we considered only the middle- and low-income countries from the model's set of 109.
- The results are understood via a series of correlations that are presented in this paper, and a series of more qualitative case studies prepared by the EIU's Country Analysis team.

Appendix II

Global Food Security Index framework	
1. Affordability	
1.1 Food consumption as a share of household expenditure	A measure of the percentage of household expenditure that is spent on food at the national level.
1.2 Proportion of population under the global poverty line	A measure of the prevalence of poverty, calculated as the percentage of the population living on less than US\$2/day in purchasing power parity.
1.3 Gross domestic product per capita (PPP)	A measure of individual income and hence affordability of food, calculated in US dollars at purchasing power parity.
1.4 Agricultural import tariffs	Measured as the average applied most favoured nation (MFN) tariff on all agricultural imports.
1.5 Presence of food safety net programmes	A measure of public initiatives to protect the poor from food-related shocks; includes food safety net programmes (in-kind food transfers, conditional cash transfers and school feeding programmes) by the government, NGOs and the multilateral sector.
1.6 Access to financing for farmers	A measure of the availability of public sector financing to farmers.
2. Availability	
2.1 Sufficiency of supply	A composite indicator that measures the availability of food.
2.1.1 Average food supply	An estimate of the per capita amount of food available for human consumption in kilocalories per day.
2.1.2 Dependency on chronic food aid	Measures whether a country is a recipient of chronic food aid—non-emergency food aid over a five-year time span.
2.2 Public expenditure on agricultural R&D	A measure of government spending on agricultural R&D, a proxy for agricultural innovation and technology that increases market efficiency and access.
2.3 Agricultural infrastructure	A composite indicator that measures the ability to store and transport crops to market.
2.3.1 Existence of adequate crop storage facilities	Assesses the presence of sufficient crop storage facilities based on the size of the agricultural sector and population.
2.3.2 Road infrastructure	Measures the quality of road infrastructure.
2.3.3 Port infrastructure	Measures the quality of port infrastructure.

2.4 Volatility of agricultural production	Measures the standard deviation of the growth of agricultural production over the most recent 20-year period.
2.5 Political stability risk	A measure of general political instability, which has the potential to disrupt access to food through such factors as transport blocks or reduced food aid commitments.
2.6 Corruption	Measures the pervasiveness of corruption in a country by assessing the risk of corruption, which can affect food availability through distortions and inefficiencies in the use of natural resources, and inefficiencies in food distribution.
2.7 Urban absorption capacity	Measures the capacity of a country to absorb the stresses of urban growth and ensure food security, by evaluating a country's resources (GDP) against its urban growth rate.
2.8 Food loss	A measure of post-harvest and pre-consumer food loss as a ratio of the domestic agricultural supply.
3. Quality & Safety	
3.1 Diet diversification	A measure of the share of non-starchy foods (all but cereals, roots and tubers) in total dietary energy consumption. A larger share of non-starchy foods signifies a greater diversity of food groups in the diet.
3.2 Nutritional standards	A composite indicator that measures government management of nutrition.
3.2.1 National dietary guidelines	Measures whether the government has published guidelines for a balanced and nutritious diet.
3.2.2 National nutrition plan or strategy	Measures whether the government has published a national strategy to improve nutrition.
3.2.3 Nutrition monitoring and surveillance	Measures whether the government monitors the nutritional status of the general population via the collection of data.
3.3 Micronutrient availability	A composite indicator that measures the availability of micronutrients in the food supply.
3.3.1 Dietary availability of vitamin A	The dietary availability of vitamin A, calculated by converting the amount of food available for human consumption into the equivalent of vitamin A.
3.3.2 Dietary availability of animal iron	The dietary availability of iron, calculated by converting the amount of food available for human consumption into the equivalent of iron. Animal iron is obtained from products such as meat, milk, fish, animal fats and eggs.
3.3.3 Dietary availability of vegetal iron	The dietary availability of iron, calculated by converting the amount of food available for human consumption into the equivalent of iron. Vegetal iron is obtained from products such as cereals, pulses, roots and tubers, vegetable oils, fruits, vegetables etc.
3.4 Protein quality	Measures the grams of quality protein using the Protein Digestibility Corrected Amino Acid Score (PDCAAS) methodology, which assesses the presence of nine essential amino acids in the average national diet.
3.5 Food safety	A composite indicator that measures the enabling environment for food safety.
3.5.1 Agency to ensure the safety and health of food	Measures the existence of a regulatory or administrative agency to ensure the health and safety of food.
3.5.2 Percentage of population with access to potable water	Measures the percentage of people using improved drinking water sources: household connection, public standpipe, borehole, protected dug well, protected spring and rainwater.
3.5.3 Presence of formal grocery sector	Measures the prevalence of a formal grocery sector.

Whilst every effort has been taken to verify the accuracy of this information, neither The Economist Intelligence Unit Ltd. nor the sponsor of this report can accept any responsibility or liability for reliance by any person on this report or any of the information, opinions or conclusions set out in the report.

The EIU would like to thank DuPont for their continuing support of the Global Food Security Index and related research and analysis.

London

20 Cabot Square
London
E14 4QW
United Kingdom
Tel: (44.20) 7576 8000
Fax: (44.20) 7576 8476
E-mail: london@eiu.com

New York

750 Third Avenue
5th Floor
New York, NY 10017
United States
Tel: (1.212) 554 0600
Fax: (1.212) 586 0248
E-mail: newyork@eiu.com

Hong Kong

6001, Central Plaza
18 Harbour Road
Wanchai
Hong Kong
Tel: (852) 2585 3888
Fax: (852) 2802 7638
E-mail: hongkong@eiu.com

Geneva

Boulevard des
Tranchées 16
1206 Geneva
Switzerland
Tel: (41) 22 566 2470
Fax: (41) 22 346 93 47
E-mail: geneva@eiu.com