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# BEST Project

Bellmon Estimation Studies  
for Title II (USAID-BEST)

## USAID OFFICE OF FOOD FOR PEACE SOUTH SUDAN USAID-BEST ANALYSIS



**SEPTEMBER 2012**

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**Front cover:** (Left) Sorghum, maize, and groundnuts for sale in a retail market. Kajo Keji, South Sudan, July 2012. (Right) Maize test plot, first harvest of the 2012 season. Maridi, South Sudan, July 2012.

**Back cover:** Typical grain seller. South Sudan, July 2012.

Photos by Fintrac Inc.

# PREFACE

During the months of June 2012 to August 2012, the USAID-Bellmon Estimation Studies for Title II (BEST) team undertook a study of the current state of agricultural markets in South Sudan to inform USAID food aid programming decisions. Field work was completed in July 2012.

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# ACRONYMS AND NOTES

ABG	Asset Building Group
ACF	Action Contra la Faim/Action Against Hunger
ADESO	African Development Solutions
ADRA	Adventist Development and Relief Agency
AGRA	Alliance for a Green Revolution in Africa
ANLA	Annual Needs and Livelihoods Assessment
BCC	Behavior Change and Communication
BEST	Bellmon Estimation Studies for Title II
CFSAM	Crop and Food Security Assessment Mission
CFW	Cash for Work
CHF	Cooperative Housing Foundation
CLIMIS	Crop and Livestock Market Information System
CPA	Comprehensive Peace Agreement
CPI	Consumer Price Index
CRP	Cash Reintegration Package
CRS	Catholic Relief Services
DEC	dietary energy consumption
DFID	United Kingdom's Department for International Development
ECHO	Educational Concerns For Hunger Organization
EMOP	Emergency Operations Program
ERMS	Economic Recovery and Market System
EU	European Union
FANTA	Food and Nutrition Technical Assistance
FAO	Food and Agriculture Organization
FARM Project	Food, Agribusiness and Rural Markets Project
FDC	Forward Delivery Contract
FDI	Foreign direct investment
FEWS NET	Famine Early Warning System Network
FFA	food for asset
FFP	Food for Peace
FFW	food for work
FPF	Forward Purchase Facility
FSCF	Food Security Country Framework
FSL	Food Security Livelihoods Cluster
FSMS	Food Security Monitoring System
FSTS	Food Security Technical Secretariat
FY	fiscal year
GDP	gross domestic product
GIEWS	Global Information and Early Warning System
GIST	Geographic Information System Team
GNI	gross national indicator
GoSS	Government of South Sudan
ha	hectare
IAP	Interim Assistance Plan
IDP	Internally Displaced People
IFAD	International Fund for Agricultural Development
IFDC	International Fertilizer Development Center
IGA	income generating activity
IMF	International Monetary Fund
IPC	Integrated Phase Classification
JAM	Joint Aid Management
JFSP	Jonglei State Food Security Program
km	kilometer
LAF	Livelihoods Analysis Forum
LCA	Logistics Capacity Assessment
LFDP	Southern Sudan Livestock and Fisheries Development Project
LGP	length of growing period
LIFDC	Low-Income Food Deficit Countries
LRA	Lord's Resistance Army
LRP	local and regional procurement
MAFCRD	Ministry of Agriculture, Forestry, Cooperatives, and Rural Development
MARF	Ministry of Animal Resources and Fisheries
MCHN	maternal child health and nutrition
MDTF	Multi-Donor Trust Fund
MICS	Multiple Indicator Cluster Survey
MoAF	Ministry of Agriculture and Forestry
MT	metric ton
MYAP	Multi-Year Assistance Program

NBHS	National Baseline Household Survey
NBS	National Bureau of Statistics
NFI	Non-food items
NGO	non-government organization
OFDA	Office of Foreign Disaster Assistance
OTP	Outpatient Therapeutic Feeding Center
P4P	Purchase for Progress
PM2A	Preventing Malnutrition in Children Under 2 Approach
PPP	purchasing power parity
PVO	private voluntary organization
RAAH	Rural Action Against Hunger
SADC	Southern African Development Community
SCF	Save the Children Foundation
SCP	Structure Conduct Performance
SD	standard deviation
SDG	Sudanese Pound
SGR	Strategic Grain Reserve
SIFSIA	Food Security Information for Action in South Sudan
SOW	scope of work
SPCRP	Sudan Productive Capacity Recovery Programme
SPLASH	Sustainable Program for Livelihoods and Solutions for Hunger
SPS	sanitary and phytosanitary
SSC	small-scale commercial
SSLC	Southern Sudan Land Commission
SSLDP	Southern Sudan Livelihoods Development Project
SSP	South Sudan Pound
STA	Seasonal Targeted Assistance
SYAP	Single-Year Assistance Program
TEU	twenty foot equivalent unit
TB	tuberculosis
TCM	third country monetization
UHT	ultra-high temperature
UMCOR	United Methodist Committee on Relief
UMP	Uzumba Maramba Pfungwe
UMR	Usual Marketing Requirement
UN	United Nations
UN OCHA	United Nations Office for the Coordination of Humanitarian Affairs
UNICEF	United Nations Children's Fund
URL	United Refineries Limited
US	United States
US\$	US Dollar
USAID	United States Agency for International Development
USDA	United States Department of Agriculture
USG	United States Government
VIP	ventilated improved pit
WASH	water, sanitation, and hygiene
WFH	weight-for-height
WHA	World Health Assembly
WFP	World Food Programme
WTO	World Trade Organization

**Exchange rate:** As of August 2012, the official exchange rate for South Sudan Pounds (SSP) to the US Dollar (US\$) was 2.96:1; unofficially the parallel market rate for SSP:US\$ was up to 50% higher than the official rate.







## CHAPTER I: EXECUTIVE SUMMARY

Independence Day Parade, Yambio, South Sudan, July 2012.

Photo by Fintrac Inc.

### I.1. INTRODUCTION

South Sudan and Sudan signed nine bilateral agreements in late September 2012 (after this report was drafted). If fully implemented, the food security situation will likely be impacted by changes in oil revenues, increased trade flows, and potential price inflation in the coming months. USAID and PVOs should closely monitor changing conditions, and re-confirm findings presented herein.

During the months of June 2012 to August 2012, the USAID-Bellmon Estimation Studies for Title II (BEST) team undertook a study of the current state of agricultural markets in South Sudan to inform USAID food aid programming decisions. Field work was completed in July 2012.

USAID requested that the USAID-BEST study focus on the southern three states of Western Equatoria, Central Equatoria, and Eastern Equatoria (sometimes referred to in this report as “the Equatorias region”) for the field work and subsequent USAID-BEST report. This report and other information sources will then be used by USAID as background for potential new Title II programming in FY13 or FY14.

### I.2. FOOD AID OVERVIEW

Sudan gained independence from Great Britain in 1956, and South Sudan obtained its own independence from Sudan on July 9, 2011. South Sudan’s independence was the end result of the 2005 Comprehensive Peace Agreement (CPA) between Sudan and South Sudan, signed after nearly four decades of conflict, primarily over the latter’s autonomy and rights to natural resources.

Significant contentious issues persist between the countries. For example, as a result of a dispute over oil revenues in January 2012, the major oil pipelines in South Sudan were shut down and the border between Sudan and South Sudan was officially closed. Other artifacts of the long civil conflict, such as refugee, returnee, and Internally Displaced Persons (IDP) issues, remain key concerns for South Sudan, especially in the northern areas of the country.

The FAO/WFP February 2012 Crop and Food Security Assessment Mission (CFSAM) estimates that South Sudan will have a 2012 cereal deficit of 473,700 MT—180,000 MT larger than the estimated cereal deficit for 2011.<sup>1</sup> CFSAM 2012 also estimates that 4.7 million people, or roughly half the population of South Sudan, will be food insecure in 2012, with 1 million people classified as “severely food insecure” according to the CFSAM. A new cycle of Title II development programming is currently under consideration for very food-insecure areas in the Equatorias region.

<sup>1</sup> FAO/WFP, February 2012, Crop and Food Security Assessment Mission to South Sudan (CFSAM).

For a number of years, USAID has funded emergency and development programs in South Sudan.

**Emergency.** USAID emergency food aid totals to South Sudan have been substantial over the past five years (FY07–FY11), averaging nearly 72,000 MT per year over that time period and peaking in 2010 with almost 87,000 MT. WFP/South Sudan received most of this food aid, which was used for emergency programming throughout the country. Humanitarian food assistance has continued at a similar level for FY12, due primarily to continuing crises in the northern and eastern areas of Abyei, Warrap, Unity, Upper Nile, and Jonglei. Because nearly 1,000,000 South Sudanese are classified as “severely food insecure” in 2012, the humanitarian needs could easily increase in the near term.<sup>2</sup>

**Development.** USAID’s Multi-Year Assistance Programs (MYAPs) for South Sudan began in 2010. The total planned distributed food aid tonnages for each MYAP partner for FY11 and FY12 — 8,161 MT over these past two FYs — are significantly lower than the above-noted emergency food aid tonnages. ADRA’s<sup>3</sup> SSHiNE (Southern Sudan Health, Nutrition and Empowerment Program) MYAP targeted Warrap and Northern Bahr El Ghazal states for health and nutrition interventions, and ended in June 2012. CRS’s<sup>4</sup> JFSP (Jonglei State Food Security Program) MYAP runs from FY11–FY14, and primarily targets agriculture and food security interventions.

**Monetization.** During the past five years (FY07–FY11), USG awardees have programmed no monetized food aid to South Sudan (formerly Southern Sudan).

**USDA.** There has been no USDA food aid programming in South Sudan during the past five years (FY07–FY11).

**World Food Programme (WFP) emergency.** WFP has provided significant emergency food aid resources to South Sudan over the past five years. WFP distributed an average of just over 91,000 MT of food aid per year during calendar years 2007–11, also peaking in 2010. During a field interview in Juba, WFP staff expressed the hope that emergency activities could convert to more transitional/development activities under a Protracted Relief and Recovery Operation (PRRO) program over the next two years — contingent on improved in-country stability, development, and food security levels.

WFP/South Sudan has an Emergency Operations Program (EMOP) that runs through December 2012. Its goal is to reach nearly 1.4 million beneficiaries through various targeted programs, focusing on (1) conflict-affected populations, including IDPs, refugees, and returnees, and (2) food-insecure residents.<sup>5</sup>

**GoSS.** In late June 2012, the Government of South Sudan (GoSS) Ministry of Agriculture, Forestry, Cooperatives, and

2 FAO/WFP, February 2012, Crop and Food Security Assessment Mission to South Sudan (CFSAM).

3 The acronym “ADRA” stands for the Adventist Development and Relief Agency.

4 The acronym “CRS” stands for Catholic Relief Services.

5 GOSS MAFCRD, June 28, 2012, PowerPoint presentation. Juba, South Sudan.

Rural Development (MAFCRD) presented its Agriculture and Food Security Strategy.<sup>6</sup> The strategy aims to improve agricultural productivity, increase food security, reduce food dependency, and guarantee food for all by 2015.

During a follow-up interview in July 2012, the Minister of Agriculture was asked to identify the most pressing needs under this strategy for improving overall agricultural production in South Sudan. She stated that the country has many competing priorities, but the two most important agricultural priorities are (1) feeder roads and (2) improved storage facilities to reduce post-harvest losses.<sup>7</sup>

As a result of the oil pipeline shutdown, South Sudan has lost significant oil export revenue. Unless these revenues resume, agriculture and other sectors of the GoSS budget will likely remain underfunded in the current 2012/2013 fiscal year.

**Other Donors.** Many donors are involved in food security interventions for South Sudan. Other donor programs that are summarized include those funded by DFID,<sup>8</sup> the EU/ECHO,<sup>9</sup> and the USAID/AGRA/IFDC<sup>10</sup>/Netherlands Seeds for Development Program.

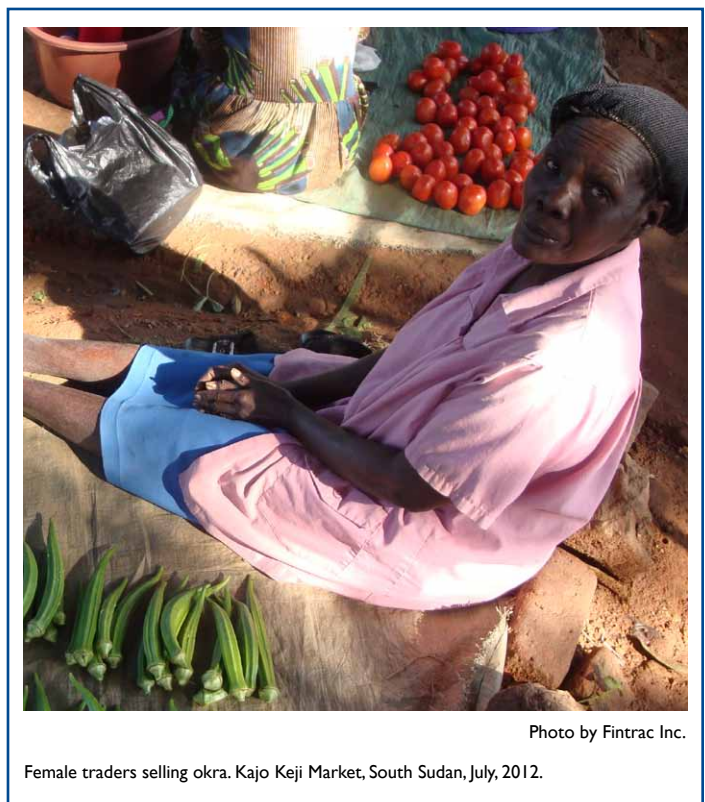


Photo by Fintrac Inc.

Female traders selling okra. Kajo Keji Market, South Sudan, July, 2012.

6 GOSS MAFCRD, June 28, 2012, PowerPoint presentation. Juba, South Sudan.

7 USAID-BEST field interview in Juba with Minister of Agriculture Achan, July 5, 2012.

8 The acronym “DFID” stands for The United Kingdom’s Department for International Development.

9 The acronym “EU/ECHO” stands for, respectively, the European Union and the Educational Concerns For Hunger Organization.

10 The acronym “AGRA” stands for the Alliance for a Green Revolution in Africa. The acronym “IFDC” stands for the International Fertilizer Development Center.

### 1.3. ADEQUACY OF PORTS, TRANSPORT, AND STORAGE

This Chapter provides an overview of the adequacy of ports, transport, and storage to inform a planned Title II development program in South Sudan. The ports section covers Mombasa, Djibouti, and Port Sudan. The transport section covers: (1) road, rail, river, and air links; (2) customs/taxes; and (3) the most commonly used routes. The storage section covers the storage capacity of the WFP, private voluntary organizations (PVOs), national government, and commercial capacity.

Title II Awardees are currently able to transport and store food aid in South Sudan. WFP provides up-to-date information on the country's changing transport conditions, which deteriorate significantly during the rainy season. In addition to weather hazards, efficient transport of goods is impeded by customs procedures that need to be standardized, and the officially closed border with Sudan (closed in early 2012 and still closed as of late August 2012).<sup>11</sup>

**Ports.** As of July 2012, the Port of Mombasa is the preferred port of entry for food aid for most of South Sudan, except for the northeastern region of the country. For the northeastern region, the Port of Djibouti<sup>12</sup> is the preferred port of entry for food aid, especially for Upper Nile state and parts of Unity and Jonglei states. As of July 2012, WFP/South Sudan estimated that roughly 75 per cent of its food aid for South Sudan enters through the Port of Mombasa, and 25 per cent enters through the Port of Djibouti. However, this distribution can easily change depending on quickly evolving humanitarian needs and changes in transport corridors within the country and regionally.

From Mombasa, WFP and PVOs have found that the route through Kenya and then Uganda, which crosses through the border at Nimule, is the most reliable. Transport along this route can be delayed because of seasonal transport demands and, at times, high costs. However, WFP and PVOs have tried other alternatives (for example, through Port Sudan, through the Port of Djibouti, or across other border points), and none has proved more reliable than the Mombasa-Nairobi-Tororo-Gulu-Nimule route for most points within the country. In-country transport by river has become more popular in recent months to partially compensate for the closed border between Sudan and South Sudan, and is especially useful during the current 2012 rainy season (June–October).

A comparison of Mombasa with Djibouti reveals that despite potential delays mainly attributable primarily to seasonal congestion, Mombasa is still the preferred port over Djibouti for cargo destined to most points within South Sudan. South Sudan

11 USAID-BEST field visit to Nimule in July 2012 determined that current customs tariffs at GoSS international border points for various goods still need to be standardized and formalized, and generally do not follow standard international tariff classifications. Crown Agents (UK) is currently working with the GoSS to standardize and simplify their tariff implementation for imports/exports.

12 USAID-BEST field interview with WFP/South Sudan in Juba, July 4, 2012.

is the fastest-growing destination for imports handled at the Port of Mombasa.<sup>13</sup> The port currently handles about 223,000 MT of cargo (mostly imports) for South Sudan per year.<sup>14</sup>

Port Sudan should be considered as an option for South Sudan only if the border between Sudan and South Sudan (closed earlier in 2012) is officially re-opened, thereby permitting trade. If so, Port Sudan can efficiently serve the northern areas of South Sudan (via Kosti and Rabak).

A 2010 study compared the costs of handling WFP food aid at Djibouti, Mombasa, and Port Sudan. Among these ports, Mombasa was the least expensive option per MT for bringing in bulk cargo and break bulk cargo.

**Transport.** For food aid destined for South Sudan, the most efficient and reliable route by road originates at the Port of Mombasa. From there, food aid is transported through Nairobi, Tororo, Gulu, Nimule, and Juba, and then to further points in South Sudan as necessary. Potential awardees are encouraged to determine the most efficient and cost-effective routes to deliver food aid, depending on the routes, quantities, time of year, and other variable factors. Valuable “lessons learned” can also be obtained from current and past MYAP holders and WFP.

**WFP storage.** WFP has a number of storage facilities throughout the country, and offers its storage to NGOs (non-government organizations). WFP/Juba reported that it currently has a storage capacity of 8,000–10,000 MT in Juba itself, with 2,000–4,000 MT of this capacity in the form of fixed, permanent structures.<sup>15</sup> WFP's temporary storage is available to rent for up to three months.<sup>16</sup> Construction of new, expanded commercial storage is also expected in Juba in the near term, but the scale and availability of this new storage will depend on macro-economic conditions within South Sudan.<sup>17</sup>

**PVO storage.** Potential Title II awardees planning to operate in the Equatorias region should expect to use a model similar to CRS or ADRA, relying primarily on transferable, semi-permanent Rubb/Wiik halls for food aid storage needs outside Juba.

### 1.4. LOCALIZED FOOD DEFICITS AND DISTRIBUTED FOOD AID

This Chapter examines national and localized food deficits, the capacity of the private market to respond to those deficits, and implications for planned Title II development program in the Equatorias. The chapter concludes with a series of key recommendations to ensure distributed food aid programs will not disrupt local markets, including geographic, seasonal, and household/individual targeting; potential activities; and commodity selection.

13 Kenya Ports Authority, 2012, Kenya Ports Authority Handbook: 2012–2013.

14 Kenya Ports Authority, 2012, Kenya Ports Authority Handbook: 2012–2013.

15 USAID-BEST field interview with WFP/Juba staff, July 4, 2012.

16 WFP, 2012, Logistics Cluster Meeting Notes: June 12, 2012.

17 USAID/BEST field trip staff interview, July 2012.

**National and localized food deficits.** Cereals (sorghum, maize, and millet) make up approximately 50 percent of the typical diet in South Sudan.<sup>18</sup> The production cycle for cereals typically begins in March and extends through December. In northern regions, planting begins in early April.

According to the CFSAM reports, from 2006 until 2008, average cereal production in South Sudan fell 10 percent per year. After a slight cereal surplus in 2009, deep deficits followed — in fact, much more pronounced than the deficits from 2006 until 2008 — and in 2012 cereal production reached its lowest level.

There are many factors affecting cereal supply, but the most important include: 1) poor/uneven rainfall, 2) budget limitations that result in insufficient commitment to agriculture, and 3) land tenure history/policies.

Overall food demand and agricultural production are impacted by the return to South Sudan of people who were displaced during the civil war (returnees). Based on the available evidence, it seems reasonable to infer; 1) that those who stayed (non-returnees) have advantages over those who left (returnees), in terms of better access to land (and possibly better quality land), and 2) that those advantages would be mitigated — and agricultural production greatly increased — if returnees were given access to comparable quantities and quality of land.

Demand for staples (both domestically produced and imported) is also affected by; changes in income, and population growth and mobility. Overall national incomes in 2012 have been, and will continue to be, negatively impacted by the closure of the oil pipelines in northern South Sudan earlier in 2012.

Cereal deficits are common throughout South Sudan. Nationally, the only cereal surpluses were reported in nine of 24 counties in the Equatorias region.<sup>19</sup> Uneven production within the Equatorias region, coupled with an inferior road network, presents an impediment to reducing localized deficit areas. In fact, to minimize localized deficits in urban and peri-urban markets, imported Ugandan foodstuffs are available and generally more competitive, due to higher productivity and superior road networks, especially the paved road from Nimule to Juba.

Title II programming would be appropriate for the Equatorias region for the following reasons:

1. Many counties within the Equatorias region still have high cereal deficits and high levels of food insecurity.
2. Returnees, who are generally more vulnerable than local populations, are present in significant numbers within the Equatorias region (approximately 57,000 as of May 2012).<sup>20</sup>

<sup>18</sup> South Sudan National Bureau of Statistics [formerly Southern Sudan Centre for Census, Statistics and Evaluation], 2010, Statistical Yearbook for Southern Sudan 2010. Annex III provides more detailed information on dietary energy consumption.

<sup>19</sup> FAO/WFP, February 2012, Crop and Food Security Assessment Mission to South Sudan (CFSAM). Raga county in Western Bahr El Ghazal also reported a cereal surplus.

<sup>20</sup> USAID/OFDA, May 2012, Sudan to South Sudan Population Movement.

3. There are opportunities to generate greater agricultural surpluses within the Equatorias region, and these potential surpluses could be transported to localized deficit areas, provided that transportation networks are improved.
4. Ugandan food imports are currently available in Juba town and the surrounding areas, and help minimize recorded cereal deficits there. However, these imports are typically not available in more remote food insecure zones of the Equatorias region, and if Ugandan imports are available, they are typically expensive because of high transaction costs.
5. Title II programming can be used to target farmers to promote good agricultural practices such as soil conservation, better tilling practices, improved input usage, and well-managed crop husbandry. Given the appreciable agricultural potential in the region, these practices can generate increased production, and those production increases can be further targeted to areas within the region with relatively higher food insecurity levels.

**Private market capacity to meet deficits.** Market conditions in South Sudan are volatile, depend on local and regional markets, and further assessments should be undertaken by potential awardees before planning and implementing Title II programs. An important variable is South Sudan's relations with Sudan, and the resulting ease or difficulty in cross-border flows of goods and people. As of September 2012, the Sudan-South Sudan border remains officially closed.

Currently market conditions are characterized by two major types of constraints: transaction costs to traders and limited market integration. Transportation appears to be the most important transaction cost, followed by customs taxes. Notably, after accounting for these transaction costs, trader margins remain positive in the various marketing routes studied.<sup>21</sup> Given these positive margins, there may be incentive to trade.

Markets appear to be only moderately integrated within South Sudan and within the region. However, there is significant variation between the pre-referendum period and the post-referendum period. Before the referendum, markets appeared to be linked to each other within South Sudan, but less so regionally (Uganda and Kenya). Post-referendum, regional trade seems to be concentrated in Juba. The Juba market for sorghum appears to be linked to all regional markets considered, and the white maize market linked to four out of the five markets.

**Key considerations for Title II distributed food aid.** USAID plans to fund a new Title II development program in South Sudan in FY13 or FY14. This planned program is expected to complement the current CRS JFSP MYAP in Jonglei State, which is operational until June 2014. Key considerations for new Title II programming include geographic, seasonal, and household/individual targeting; potential activities; and commodity selection.

<sup>21</sup> The FARM project conducted a similar exercise in 2011, in which they concluded that traders were making small but positive margins in most of the marketing routes considered.

The most significant consideration for food aid is very basic: with the long history of conflict and emergency food aid in South Sudan, how can food assistance be successfully programmed to minimize dependency and encourage behavior changes? A number of interviewees during the July 2012 USAID-BEST field visit argued that if food aid is distributed, it should be very targeted and focused on emergency shocks, refugees, returnees, and only those deemed most vulnerable within targeted communities. Food security programming can also effectively target those areas with a relatively higher potential to increase agricultural production. This has potential to increase the sustainability and impact of agricultural training and increased production.

Potential Title II awardees should use the full range of tools available to improve overall food security levels in South Sudan. These tools may include FFA, FFV, BCC (behavior change and communication activities), and MCHN programs, among other options.

When considering geographic targeting for potential Title II programming, the following should be considered for the Equatorias region as a whole:

- In Eastern Equatoria, the counties with the largest cereal deficits are in the drier northern and eastern parts of the state (for example, Lafon, Kapoeta East, Kapoeta North, and Kapoeta South counties).
- In Central Equatoria, all counties outside Juba have significant cereal deficits except for Terekeka.
- In Western Equatoria, most counties have cereal surpluses except for Mundri East, Mundri West, and Maridi counties.



Photo by Fintrac Inc.

Bridge along the Yei-Kajo Keji road, Central Equatoria state, South Sudan, July 2012.

Potential awardees should consider applying “lessons learned” from MYAP programming in Uganda that targets agro-pastoralist and pastoralist zones in the Karamoja region, and bear in mind that USAID/South Sudan is the health lead for donors for the states of Western and Central Equatoria.

Malnutrition levels are a key factor in targeting aid to households/individuals. In South Sudan, food insecurity is not just linked to inadequate quantities of food; utilization is also a main contributor. Malnutrition can be targeted and improved through the following interventions: improved infant/young feeding practices; improved hygiene/sanitation; increased access to quality health services; improved health messaging; and reducing the overall high disease burden in-country (for example, malaria, diarrhea, HIV, and respiratory infections).<sup>22</sup> Additionally, targeting of food aid programs can always be improved. CRS’s JFSP MYAP utilizes the criteria of high relative need, high return on investment, and complementarity for its program. This approach could provide a good framework for future Title II development programming in South Sudan.

As mentioned earlier, the full range of MCHN programs<sup>23</sup> — preventive and/or recuperative approaches to malnutrition among infants and young children — should be considered. Both preventive and recuperative programming, similar to existing MCHN programs in other Title II development countries with a focus on under age 5, could be considered and adapted for effective programming in South Sudan.

Finally, many stakeholders interviewed during USAID-BEST field work in July 2012 expressed the need to rebuild agricultural extension services and provide better market information. This market information could be disseminated through information officers, and could include information on prices, estimated harvests, storage facilities, and other topics relevant to farmers. Training could be provided through Title II awardees for improved agricultural extension workers and information officers, either through government channels or informally, to significantly improve overall food security levels within South Sudan.

22 ANLA, 2012, South Sudan and USAID/TANGO/FANTA, 2007, Sudan Food Assistance Transition Study.

23 For further guidance on the appropriate design of MCHN interventions generally, and Preventing Malnutrition in Children Under 2 Approach (PM2A) specifically, please see USAID’s Commodities Reference Guide, accessible via [http://transition.usaid.gov/our\\_work/humanitarian\\_assistance/ffp/crg/](http://transition.usaid.gov/our_work/humanitarian_assistance/ffp/crg/), and FANTA Project’s PM2A Technical Resource Materials (TRM) and other related guidance, accessible via <http://www.fantaproject.org/pm2a>.

## 1.5. THE ROLE OF LOCAL AND REGIONAL PROCUREMENT

The USAID-BEST study team examined the potential for local and regional procurement (LRP),<sup>24</sup> cash, and voucher programs in the Equatorias region of South Sudan as a possible complement to in-kind Title II food aid. Although to date, Title II resources have not been used for LRP, cash, or voucher programs in South Sudan, cash and voucher programs funded through other sources have been implemented in South Sudan, and potential development programming should be informed by the lessons learned from those programs.

To that end, this Chapter reviews current LRP, cash, and voucher programs in South Sudan, and discusses the array of factors that influence their performance. It highlights potential benefits of these programs relative to transoceanic food aid, and various risks that come with implementing each type of program. Three main types of programs<sup>25</sup> are reviewed: 1) WFP programs, including Cash Reintegration package (CRP), P4P,<sup>26</sup> and regional purchases, 2) OFDA-funded programs (CHF, ADESO),<sup>27</sup> and 3) other donor programs (Mercy Corps, ACF, SCF, CRS<sup>28</sup>).

Broadly speaking, donors and implementing partners adopt LRP to:

1. Improve the timeliness of food delivery during emergencies.
2. Improve the cost efficiency of the resource transfer as compared with in-kind, transoceanic food aid, and thereby enable coverage of a larger number of beneficiaries.
3. Provide food that is potentially more suited to local tastes.
4. Develop markets in ways that would not be possible using in-kind transoceanic food aid.<sup>29</sup>

24 For this report, local purchase primarily refers to purchase of maize or sorghum in South Sudan, and corresponds to what WFP purchases locally under its P4P program; regional purchase primarily refers to maize in neighboring countries (e.g., Uganda), which is typically purchased by WFP in significant quantities (e.g., thousands of MTs) for distribution within South Sudan.

25 The review is not exhaustive. The USAID-BEST team selected the most relevant programs visited during field work.

26 The acronym “P4P” refers to the WFP’s Purchase for Progress program.

27 The following acronyms have the following meanings: “OFDA” stands for the USAID Office of Foreign Disaster Assistance. “CHF” stands for the Cooperative Housing Foundation. “ADESO” stands for African Development Solutions.

28 The following acronyms have the following meanings: “ACF” stands for Action Against Hunger/ACF International. “SCF” stands for the Save the Children fund. “CRS” stands for Catholic Relief Services.

29 Tschirley and Anne Marie del Castillo, 2006, Local and Regional Food Aid Procurement: An Assessment of Experience in Africa and Elements of Good Donor Practice.

### Advantages of LRP relative to transoceanic shipment.

LRP offers the potential to deliver food faster for emergency relief and/or for programs aimed at addressing seasonal hunger gaps. Studies have shown that in landlocked countries, projects relying on LRP, cash, or vouchers instead of transoceanic shipments saved between 11 and 24 weeks of time in delivering aid.<sup>30</sup> Because South Sudan is both landlocked and far away from any ocean port, time savings from LRP can be considerable in the South Sudan context. However, further studies may be needed to determine the extent of these time savings.

For development programming, timeliness is essential. To ensure timely food delivery for the Equatorias region in particular, and to avoid disrupting local markets, USAID-BEST advises that awardees and their implementers must:

- Understand regional food production patterns and monitor areas of potential surplus.
- Understand local food production patterns and monitor areas of potential surplus.
- Understand seasonal feeder road conditions and identify current and potential en-route challenges such as road blocks and police check points — and how they may affect delivery.
- Understand regional marketing routes and current customs procedures, and how each may affect delivery.
- Monitor evolving security situations for particular at-risk transportation routes.

In addition to faster food delivery, LRP programming in South Sudan has the potential for significant cost savings. However, experience has shown that cost savings for LRP, relative to transoceanic shipment, depend largely on the type of commodity. LRP is generally less expensive for cereals, but transoceanic shipments have cost advantages for processed commodities. Since cereals are a main staple in South Sudan, food aid programs may achieve significant savings by purchasing cereals locally or regionally. To realize those savings, USAID-BEST recommends that future LRP programs:

- Generally focus on cereals, but use transoceanic shipment for other processed food (for example, vegetable oil) and possibly pulses.
- Conduct an assessment before implementation because of quickly changing market conditions in South Sudan and regularly monitor cereal prices in South Sudan and in the region.
- Take into account local and regional production patterns. For instance, local purchase (even if on a limited scale) in the Equatorias region are recommended at harvest times, specifically:
  - Between July and August for maize.
  - Between August and September for millet and sorghum.
- Purchase commodities near the targeted distribution area.

30 Lentz, Passarelli, and Barrett, 2012, The Timeliness and Cost-Effectiveness of the Local and Regional Procurement of Food Aid.

For any food aid program to succeed, it is important that the foods involved are appropriate to the recipients' culture, diet, and cooking habits, for the following reasons:

- Beneficiaries are more likely to eat food to which they are accustomed. If a program aims to reduce malnutrition and hunger, that objective will more likely be met by foods that satisfy recipients. Likewise, recipients who are more satisfied with the foods they receive are less likely to waste them or to find other uses for them (for example, feeding livestock, brewing alcohol, or selling them in the market).
- The overall well-being of beneficiaries increases when they are more satisfied with the food they receive and with foods that require fewer preparation inputs (for example, fuel, water, time).

**Advantages of cash and/or vouchers relative to local and regional purchases.** The benefits of cash and voucher programs and local purchases are comparable.<sup>31</sup> Cash has potentially lower transport and distribution costs than bulky commodities, and the ease of logistics with cash may allow assistance to be delivered more rapidly than other alternatives.<sup>32</sup>

Compared with LRP, cash/voucher programs have the potential to be both more time-saving and more cost-efficient. However, because delivery of cash and/or vouchers may be hindered in South Sudan, it is highly recommended that:

- Given the volatility of the current economic and social environment, programs should be implemented at a small scale and for short durations.
- Potential awardees should understand the banking system, and be able to identify reliable financial partners.
- Until local markets in South Sudan develop more fully, cash/voucher programs should take the supply side into account by actively integrating local traders into the scheme.
- Potential awardees should evaluate potential risks such as security, counterfeiting, fraud, and inflation that could undermine program efficiency.
- Potential awardees should understand the cultural factors as they relate to uses of cash/vouchers.

Tschirley and del Castillo distinguish two type of risks associated with cash, voucher, and LRP: first order risks (inflation, traders defaulting on tenders, food safety concerns) and second order risks (e.g., dependency).<sup>33</sup> In order to mitigate the first order risks, USAID-BEST recommends the following for any future LRP, cash, or voucher programming in South Sudan:

- As long as markets are not well-functioning or as long as local private traders are not capable of ensuring adequate supply, keep the scale of the program small so that the overall market impact is minimized.
- Increase the search effort to identify reliable traders.
- Integrate the supply side into the program design to ensure adequate supply response.
- Include quality requirements in any contracts with producers.

Second order risks are not quantifiable, and can have medium- to long-term negative effects. For example, a cash, voucher, or LRP may create a dependency on aid programs. It is difficult to measure or reliably predict whether these programs will create dependency in South Sudan over time.

Several cash, voucher, and LRP modalities are available that could mitigate dependency, and some are already in use in South Sudan. These modalities all involve some type of conditionality in order for the beneficiary to receive the transfer. However, whether these modalities effectively mitigate dependency in South Sudan's unique operational context will not likely be known in the short-term: dependency is generally a cumulative, medium- to long-term effect.

31 For example, Lentz, Passarelli, and Barrett found that LRP, cash and voucher programs all result in a savings of nearly 14 weeks — a 62 percent gain in timeliness.

32 Harvey, 2005, Cash and vouchers in emergencies.

33 Tschirley and Anne Marie del Castillo, 2006, Local and Regional Food Aid Procurement: An Assessment of Experience in Africa and Elements of Good Donor Practice.



## CHAPTER 2: FOOD AID OVERVIEW

Female traders selling staple commodities in Kajo Keji Market. Central Equatoria, South Sudan, July 2012.

Photo by Fintrac Inc.

### 2.1. INTRODUCTION

Sudan gained independence from Great Britain in 1956, and South Sudan obtained its own independence from Sudan on July 9, 2011. South Sudan's independence was the end result of the 2005 Comprehensive Peace Agreement (CPA) between Sudan and South Sudan, signed after nearly four decades of conflict, primarily over the latter's autonomy and rights to natural resources.

Significant contentious issues persist between the countries. For example, as a result of a dispute over oil revenues in January 2012, the major oil pipelines in South Sudan were shut down and the border between Sudan and South Sudan was officially closed. Other artifacts of the long civil conflict, such as refugee, returnee, and Internally Displaced Persons (IDP) issues, remain key concerns for South Sudan, especially in the northern areas of the country.

Before South Sudan officially separated from Sudan in 2011, Sudan was classified as a single country for purposes of measuring US government (USG) assistance.<sup>34</sup> Areas of chronic need included Darfur, Blue Nile, and Southern Kordofan, northern and eastern parts of what is now South Sudan, and Abyei. Those areas continue to be in chronic need.

<sup>34</sup> For US government aid purposes, the area now comprising South Sudan was considered a region of the nation Sudan and was referred to as Southern Sudan between 2005-2011, during the CPA period.

The FAO/WFP February 2012 Crop and Food Security Assessment Mission (CFSAM) estimates that South Sudan will have a 2012 cereal deficit of 473,700 MT-180,000 MT larger than the estimated cereal deficit for 2011.<sup>35</sup> The CFSAM also estimates that 4.7 million people, or roughly half the population of South Sudan, will be food insecure in 2012, with 1 million people classified as “severely food insecure” according to the CFSAM.<sup>36</sup> Potential Title II development programming is currently under consideration for very food-insecure areas in the Equatorias Region.

### 2.2. OVERVIEW OF FOOD AID PROGRAMS

#### 2.2.1. Distributed Food Aid

The sections below detail food aid provided by the United States Agency for International Development (USAID) and the World Food Programme (WFP) to South Sudan, directly or through implementing partners.

Please note, however, that the cited food aid tonnages for South Sudan are approximations. This is because: (1) before South Sudan officially separated from Sudan in 2011 — when “Sudan” was considered a single unit for aid purposes — food aid shipments

<sup>35</sup> FAO/WFP, February 2012, Crop and Food Security Assessment Mission to South Sudan (CFSAM).

<sup>36</sup> In most cases, the FAO/WFP 2012 CFSAM estimates that South Sudan's population in 2012 is 9.101 million; other estimates are higher (e.g., the World Bank estimate is 10.314 million). In most cases, in this USAID-BEST report, the CFSAM figure is used for calculations, but readers should note the variability in the range of population estimates for South Sudan.



were made to “Sudan” as a nation but could have been allocated to “Sudan” or “Southern Sudan”; and (2) some official borders are still in dispute, resulting in uncertainty about whether areas currently receiving food aid (for example, the Abyei region) should be properly classified as “Sudan” or “South Sudan.”

### 2.2.2. USAID

**Emergency.** USAID emergency food aid totals to South Sudan have been substantial over the past five years (FY07–FY11), averaging nearly 72,000 MT per year over that time period and peaking in 2010 with almost 87,000 MT. WFP/South Sudan received most of this food aid, used for emergency programming throughout the country. Humanitarian food assistance has continued at a similar level for FY12, due primarily to continuing crises in the northern and eastern areas of Abyei, Warrap, Unity, Upper Nile, and Jonglei. Because nearly 500,000 South Sudanese are classified as food insecure in 2012, the humanitarian needs could easily increase in the near-term. Table 1 below outlines estimated USAID emergency distributed food aid tonnages to South Sudan for FY07–FY12.

**Table 1. USAID Emergency Distributed Food Aid (MT) to South Sudan, FY07–FY12\***

	FY07	FY08	FY09	FY10	FY11	FY12***	Total
Cereal*	48,461	50,356	68,680	80,294	42,955	63,310	354,056
Pulse*	4,153	8,531	4,837	3,335	6,256	12,820	39,932
Veg. Oil	2,359	5,122	2,179	3,335	2,628	10,190	25,813
CSB	2,006	410	270	0	0	0	2,686
<b>Total</b>	<b>56,979</b>	<b>64,419</b>	<b>75,966</b>	<b>86,964</b>	<b>51,839**</b>	<b>86,320</b>	<b>422,487</b>

Source: USAID.

Notes: \*Distributed cereal was primarily sorghum, and distributed pulse was primarily lentils. \*\*USAID reported that 24,540MT of emergency food aid was delivered to South Sudan after July 9, 2011 independence; therefore, the tonnage on the Food for Peace (FFP) South Sudan fact sheet (last updated March 12, 2012) does not agree with the above table because the fact sheet only includes food aid to South Sudan in FY11 after independence. \*\*\*Estimates for FY12 as of August 1, 2012.



Photo by Fintrac Inc.

Beans cooking the traditional way utilizing ample firewood--USAID Title II peas or lentils use less. Kajo Keji, South Sudan, July 2012.

**Development.** USAID’s Multi-Year Assistance Programs (MYAPs) for South Sudan began in 2010. As reflected in Table 2, the total distributed food aid tonnages for each MYAP partner for FY11 and FY12 (planned) are significantly lower than the emergency food aid tonnages shown in Table 1.

**Table 2. USAID Development Distributed Food Aid (MT) by MYAP Partners in South Sudan, FY11–FY12**

	FY08	FY09	Total
CRS-Sorghum		5,710	5,710
ADRA-Bulgur	1,103	137	1,240
CRS-Peas		570	570
ADRA-Lentils	167	8	175
CRS-Veg. Oil		340	340
ADRA-Veg. Oil	88	38	126
<b>Total</b>	<b>1,358</b>	<b>6,803</b>	<b>8,161</b>

Source: USAID, Catholic Relief Services (CRS), and Adventist Development and Relief Agency (ADRA).

Notes: CRS commodities for FY12 are expected to be distributed primarily in the latter half of the year. ADRA’s MYAP ended on June 30, 2012, and above Title II commodities totals represent actual distributions. ADRA totals do not include 340MT of corn soy blend (CSB) regionally purchased in Kenya in 2011 and distributed in 2011 (142 MT) and 2012 (196MT). CRS has called forward an additional 2,660 MT of food aid for the JFSP MYAP in FY12, for expected distribution in FY13. [“JFSP” means the Jonglei State Food Security Programme, led by CRS and including these three agencies: CRS, Save the Children, and Joint Aid Management.]

**Figure 2. CRS JFSP MYAP Area, 2012**



Source: USAID-BEST. Note. MYAP areas and administrative borders for South Sudan: CRS; county borders: GAUL; ADRA is not included on the above map because its MYAP activities ended in June 2012.



Photo by Fintrac Inc.

Small quantities of USAID cornmeal for sale at Yambio market, Western Equatoria, South Sudan, July 2012.

**ADRA.** ADRA managed its SSHiNE (Southern Sudan Health Nutrition and Empowerment Program) MYAP in Warrap and Northern Bahr El Ghazal States from FY10–FY12. Subgrantees included Food for the Hungry International, the Malaria Consortium, Concern Worldwide, and The Johns Hopkins University. SSHiNE's two strategic objectives were to (1) reduce malnutrition in children under five years old and (2) decrease the prevalence of illnesses, especially childhood diseases. The first strategic objective focused on a Preventing Malnutrition in Children Under 2 Approach (PM2A) that targeted infants between 6–24 months old, and pregnant and lactating women. The second strategic objective focused on capacity building for government health units and staff. Both objectives also involved training Women Empowerment Group (WEG) coordinators and facilitators to achieve better overall health and nutrition for mothers, U5s, and other family members. ADRA's MYAP encountered many security, logistical, and management problems, and activities ended in June 2012.

**CRS.** CRS manages the Jonglei State Food Security Program (JFSP), a consortium consisting of CRS, Save the Children (SCF), and Joint Aid Management (JAM). JFSP is a three-year MYAP in eight counties within Jonglei State. JFSP activities started in 2011 with Food for Assets (FFA) and are scheduled to end in June 2014. JFSP's three strategic objectives are: (1) increased resilience to shocks; (2) increased crop and livestock production; and (3) increased incomes through market linkages.

Notwithstanding the FFA work, implementing the longer-term JFSP interventions as planned will be challenging. For example, program delays have occurred in Jonglei because of seasonal rains, insecurity, ethnic conflict, and delayed receipt of and inadequate storage facilities for commodities. As a result, CRS plans to scale back commodity volumes and geographic coverage for the second year of the JFSP.

### 2.2.3. Monetized Food Aid

During the past five years (that is, FY07–11), USG Awardees have programmed no monetized food aid to South Sudan (formerly Southern Sudan).<sup>1</sup>

### 2.2.4. USDA

There has been no USDA food aid programming in South Sudan during the past five years (FY07–11).

### 2.2.5. WFP

**Emergency.** WFP has provided significant emergency food aid resources to South Sudan over the past five years. WFP distributed an average of just over 91,000 MT food aid per year during calendar years 2007–11, peaking in 2010 (see the following table). During a field interview in Juba, WFP staff expressed the hope that emergency activities could convert to more transitional/development activities under a Protracted Relief and Recovery Operation (PRRO) over the next two years — contingent on improved in-country stability, development, and food security levels.

**Table 3. WFP Distributed Food Aid (MT) to South Sudan, Calendar Years 2007–11**

	2007	2008	2009	2010	2011	Total
Cereal	52,558	64,004	55,486	129,930	59,690	361,668
Pulse	5,705	6,904	6,071	14,037	6,728	39,445
Veg. Oil	4,014	5,163	5,486	7,962	4,480	27,105
Salt	1,175	1,348	1,288	2,867	1,135	7,813
Sugar	934	917	1,018	1,511	87	4,467
CSB+	4,271	3,406	3,691	1,509	1,966	14,843
Other	5	0	24	261	650	940
<b>Total</b>	<b>68,662</b>	<b>81,742</b>	<b>73,064</b>	<b>158,077</b>	<b>74,736</b>	<b>456,281</b>

Source: WFP/Juba.

Note: Tonnages are reported by calendar year.

WFP/South Sudan has an EMOP (Emergency Operations Program) that runs through December 2012. Its goal is to reach nearly 1.4 million beneficiaries through various targeted programs, focusing on (1) conflict-affected populations, including IDPs, refugees, and returnees, and (2) food-insecure residents.<sup>37</sup>

The US Government has contributed significant humanitarian assistance to Sudan from 2007–12, some of which has been channeled through WFP, as shown in Table 4 below. Please note, however, that the table tracks contributions for all of Sudan over the past five years; costs incurred for Darfur's continuing crisis would constitute a large percentage of overall aid levels for WFP. Also, the USG contribution includes actual food aid tonnages and associated administrative costs.

37 GoSS MAFCRD, Powerpoint Presentation June 28, 2012. Juba, South Sudan.

**Table 4. USG Contributions to WFP for All Programs in Sudan, Calendar Years 2007–12\***

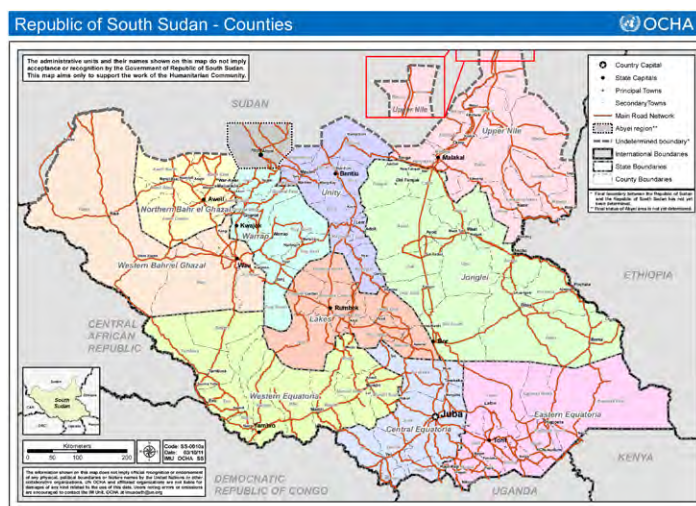
Year	2007	2008	2009	2010	2011	2012
Percentage of Overall Support	60%	56%	75%	65%	57%	60%

Source: WFP.

\*Note: For 2007–12, WFP/Juba was only able to track USG contributions for Sudan as a whole, and not into the separate categories of Sudan and South Sudan.

USAID has preliminarily targeted the region covering the three southern most states of South Sudan — Western Equatoria, Central Equatoria, and Eastern Equatoria — for potential Title II developmental food aid programming. The below map depicts all of South Sudan’s states.

**Figure 3. South Sudan State Map**



Source: OCHA, 2011.

The following table shows WFP food aid tonnage levels for Western Equatoria, Central Equatoria, and Eastern Equatoria in calendar year 2011. Western Equatoria received slightly more food aid than the other two states. Also, the tonnages for these three states are relatively small (25 percent of the total) compared with food aid levels in the other seven states of South Sudan in 2011. Specifically, as the table above shows, WFP distributed 74,736 MT in all 10 states in 2011, only 18,689 MT of which was distributed in these three states. This reflects relatively improved overall levels of stability, development, agricultural production, and food security in these three states. Exceptions to this generalization include northern and eastern counties in the drier parts of Eastern Equatoria and the southern counties of Central Equatoria.

**Table 5. WFP Distributed Food Aid (MT) to Western, Central and Eastern Equatoria States in South Sudan, Calendar Year 2011**

	Western Equatoria	Central Equatoria	Eastern Equatoria	Total
Cereal	6,605	4,985	3,921	15,511
Pulse	697	567	426	1,690
Veg. Oil	386	297	290	973
Salt	131	111	81	323
Sugar	0	2	4	6
CSB+	13	80	72	165
Other	0	21	0	21
<b>Total</b>	<b>7,832</b>	<b>6,042</b>	<b>4,815</b>	<b>18,689</b>

Source: WFP/Juba.

USAID/Juba has provisionally targeted the region covering these three states for additional Title II developmental programming. This USAID-BEST report will be complemented by FANTA-3’s<sup>38</sup> Food Security Country Framework (FSCF) report, which will focus on health, nutrition, and food security issues for this region and should be completed later in autumn 2012. Further analysis of food security levels, and agricultural surpluses/deficits for staple crops in the three Equatoria states and nationally for South Sudan, appear in the chapter of this report titled “Distributed Food Aid.”

**Development – WFP Purchase for Progress (P4P).** WFP’s P4P program has purchased 843 MT of maize and sorghum from smallholder farmers in the three states of Western, Central and Eastern Equatoria. These local purchases have occurred over the past three calendar years (2010–12), for distribution under WFP programming to other needy areas in the country. The P4P program is discussed in more detail in the chapter of this report titled “Local and Regional Procurement.”

### 2.2.6. National Government

The GoSS is committed to improve agricultural development, but funding and implementation of priority activities will be a significant challenge given the current operating environment. In late June 2012, the GoSS Ministry of Agriculture, Forestry, Cooperatives and Rural Development presented its Agriculture and Food Security Strategy.<sup>39</sup> The strategy aims to improve agricultural productivity, increase food security, reduce food dependency, and guarantee food for all by 2015.

During a follow-up interview in July 2012, the Minister of Agriculture was asked to identify the most pressing needs under this strategy for improving overall agricultural production in South Sudan. She stated that the country has many competing priorities, but the two most important agricultural priorities are: 1) feeder roads and 2) improved storage facilities to reduce post-harvest losses.<sup>40</sup>

38 The acronym “FANTA” means the Food and Nutrition Technical Assistance III Project, which is managed by FHI 360.

39 GOSS MAFCRD, June 28, 2012, PowerPoint presentation. Juba, South Sudan.

40 USAID-BEST field interview in Juba with Minister of Agriculture Achan, July 5, 2012.

As previously noted, the major oil pipelines running through South Sudan were shut down and the border with Sudan was closed in early 2012. As a result, South Sudan has lost significant oil export revenue. Before then, oil revenues made up an estimated 98 percent of GoSS revenues. Unless these revenues resume, agriculture and other sectors of the GoSS budget will likely remain underfunded in the current 2012/2013 fiscal year.

Also as a result of lost oil revenue, on July 1, 2012 the GoSS initiated a national austerity budget of 6.4 billion South Sudanese Pounds (approximately US\$2.17 billion), a 36 percent reduction from the previous fiscal year's budget. Under the new budget, 2012/2013 funding for the Ministry of Agriculture and Forestry is projected to be cut by 20 percent compared to the previous budget.

### 2.2.7. Other Major Donors

**DFID.** The United Kingdom's Department for International Development (DFID) plans to spend up to US\$157 million (equivalent to £100 million) over the next five years to improve food security in South Sudan. Planned activities target farmers, youths, and returnees: 1) to increase production and marketing of agricultural products in county towns, 2) to provide vocational training in county towns to support the market chain, and 3) to provide social protections for those without work in three states.<sup>41</sup> DFID's stated goal is to help 1 million South Sudanese by the end of the funding program cycle in 2015.<sup>42</sup>

**EU/ECHO.** The European Union (EU) and Humanitarian Aid and Civil Protection department of the European Commission (formerly known as the European Community Humanitarian Aid Office) (ECHO) provide development/emergency humanitarian assistance to South Sudan. In late 2011, the EU announced a commitment of €80 million for food security and rural development activities, to be further defined in 2012 as South Sudan's development needs are analyzed and clarified.<sup>43</sup> This aid also contributes to Phase 2 of the Food Security Information for Action in South Sudan (SIFSA),<sup>44</sup> which is expected to launch later in 2012, and is also funded by the UN's Food and Agriculture Organization (FAO). ECHO targets acute food insecurity in South Sudan, and ECHO's assistance in 2012 includes support to WFP's South Sudan Emergency Operation (EMOP), the FAO for the Food Security Cluster, and non-governmental organizations (NGOs) that primarily implement cash/seeds/tools interventions in the northern areas of South Sudan (for example, Malakal, Abyei, Warrap, Northern Bahr El Ghazal, and Jonglei).<sup>45</sup>

41 DFID, 2012, Country Program Profile, accessed via <http://www.dfid.gov.uk/Documents/publications/1/op/south-sudan-2011.pdf> and DFID Livelihoods Program in South Sudan, April 15, 2012 accessed via [www.rovingbandit.com](http://www.rovingbandit.com).

42 Programming includes food security and livelihoods activities under the Poverty, Hunger and Vulnerability Sector for DFID.

43 EU/ECHO, 2012, Country Program Profile. [www.ec.europa.eu/europeaid](http://www.ec.europa.eu/europeaid), accessed July 2012.

44 The SIFSA aims to build appropriate food security institutions, develop capacity in these same institutions, and provide aid to developing a GoSS National Food Security Action Plan.

45 Electronic correspondence with ECHO/South Sudan, August 2012.

**USAID/AGRA<sup>46</sup>/IFDC<sup>47</sup>/Netherlands.** This group supports the Seeds for Development Program (2011–13), which aims to improve food security by targeting South Sudanese smallholder farmers. The GoSS Ministry of Agriculture and Forestry developed the program to enhance the agricultural value chain by promoting and expanding: 1) the public seed sector, 2) investment from private seed companies, 3) the marketing of quality seed and improved varieties, 4) linkages to smallholder farmers, and 5) the development of an agro-dealer network.<sup>48</sup> These efforts are initially targeting the “Greenbelt” region of the three Equatoria states, and are expected to complement food security interventions from the USAID FARM (Food, Agribusiness and Rural Markets) Project and other donors.



Photo by Fintrac Inc.

Maize test plot, first harvest of the 2012 season. Maridi, South Sudan, July 2012.

46 The acronym “AGRA” means the Alliance for a Green Revolution in Africa.  
47 The acronym “IFDC” stands for the International Fertilizer Development Center.  
48 [www.ifdc.org](http://www.ifdc.org), under Projects, Current, Seeds for Development in South Sudan, and [www.usaid.gov](http://www.usaid.gov).



## CHAPTER 3: ADEQUACY OF PORTS, TRANSPORT, AND STORAGE

A damaged bridge from the war: Juba-Mundri road, South Sudan, July 2012.

Photo by Fintrac Inc.

### 3.1. INTRODUCTION

This Chapter provides an overview of the adequacy of ports, transport, and storage to inform a planned Title II development program in South Sudan. The ports section covers Mombasa, Djibouti, and Port Sudan. The transport section covers: (1) road, rail, river, and air links; (2) customs/taxes; and (3) the most commonly used routes. The storage section covers World Food Programme (WFP), Private Voluntary Organizations (PVO), and private and national government storage capacity. The map in Figure 4 illustrates the most important ports and transport routes for South Sudan.

**Summary of findings.** Title II Awardees are currently able to transport and store food aid in South Sudan. WFP provides up-to-date information on the country's changing transport conditions, which deteriorate significantly during the rainy season. In addition to weather hazards, efficient transport of goods is impeded by customs procedures that need to be standardized, and the officially closed border with Sudan (closed in early 2012 and still closed as of late August 2012).<sup>49</sup>

As of July 2012, the Port of Mombasa is the preferred port of entry for food aid for most of South Sudan, except for the northeastern region of the country. For the northeastern region,

<sup>49</sup> USAID-BEST field visit to Nimule in July 2012 determined that current customs tariffs at GoSS international border points for various goods still need to be standardized and formalized, and generally do not follow standard international tariff classifications. Crown Agents (UK) is currently working with the GoSS to standardize and simplify their tariff implementation for imports/exports.

the Port of Djibouti is the preferred port of entry for food aid, especially for Upper Nile state and parts of Unity and Jonglei states. As of July 2012, WFP/South Sudan estimated that roughly 75 percent of its food aid for South Sudan enters through the Port of Mombasa, and 25 percent enters through the Port of Djibouti.<sup>50</sup> However, this distribution can easily change depending on quickly evolving humanitarian needs and changes in transport corridors within the country.

**Figure 4. South Sudan: Ports and Regional Transport Network**



Source: Created by USAID-BEST using GIST/USAID data.

<sup>50</sup> USAID-BEST field interview with WFP/South Sudan in Juba, July 4, 2012.

From Mombasa, WFP and PVOs have found that the route through Uganda, which crosses through the border at Nimule, is the most reliable. Transport along this route can be delayed because of seasonal transport demands and, at times, high costs. However, WFP and PVOs have tried other alternatives (for example, through Port Sudan, through the Port of Djibouti, or across other border points), and none have proved more reliable than the Mombasa-Nimule route for most points within the country. In-country transport by river has become more popular in recent months to partially compensate for the closed border between Sudan and South Sudan, and is especially useful during this current 2012 rainy season of June-October.

### 3.2. PORTS

The Port of Mombasa is the preferred port for most food aid shipped to South Sudan at present. However, WFP and PVOs use the Port of Djibouti as the port of choice for food aid to northeastern South Sudan, especially for Upper Nile state.

A comparison of Mombasa with Djibouti reveals that despite potential delays attributable primarily to seasonal congestion, Mombasa is still the preferred port over Djibouti for cargo destined to most points within South Sudan. More specifically:

- Mombasa is larger, easier to reach, and offers more secure transport.
- Mombasa has significantly better road conditions and is less impacted by the rainy season.
- WFP has a regional office in Mombasa, which offers an advantage for the organization and its partners.
- Although the Djibouti port has been considered to be more efficient than the Mombasa port<sup>51</sup> (and is in the process of undergoing major upgrades that would make Djibouti's port even more efficient in coming years),<sup>52</sup> road transit from Djibouti to South Sudan is much less efficient and less secure than transit from Mombasa.

The following map illustrates the major transport networks from Mombasa to Port Sudan (including the Djibouti corridor). The official closure of the border between Sudan and South Sudan in early 2012 has strongly impacted transport networks for both countries.

**Figure 5. Mombasa to Port Sudan Transport Network, February 2012**



Source: WFP, 2012, Logistics Capacity Assessment, Republic of South Sudan, p. 88.

#### 3.2.1. The Port of Mombasa

**Introduction.** The Port of Mombasa is a large, modern port which handled 19.6 million MT and 777,000 TEUs<sup>53</sup> in 2011.<sup>54</sup> The port has increased operations in recent years; container throughput increased by 12.5 percent in 2011, and total tonnage increased by 3.5 percent from 2010 levels.<sup>55</sup> According to a recent Kenya Port Authority handbook, the average container dwell time at the port has been reduced from 14.7 days (2007) to 5.7 days.<sup>56</sup> However, free storage time for transit containerized cargo has recently been reduced from 11 to 9 days.<sup>57</sup>

The Port of Mombasa handles cargo for many neighboring countries. Uganda currently accounts for about 80 percent of cargo, followed by the DR Congo (8 percent).<sup>58</sup>

51 Trademark East Africa, 2012, *TradeMark East Africa Hosts Its First Corporate Dinner*. <http://www.trademarka.com/site/default.asp?000=1&001=23&003=news&004=842>, accessed June 2012

52 Business Live, 2012, *Djibouti Finalising Finances for New Ports*. <http://www.businesslive.co.za/africa/2012/03/14/djibouti-finalising-finances-for-new-ports>, accessed June 2012.

53 "TEU" means "twenty-foot equivalent unit," a measure used for capacity in container transportation.

54 Kenya Ports Authority, 2012, *Kenya Ports Authority Handbook: 2012–2013*.

55 Kenya Ports Authority, 2012, *Kenya Ports Authority Handbook: 2012–2013*.

56 Kenya Ports Authority, 2012, *Kenya Ports Authority Handbook: 2012–2013* and WFP, January 2012, LCA.

57 WFP, 2012, *Mombasa Port Snapshot*.

58 Kenya Ports Authority, 2012, *Kenya Ports Authority Handbook: 2012–2013*.

South Sudan is the fastest-growing destination for imports handled at the Port of Mombasa.<sup>59</sup>The port handles about 223,000 MT of cargo (mostly imports) for South Sudan per year.<sup>60</sup>

In recent years, the port has handled significant humanitarian aid shipments. Mombasa handles 350,000–700,000 MT of aid cargo per year, most of which is bulk cereals, blended foods, pulses, and vegetable oil.<sup>61</sup> Mombasa also receives 6,000–10,000 TEUs of aid shipments that consist mainly of high-energy biscuits and blended foods.<sup>62</sup>

WFP works closely with port authorities to receive shipments destined for South Sudan, the DR Congo, Uganda, Rwanda, and Kenya.<sup>63</sup> According to a recent handbook published by the Kenya Ports Authority, WFP has discussed the possibility of building its own terminal at Mombasa port. This would be dedicated to handling humanitarian aid, but is still in the planning phase. Overall, WFP continues to rely heavily on the Mombasa port facilities for regional programming, despite the reported delays and trucking shortages from the port.<sup>64</sup>



Photo by Fintrac Inc.

A common, cheap mode of transportation in an area where gas costs about US\$2/liter, 50 percent more than in Juba. Yambio, South Sudan, July 2012.

59 Kenya Ports Authority, 2012, Kenya Ports Authority Handbook: 2012–2013.

60 Kenya Ports Authority, 2012, Kenya Ports Authority Handbook: 2012–2013.

61 Kenya Ports Authority, 2012, Kenya Ports Authority Handbook: 2012–2013.

62 Kenya Ports Authority, 2012, Kenya Ports Authority Handbook: 2012–2013.

63 Kenya Ports Authority, 2012, Kenya Ports Authority Handbook: 2012–2013.

64 WFP, 2012. South Sudan Logistics Cluster Situation Update: February 2012.

**Specifications.** The port has two harbors, 18 berths, and 3,044 meters of deep-water quays. It has modern equipment, including traveling cranes (5–20 MT capacity each), electric portal cranes, mobile cranes, forklift trucks, reach stackers, and cold storage.<sup>65,66</sup>

Containerized cargo currently accounts for roughly 1/3 of all traffic at the port.<sup>67</sup> Berths 16–18 are reserved for container shipments, and cover a total length of 600 meters.<sup>68</sup> The containerized cargo terminal is owned and managed by Bolloré Group. Equipment at these berths includes rail-mounted ship-to-shore gantry cranes, rail-mounted gantry cranes, rubber tire gantry cranes, and mobile yard cranes. Bolloré Group also owns container stacking areas and warehouses at the port.<sup>69</sup> The port has an average discharge rate of 14 containers per hour.<sup>70</sup>

Port authorities are currently constructing a 19th berth, which will also receive containers.<sup>71</sup> Once this upgrade is completed (expected in 2013), the container terminal will be a total of 760 meters in length, which will allow for three mid-sized container ships to berth simultaneously.<sup>72</sup>

Grain Bulk Handlers Limited, a large private Kenyan company, owns and operates the port's grain terminal. The terminal can discharge a Panamax vessel<sup>73</sup> at a rate of 900 MT per hour. MacKenzie Maritime Limited, a subsidiary of Grain Bulk Handlers, manages transport from the Port of Mombasa to inland destinations. The company's services include clearing, forwarding, and storage along inland routes. The port's bulk discharge rate is up to 4,000 MT per ship, per day; break bulk discharge rate is 1,500–2,000 MT per ship per day.<sup>74</sup> The bulk cargo bagging plant has an average discharge rate of 2,500 MT per day.<sup>75</sup>

The Mombasa port also has storage available; including transit sheds, inland container storage depots, open storage space, and recently constructed off-port container freight stations. Although these off-port stations are not available for transit cargo, they do reduce traffic for all cargo coming through the port. As of August 2012, WFP rents roughly 82,000 MT of primarily commercial storage in and around the port.<sup>76</sup>

65 Kenya Ports Authority, 2012, Kenya Ports Authority Handbook: 2012–2013.

66 WFP, 2012, Mombasa Port Snapshot.

67 Kenya Ports Authority, 2012, Kenya Ports Authority Handbook: 2012–2013.

68 Kenya Ports Authority, 2012, Kenya Ports Authority Handbook: 2012–2013.

69 Kenya Ports Authority, 2012. Kenya Ports Authority Handbook: 2012–2013.

70 WFP, 2012, Mombasa Port Snapshot.

71 Kenya Ports Authority, 2012. Kenya Ports Authority Handbook: 2012–2013.

72 Kenya Ports Authority, 2012. Kenya Ports Authority Handbook: 2012–2013.

73 Panamax is a term denoting size limits for ships traveling through the Canal. A Panamax cargo ship would typically have a deadweight tonnage of 65,000–80,000 tons, but its maximum cargo would be about 52,500 tons during a transit due to draft limitations in the Canal.

74 WFP, 2012, Mombasa Port Snapshot

75 WFP, 2012, Mombasa Port Snapshot

76 WFP/Mombasa reports that, as of August 2012, 15,000 MT of storage is rented from Kenya Ports Authority within Mombasa port, and an additional 67,000 MT of storage is rented from commercial owners just outside the port.

According to the Kenya Ports Authority 2012–2013 handbook, the Port of Mombasa expects many upgrades in the coming years. Of particular note is the planned construction of a mega port in Lamu (northern Kenya), which could open up a new transport corridor across the region to Ethiopia, South Sudan, and countries farther west. A development plan has already been drafted, and construction is expected to begin later in 2012. Port authorities are also working with neighboring countries to construct a standard gauge railway in the region.

### 3.2.2. The Port of Djibouti

The Port of Djibouti mainly serves Ethiopia, but is also a transshipment point for neighboring countries. The port has a total quay length of 3,219 meters;<sup>77</sup> it can handle 6–8 million MT of general cargo per year and 3 million MT of containerized cargo per year.<sup>78</sup> In 2011, the port handled 705,000 TEUs<sup>79</sup> and 4.5 million MT of non-containerized cargo.<sup>80</sup>

The Port of Djibouti became privately owned by Dubai Ports World in 2000. The nearby Doraleh container terminal is jointly owned by the Government of Djibouti and Dubai Ports World. WFP is also planning an expanded logistics hub in Djibouti in 2012/13.<sup>81</sup>

**Specifications.** The port has 15 berths. Berths 14 and 15 handle bulk cargo, and have an average discharge rate of roughly 3,000–6,000 MT per day, depending on whether one or multiple vessels are being unloaded.<sup>82</sup> Berths 1 and 2 are available for containerized cargo, but mostly handle roll-on, roll-off cargo.<sup>83</sup>

Containerized cargo is mainly handled at the Doraleh container terminal, which is 11 km south of the port.<sup>84</sup> This terminal has 3 berths, a total area of 31 ha (hectares),<sup>85</sup> and a total quay length of 1,050 meters.<sup>86</sup> It can handle 1.2 million TEUs and has 6

Super-Post Panamax<sup>87</sup> quay cranes available. The port's average discharge rate for containerized cargo is 33 lifts per hour per crane.<sup>88</sup> Dubai Ports World plans to expand the terminal by adding a new quay, which would increase its capacity to 3 million TEUs per year. The company will accept bids for the project at the end of 2012, and construction is expected to be complete by 2015.<sup>89</sup>

The Port of Djibouti has storage available, including concrete warehouses (6,000 MT), mobile storage units (5,000 MT), bulk flat silos (70,000 MT), and open area storage.<sup>90</sup> The port is equipped with regular cranes, gantry cranes, mobile cranes, forklifts, reach stackers, forklift trucks, tractors, pilot boats, and tug boats.<sup>91</sup>

Port authorities expect that cargo traffic for South Sudan in 2012 will total 6.5 million MT, and expect that the Port of Djibouti will be able to handle 70 percent of this cargo by the end of the year.<sup>92</sup> The Ethiopia USAID-BEST report from 2010 also provides further background on Djibouti's port operations overall, and potential conflicts there for various cargo and expected seasonality flows.<sup>93</sup>



Photo by Fintrac Inc.

Road where landmines can still be a hazard for farmers. Between Juba and Mundri, South Sudan, July 2012.

77 WFP, 2007, Djibouti Port page. [http://www.logcluster.org/mobile/ops/horn-africa/djibouti/sea/copy\\_of\\_index\\_html](http://www.logcluster.org/mobile/ops/horn-africa/djibouti/sea/copy_of_index_html), accessed June 2012.

78 WFP, 2007, Djibouti Port page. [http://www.logcluster.org/mobile/ops/horn-africa/djibouti/sea/copy\\_of\\_index\\_html](http://www.logcluster.org/mobile/ops/horn-africa/djibouti/sea/copy_of_index_html), accessed June 2012.

79 Business Live, 2012, *Djibouti Finalising Finances for New Ports*. <http://www.businesslive.co.za/africa/2012/03/14/djibouti-finalising-finances-for-new-ports>, accessed June 2012.

80 Figure is estimated for 2011. Source: Capital Ethiopia. Djibouti believes in Ethiopia's growth. December 14, 2011. [http://www.capitalethiopia.com/index.php?option=com\\_content&view=article&id=126:djibouti-believes-in-ethiopia-growth&catid=35:capital&Itemid=27](http://www.capitalethiopia.com/index.php?option=com_content&view=article&id=126:djibouti-believes-in-ethiopia-growth&catid=35:capital&Itemid=27) (accessed July 2012).

81 Djibouti Port and Free Zones Authority, 2012, Djibouti Business Hub: Infrastructure and Investment of Ports and Free Zones, PowerPoint presentation.

82 WFP, 2012, Djibouti Port Snapshot and [www.logcluster.org](http://www.logcluster.org) for "Djibouti port".

83 WFP, 2012, Djibouti Port Snapshot.

84 DP World, 2012, Djibouti-Doraleh. [https://webapps.dpworld.com/portal/page/portal/DP\\_WORLD\\_WEBSITE/Marine-Terminals/Locations/Middle-East-Europe-and-Africa/Africa-Overview/Djibouti-Doraleh](https://webapps.dpworld.com/portal/page/portal/DP_WORLD_WEBSITE/Marine-Terminals/Locations/Middle-East-Europe-and-Africa/Africa-Overview/Djibouti-Doraleh), accessed June 2012.

85 DP World, 2012, Djibouti-Doraleh. [https://webapps.dpworld.com/portal/page/portal/DP\\_WORLD\\_WEBSITE/Marine-Terminals/Locations/Middle-East-Europe-and-Africa/Africa-Overview/Djibouti-Doraleh](https://webapps.dpworld.com/portal/page/portal/DP_WORLD_WEBSITE/Marine-Terminals/Locations/Middle-East-Europe-and-Africa/Africa-Overview/Djibouti-Doraleh), accessed June 2012.

86 WFP, 2012, Djibouti Port Snapshot.

87 Super-Post Panamax cranes are the largest modern container cranes and can handle vessels about 22 or more containers wide.

88 WFP, 2012, Djibouti Port Snapshot.

89 Bloomberg, March 12, 2012, *Djibouti to Double Capacity at Doraleh Container Terminal*. <http://www.bloomberg.com/news/2012-03-12/djibouti-to-double-capacity-at-doraleh-container-terminal-1-.html>, accessed August 2012.

90 WFP, 2012, Djibouti Port Snapshot.

91 WFP, 2012, Djibouti Port Snapshot.

92 Business Live, 2012, *Djibouti Finalising Finances for New Ports*. <http://www.businesslive.co.za/africa/2012/03/14/djibouti-finalising-finances-for-new-ports>, accessed June 2012.

93 Please see [http://transition.usaid.gov/our\\_work/humanitarian\\_assistance/ffp/fy2011.ethiopiabest.pdf](http://transition.usaid.gov/our_work/humanitarian_assistance/ffp/fy2011.ethiopiabest.pdf).



### 3.2.3. Port Sudan

In coming years, Port Sudan could become a receiving port for food aid shipments. However, the border between South Sudan and Sudan has been closed since early 2012, and therefore the port is currently not available for goods destined for South Sudan.

If Sudan-South Sudan relations improve enough to re-open the border and allow use of Port Sudan, shipments to South Sudan (primarily its northern areas) could become much easier. However, both WFP and PVOs have stated that even if the border Sudan and South Sudan were re-opened, Mombasa—because of its better overall transport links—would still be the preferred port of entry for food aid targeting the Equatorias.

With respect to the port itself, Port Sudan has a dedicated container terminal.<sup>94</sup> It has 17 berths<sup>95</sup> and three main areas: the Green Port, the North Port, and the South Gate. The South Gate area receives containers.<sup>96</sup> The port has a discharge rate of 300 containers per crane, per day. For cargo destined for bagging, Port Sudan can offload about 2,000 MT per day. For cargo destined for silos, the port can offload 6,000 MT per day.<sup>97</sup>

In the past, WFP had a positive working relationship with the Sudanese port authorities, which allowed for the smooth importation of food aid.<sup>98</sup> In fact, WFP relied on Port Sudan to receive considerable amounts of food aid destined for Darfur, Ethiopia, and other points within Sudan, and as recently as 2010 considered Port Sudan a viable alternative to Djibouti.<sup>99</sup> At present (as reported in July 2012), however, WFP uses Port Sudan only for Sudan programming, and not for South Sudan.<sup>100</sup>

### 3.2.4. Port and Handling Costs

A 2010 study compared the costs of handling WFP food aid at Djibouti, Mombasa, and Port Sudan. According to the study, the cost of bringing in bulk cargo to Djibouti is higher than Port Sudan and Mombasa; the cost (in US dollars) of bringing break bulk cargo is most expensive at Port Sudan. (See the following table.)

**Table 6. 2010 Cost Comparison of Ports Handling WFP Food Aid**

Port	Bulk Cargo/MT	Break Bulk Cargo/MT
Djibouti	US\$19.70	US\$12.10
Mombasa	US\$16.79	US\$7.30
Port Sudan	US\$19.00	US\$19.00

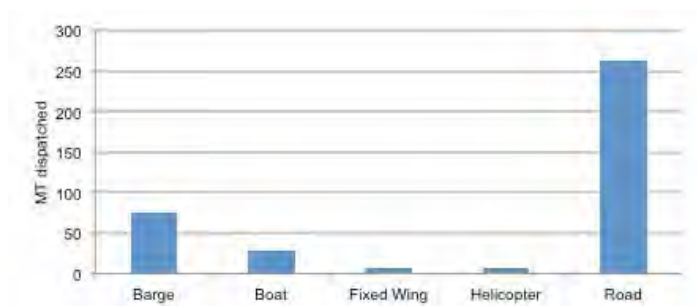
Source: WFP/Ethiopia, as cited in Kim, 2010. WFP Supply Chain Capacity in Ethiopia.

## 3.3. TRANSPORT

In early 2012, the border between South Sudan and Sudan was closed. This corridor once handled large volumes of food aid (up to 90 percent of WFP's food aid for Sudan pre-2011), and therefore donors have been compelled to explore alternative routes.<sup>101</sup> As noted earlier, the most common route at present is from the Port of Mombasa, through Uganda, and into South Sudan.

At present, most food aid shipments are transported by road, though river transport is increasingly utilized as a safer and more cost-effective option. As the following figure shows, in May 2012 (during the rainy season), road transport remained the most dominant WFP transport mode, but barge and boat transport accounted for a significant transport share.

**Figure 6. WFP Dispatched Cargo by Mode of Transport (MT), May 2012**



Source: WFP Logistics Cluster Situation Update: May 2012.

The most common constraints hampering in-country transport are poor infrastructure, heavy rainfall, and fuel shortages, all of which are most prominent in the northern half of the country.

94 WFP, n.d., *Logistics Overview: Sudan*. <http://logistics.wfp.org/country-operations/africa/north/sudan>, accessed June 2012.

95 Kim, Christina and Singha, Javed, June 2010, WFP Supply Chain Capacity in Ethiopia: An Analysis of its Sufficiency, Constraints & Impact.

96 Scoop/Wikileaks, 2009, *Cablegate: Port Sudan As Potential Logistical Solution for Regional*. <http://www.scoop.co.nz/stories/WL0912/S01166.htm>, accessed June 2012.

97 Kim, Christina and Singha, Javed, June 2010, WFP Supply Chain Capacity in Ethiopia: An Analysis of its Sufficiency, Constraints & Impact.

98 Scoop/Wikileaks, 2009, *Cablegate: Port Sudan As Potential Logistical Solution for Regional*. <http://www.scoop.co.nz/stories/WL0912/S01166.htm>, accessed June 2012.

99 Scoop/Wikileaks, 2009, *Cablegate: Port Sudan As Potential Logistical Solution for Regional*. <http://www.scoop.co.nz/stories/WL0912/S01166.htm>, accessed June 2012.

100 ADRA received Title II food commodities at Port Sudan for its MYAP in 2010/11 which were destined for delivery sites in Northern Bahr El Ghazal and Warrap States. These commodities were significantly delayed by the Khartoum government.

101 WFP, 2012, South Sudan Logistics Cluster Situation Update: February 2012.

### 3.3.1. Road

South Sudan has about 10,000 km of roads. As of early 2012, WFP estimated that 100 km of the country's roads were paved, which does not include the recently paved, nearly 200 km-long Juba-Nimule border road.<sup>102</sup> PVOs prefer to use road transport from Mombasa port, and to use both road and river transit in-country.

According to WFP's 2011 Logistics Capacity Assessment, the country's roads cannot be differentiated into primary and secondary roads. In the dry season, the road system between Rumbek and Juba, as well as from Rumbek to Wau/Awiel, is considered passable; and the country's overall network is considered adequate.<sup>103</sup> However, during the rainy season about half of the country's roads—located mostly in country's northern half<sup>104</sup>—are considered completely impassable.<sup>105</sup>

During the rainy season, rental trucks are not always available, and when they are, rental costs can increase significantly.<sup>106</sup> For example, a recent IFDC survey calculated transportation costs for "good" trunk roads at US\$0.70/MT/km and for poorer feeder roads at US\$1.50/MT/km.<sup>107</sup> To reduce (or completely halt) reliance on roads during the rainy season, PVOs utilize river transport (described below), and/or pre-positioned, increased stocks in warehouses during the months before the rainy season begins.<sup>108</sup>

The Nimule border crossing is the main route for importing goods by road into South Sudan.<sup>109</sup> Trucks most commonly carry 25 MT each at full capacity, and the next most common loads are 15 MT. The USAID-BEST field team visited the Nimule border crossing, and reported that fresh goods and cereals can typically be cleared for crossing—that is, paperwork processed and taxes paid—within three hours of arrival. However, clearance for dry goods that are less time-sensitive can take from a few days to one week.<sup>110</sup>

Similar to the potential delays faced at the Nimule border crossing, delays at checkpoints along South Sudan's internal routes can also occur<sup>111</sup>. These delays were thoroughly detailed

<sup>102</sup> WFP, 2012, Logistics Cluster Situation Update: April, 2012; the Juba-Nimule road upgrade was funded by USAID.

<sup>103</sup> WFP, 2011, Logistics Capacity Assessment: Southern Sudan.

<sup>104</sup> WFP, 2011, Logistics Capacity Assessment: Southern Sudan.

<sup>105</sup> WFP, 2011, Logistics Capacity Assessment: Southern Sudan.

<sup>106</sup> WFP, 2011, Logistics Capacity Assessment: Southern Sudan. CRS/South Sudan correspondence; WFP presented the example in 2012 of trucking costs increasing 250% for transport to Upper Nile State.

<sup>107</sup> IFDC survey, as quoted by USAID/Juba, and generally validated by WFP/Juba logistics staff; an example of good road would be Juba to Yei or Yei to Yambio and an example of a feeder road would be Yei to Kajo Keji or Torit to Ikotos.

<sup>108</sup> CRS reported this strategy of pre-positioning for its JFSP in Jonglei State.

<sup>109</sup> WFP, 2011, Logistics Capacity Assessment: South Sudan; previously Lokichokio and Kaya at different times over the past 3 decades have been the main border crossings for goods from Uganda/Kenya.

<sup>110</sup> USAID-BEST field visit to Nimule undertaken on July 16, 2012.

<sup>111</sup> WFP, 2012, Logistics Cluster Situation Update: April, 2012.

in the August 2011 National Bureau of Statistics' "South Sudan Cost-to-Market Report." However, checkpoints have decreased significantly since the report was issued; during its field visit in July 2012, the USAID-BEST team reported minimal checkpoints or transport blockages on roads in the Equatorias.

WFP typically uses 20–30 MT trucks. South Sudan has no restrictions on truck weight, but PVOs transporting food aid through Mombasa or the Nimule border crossing should be aware of truck regulations in Uganda and Kenya.<sup>112</sup> Most Nimule-based transport companies are Ugandan- or Kenyan-owned.<sup>113</sup> Travel time by road from the Port of Mombasa to Juba is estimated at about one week.

The UN is currently undertaking road, bridge, and airstrip construction in Upper Nile. The UN is also conducting a road assessment along the Malakal to Jamam/Doro route (both towns are located in the eastern region of Upper Nile) to respond to significant refugee flows from earlier in 2012.<sup>114</sup> Depending on these evolving developments, preferred routes may shift in the near future.

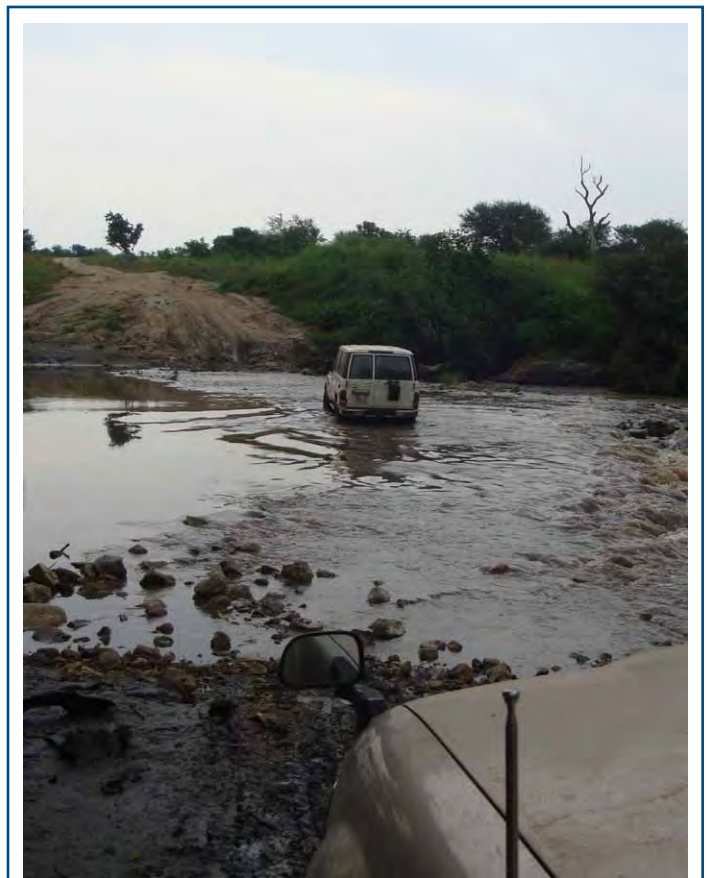


Photo by Fintrac Inc.

Road made poor by the rainy season. Central Equatoria, South Sudan, July 2012.

<sup>112</sup> WFP, 2011, Logistics Capacity Assessment: Southern Sudan.

<sup>113</sup> USAID-BEST field visit to Nimule undertaken on July 16, 2012.

<sup>114</sup> WFP, 2012, Logistics Cluster Meeting Notes: June 12, 2012.

### 3.3.2. Rail

Rail transport in South Sudan is not an option at present. About 150 km of railway exist in the northern part of the country (traveling from Wau north to Kordofan, Sudan), but operations are currently suspended because of the closed border between Sudan and South Sudan.<sup>115</sup> Food aid is rarely transported by rail from the port at Mombasa through Kenya. According to the Kenya Ports Authority, rail transit accounts for less than 4 percent of freight transported to or from Mombasa.<sup>116</sup> However, WFP was recently forced to use rail transport from Mombasa to Uganda, due to truck shortages at the port.<sup>117</sup>



Photo by Fintrac Inc.

A basic, portable truss “Bailey bridge” found throughout South Sudan. Yei-Kajo Keji Road, South Sudan, July 2012.

### 3.3.3. River

As stated earlier, during the rainy season (generally April–October), road conditions in South Sudan significantly deteriorate. Roads between central and southern South Sudan are almost completely impassable. During the rainy season, PVOs can utilize the country’s 1,463 km of navigable water along the White Nile River, and other main rivers.<sup>118</sup> The tributaries along the White Nile allow expanded access to more distant communities, but these smaller routes may be difficult to access or navigate depending on water hyacinth and water levels, and transport prices may fluctuate significantly depending on the time of year and security conditions.<sup>119</sup> Main ports along the White Nile include Juba, Mangalla, Bor, Shambi, Malakal, and Renk.<sup>120</sup>

<sup>115</sup> WFP, 2011, Logistics Capacity Assessment: Southern Sudan, and USAID/MSI staff.

<sup>116</sup> Kenya Ports Authority, 2012, Kenya Ports Authority Handbook: 2012–2013.

<sup>117</sup> WFP, 2012, South Sudan Logistics Cluster Situation Update: February 2012.

<sup>118</sup> WFP, 2011, Logistics Capacity Assessment: Southern Sudan.

<sup>119</sup> WFP, 2011, Logistics Capacity Assessment: Southern Sudan; WFP additionally reports that river transport in certain remote areas can be as high as US\$600–800 for distances of 150–200 kms.

<sup>120</sup> WFP, 2011, Logistics Capacity Assessment: Southern Sudan.

The water transport sector is privatized and competitive, and companies have taken measures to advance the sector in recent years. Some companies offer GPS, closed circuit television, and mechanized handling systems, all of which improve PVOs’ ability to track and monitor shipments.<sup>121</sup>

WFP can also use barges, depending on the season and the proximity to navigable rivers for distribution sites for food, trucks and other items.<sup>122</sup> For example, WFP typically can transport 3,000 MT of food per month by barge in the rainy season, but only 500–1,000 MT of food per month during the dry season.

In addition to seasonal fluctuations in capacity, other factors limit the use of barges:

- Barge traffic between Sudan and South has declined because of the border closing in early 2012.
- Barge transport is primarily used in West Nile, but even there, traffic has actually decreased because over the past year, the Djibouti corridor<sup>123</sup> has been used to transport refugees in Upper Nile and neighboring areas.

Overall, therefore, barge traffic only accounts for a very small proportion of goods transported by WFP.

Potential Awardees are encouraged to determine the most efficient and cost-effective routes to deliver food aid, depending on the routes, quantities, time of year, and other variable factors. Valuable “lessons learned” can also be obtained from current and past MYAP holders and WFP.

### 3.3.4. Air

WFP can use helicopters to transport non-food items (NFIs), such as medical supplies and fuel, for specific needs. For example, Mi-8 helicopters typically carry between 3–6 MT of goods, and have been used for recent deliveries of food aid and NFIs to Yida refugee camp in Unity state and Maban refugee camp in Upper Nile state.<sup>124</sup>

WFP also initiated air drops in Maban County, Upper Nile state in mid-August 2012. The first airdrop, from Gambella, Ethiopia, consisted of 32 MT of wheat, and was made because muddy conditions on the ground precluded other transport options. WFP expects to make additional air drops in 2012 to meet emergency needs in both Upper Nile and Unity states (for example, Yida refugee camp).<sup>125</sup>

<sup>121</sup> WFP, 2011, Logistics Capacity Assessment: Southern Sudan.

<sup>122</sup> USAID-BEST field interview with WFP/Juba, July 4, 2012.

<sup>123</sup> Generally, according to USAID/MSI staff, the Djibouti corridor is practical for moving goods to Upper Nile and neighboring areas only during the dry season.

<sup>124</sup> USAID/OFDA field operations guide, WFP/Juba email correspondence with Logistics Head.

<sup>125</sup> WFP, August 16, 2012, Air Drops Underway For Refugees In South Sudan. [www.wfp.org/stories/air-drops-underway-refugees-south-sudan](http://www.wfp.org/stories/air-drops-underway-refugees-south-sudan), accessed August 28, 2012.

### 3.4. CUSTOMS AND TAXES

The GoSS recently updated customs procedures, and aims to simplify the taxing system. PVOs seeking tax exemption must obtain signed clearance from the Deputy Minister of Finance.<sup>126</sup> Still, PVOs face delays at the border (with PVOs reportedly encountering more delays than WFP). As of April 2012, WFP and the United Nations Office for the Coordination of Humanitarian Affairs (UNOCHA) were seeking GoSS clarification on tax exemption, tariff standardization (international or not-yet-determined GoSS rates), and customs requirements.<sup>127</sup>

### 3.5. MOST COMMONLY USED TRANSPORT ROUTES

As stated earlier, most PVOs (as well as the private sector) rely on Mombasa for transporting food aid. From the Port of Mombasa, cargo is typically transported through Nairobi to Tororo and then Gulu, Uganda. Next, cargo travels across the Uganda/South Sudan border at Nimule, and on to Juba.<sup>128</sup> Transporters once relied more heavily on a route through the Kenya/Sudanese border (at Lokichokio), but uncertain road conditions and unpredictable security on both sides of the border have rendered this route less reliable in recent years.<sup>129</sup>

Although the Kenya-Uganda overland route is preferred at present, PVOs still face a number of obstacles along the way. For example:

- As noted earlier, because truck availability at Mombasa is limited, delays might ensue.
- Truckers passing through the Uganda/South Sudan border at Nimule may encounter corrupt customs agents.<sup>130</sup>
- Trucks entering and leaving Juba may be delayed when crossing the Gumbo Bridge, which has a 45 MT maximum truck capacity.<sup>131</sup>

Given the challenges along the Mombasa-Nairobi-Gulu-Nimule route, PVOs have tried other routes in recent months. Some transporters may cross through South Sudan's Kaya border with Uganda, farther west, but the Nimule route is still by far the most-preferred route by truckers, especially since the nearly 200 km road on the South Sudan side of the border with Uganda has recently been paved.

As previously mentioned, food aid targeting Upper Nile state and parts of Unity and Jonglei can be best accessed through Djibouti port. Commodities from Djibouti port are first transported by road through Ethiopia to Gambella. During the rainy season, water transport can then be used between Gambella in western Ethiopia to Malakal along the White Nile, and Akobo, near the confluence of the Pibor and Akobo Rivers. Road deliveries from Gambella to points within South Sudan are feasible only during the dry season. In 2012, WFP successfully pre-positioned over 25,000 MT of food aid via this road network for expected needs later in 2012 for northeastern South Sudan.<sup>132</sup>

In early 2011, WFP claimed that the most cost-effective route (though not the fastest route) for food aid destined for certain points in South Sudan (at the time, southern Sudan) was from Port Sudan, through Kosti and Rabak, and then via river transport. This route was recommended mostly when shipments were not time-sensitive (because the journey took longer than other routes) and during the dry season, when roads were in good condition.<sup>133</sup> Although this route is not available at present, if the border between the two countries re-opens, it should be considered as an option.

**Figure 7. South Sudan Transport Constraints, September 2012**



Source: UN Logistics Cluster/South Sudan

<sup>126</sup> WFP, 2012, Logistics Cluster Situation Update: April, 2012.

<sup>127</sup> WFP, 2012, Logistics Cluster Situation Update: April, 2012, and Crown Agents are also working with the GoSS on these tariff standardization issues.

<sup>128</sup> WFP, 2011, Logistics Capacity Assessment: Southern Sudan.

<sup>129</sup> WFP, 2011, Logistics Capacity Assessment: Southern Sudan.

<sup>130</sup> AllAfrica, June 14, 2012, Uganda: Police Deploy at Uganda-South Sudan Border. <http://allafrica.com/stories/201206150141.html> accessed August 28, 2012.

<sup>131</sup> WFP, 2011, Logistics Capacity Assessment: Southern Sudan.

<sup>132</sup> WFP/Juba Logistics Head email correspondence, July 2012.

<sup>133</sup> WFP, 2011, Logistics Capacity Assessment: Southern Sudan.





## CHAPTER 4: LOCALIZED FOOD DEFICITS AND DISTRIBUTED FOOD AID

Sorghum, maize, and groundnuts for sale in a retail market. Kajo Keji, South Sudan, July 2012.

Photo by Fintrac Inc.

### 4.1. INTRODUCTION

The Bellmon Amendment requires assurances that a proposed food aid distribution program will not result in a substantial disincentive to or interference with domestic production or marketing in a recipient country. The extent to which distributed food aid has the potential to have these adverse effects rests fundamentally on whether food aid represents “additional consumption” for beneficiary households (that is, food consumption that would not have occurred in the absence of the food aid distribution program). If food aid transfers exceed households’ perceived needs, the beneficiary is more likely to sell or trade the food aid, reduce market purchases of food, and/or increase household farm produce sales. Such a response could lower market prices and/or reduce local incentives for production or marketing.

This Chapter examines national and localized food deficits, the capacity of the private market to respond to those deficits, and implications for planned Title II development program in the Equatorias region. The chapter concludes with a series of key recommendations to ensure distributed food aid programs will not disrupt local markets, including geographic, seasonal, and household/individual targeting; potential activities; and commodity selection.

### AWARDEE RESPONSIBILITIES

In addition to considering the analysis and recommendations in this Chapter, awardees are expected to conduct their own up-to-date market analysis, needs assessments, and formative research to better understand evolving local market conditions, needs, and the potential range of appropriate responses in South Sudan.

This Chapter presents:

1. An overview of available evidence of cereal deficits at the national, state, and local levels in South Sudan.
2. An analysis of the private sector’s capacity to meet demand in local deficit areas through market local and imported cereals. Key considerations for distributed food aid in South Sudan, including geographic, seasonal, and household/individual targeting; programming activities (for example, Food for Asset (FFA), Food for Work (FFW), Maternal, Child Health and Nutrition (MCHN)), and commodity selection.

USAID requested that the USAID-BEST study focus on the southern three states of Western Equatoria, Central Equatoria, and Eastern Equatoria (sometimes referred to in this report as “the Equatorias region”). Field work was completed in July 2012. The findings and recommendations in this Chapter reflect both the limited geographic focus for research and the conditions at the time of the field work.

## 4.2. NATIONAL FOOD DEFICITS

### 4.2.1. Overview

South Sudan is endowed with abundant natural resources and the potential to benefit from agricultural expansion. Total land cover is approximately 640,000 sq km, 80 percent of which is arable land represents; the remaining 20 percent is made up of water, swamp, and marginal lands.<sup>139</sup> This potential has yet to be realized: South Sudan has long suffered a structural food deficit at the national level.

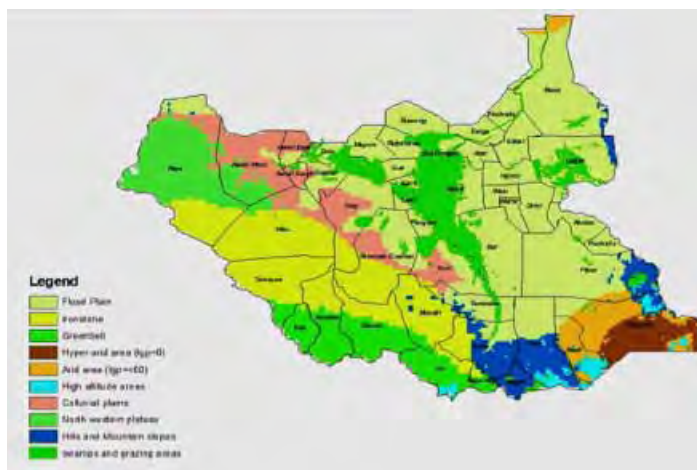
Cereals make up approximately 50 percent of the typical diet.<sup>140</sup>

This section reviews:<sup>141</sup>

- South Sudan's agro-ecology.
- Cereal surplus and deficit production areas.
- Estimated national supply and demand for cereals, and the factors affecting the supply and demand.

**Natural regions and seasonality.** Agricultural performance varies depending on regional characteristics and rainfall. Based on physiographic characteristics, South Sudan is divided into 10 agro-ecological zones.<sup>142</sup>

**Figure 9. Agro-ecological Zones in South Sudan**



Source: Odero, n.d.

<sup>139</sup> WFP, February 2012, Annual Needs and Livelihoods Analysis 2011/2012: South Sudan.

<sup>140</sup> South Sudan National Bureau of Statistics [formerly Southern Sudan Centre for Census, Statistics and Evaluation], 2010, Statistical Yearbook for Southern Sudan 2010. Annex 3 provides more detailed information on dietary energy consumption.

<sup>141</sup> FAO/WFP/GoSS CFSAMs estimate annual cereal surpluses/deficits, and other contributors to food security levels such as livestock are not included in these calculations. Analysis in this Chapter focuses on the cereal surplus and deficits and may not fully reflect overall food security conditions.

<sup>142</sup> Odero, n.d., A.N.n.d. Livelihood Characterisation of South Sudan: The Use of Physiographic and Agro-climatic Layers, Vulnerability Analysis and Mapping Unit, World Food Programme, South Sudan. [http://www.fao.org/fileadmin/user\\_upload/fsn/docs/Microsoft%20Word%20-%20Andrew%20Odero\\_ESRI%20User\\_Paper.pdf](http://www.fao.org/fileadmin/user_upload/fsn/docs/Microsoft%20Word%20-%20Andrew%20Odero_ESRI%20User_Paper.pdf), accessed September 9, 2012. Also referred in this Annex as Odero, n.d.

Each agro-ecological zone has distinct characteristics, including the average length of growing period (LGP), elevation, soil type, and vegetation. The table below presents the main characteristics of each zone.

**Table 7. Biophysical Characteristics by Agro-ecological Zone**

Agro-ecological Zone	Avg LGP (days)	Elevation (m)	Dominant Soil Type	Vegetation
Flood plain	121	415 (374-500)	Chromic Vertisols	Deciduous shrubland/ sparse trees
Ironstone	178	581 (432-999)	Plinthic Ferralsols	Deciduous woodland
Greenbelt	214	723 (531-1000)	Plinthic Ferralsols	Mosaic Forest/ Savanna
Hyper-arid	0	536 (366-1000)	Chromic Vertisols	Croplands (>50%)
Arid	43	552 (383-1000)	Chromic Vertisols	Croplands (>50%)
High altitude areas	146	1293 (1001-3055)	Eutric Nitisols	Mosaic Forest/ Savanna
Colluvial	131	448 (404-511)	Dystric Regosols	Deciduous shrubland/ sparse trees
North western plateau	133	614 (483-1000)	Dystric Regosols	Deciduous woodland
Lower hills and mountain slopes	143	661 (501-1000)	Ferric Luvisols	Deciduous shrubland/ sparse trees

Source: USAID-BEST, adapted from Odero, n.d.

Note: Elevation figures are averages for each zone, with the range in parentheses.

As reflected in the following figure, South Sudan is divided into seven livelihood zones based on how the majority of the population in each earns its livelihood:<sup>143</sup>

1. Ironstone Plateau
2. Eastern Flood Plains
3. Western Flood Plains
4. Hills and Mountains
5. Nile – Sobat corridor
6. Greenbelt
7. Arid/Pastoral

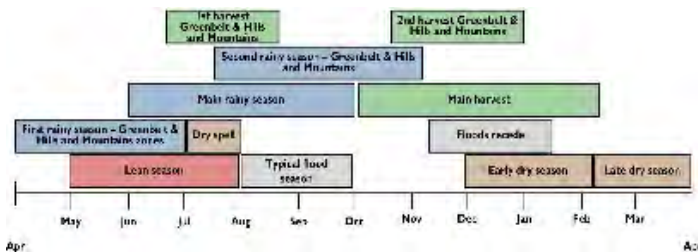
<sup>143</sup> Southern Sudan Centre for Census, Statistics and Evaluation (SSCCSE)/ Muchomba and Sharp, [now the National Bureau of Statistics (NBS)], 2006, Southern Sudan Livelihood Profiles: A Guide for Humanitarian and Development Planning.

**Figure 10. Livelihood Zones in South Sudan**



Source: Recreated by USAID-BEST using FEWS Net Southern Sudan Livelihood Profile GIS data, 2009.

**Figure 11. 2012–2013 Seasonal Calendar**



Source: FEWSNET.

The previous figure shows the seasonal calendar for South Sudan. The Greenbelt, also detailed above, covers the southernmost portions of the Equatorias region, and is the most productive livelihood zone. It has bimodal rainfall (that is, two rainy seasons) and therefore, two cropping seasons. Other livelihood zones have unimodal rainfall and only one cropping season. However, some unimodal rainfall areas have very fertile soil—and thus high production capacity.

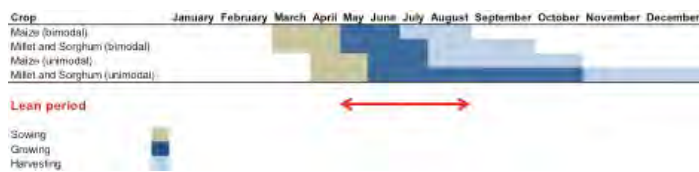
South Sudan’s rich soils also allow for crop diversity.<sup>144</sup> The most important crops produced are cereals—sorghum, maize, and millet. Other crops are cowpeas, groundnuts, rice, cassava, sweet potatoes, beans, and vegetables.<sup>145</sup>

144 According to Muchomba and Sharp, agricultural production is practiced in all livelihood zones, with the exception of arid areas, where pastoralism is dominant.

145 Southern Sudan Centre for Census, Statistics and Evaluation (SSCCSE)/ Muchomba and Sharp, [now the National Bureau of Statistics (NBS)], 2006, Southern Sudan Livelihood Profiles: A Guide for Humanitarian and Development Planning.

The production cycle for cereals (sorghum, maize, and millet) begins in March and extends through December. In northern regions, planting begins in early April. The following figure shows the typical seasonal calendar for these cereals.

**Figure 12. South Sudan Major Cereal Crop Calendar**



Source: USAID-BEST, adapted from GIEWS Country Brief, March 2012

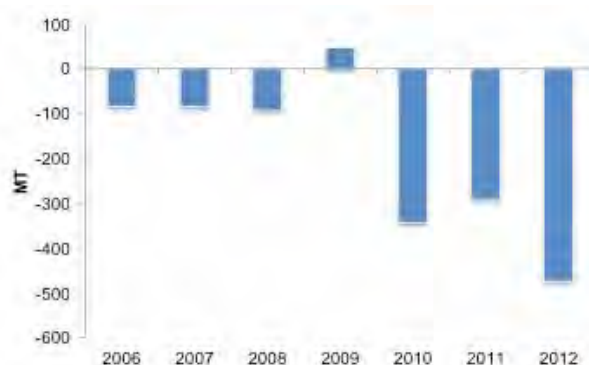
#### 4.2.2. Estimated Supply and Demand

Decades of civil war has severely limited South Sudan’s capacity to expand agricultural production and realize its rich agricultural potential. Specifically, since Sudan’s independence in 1956, southern Sudan has engaged in two lengthy civil wars (1955–1972 and 1983–2005).

Despite the Comprehensive Peace Agreement (CPA) in 2005, and otherwise improved stability, cereal production has remained insufficient to satisfy growing demand.

A joint FAO/WFP mission, the Crop and Food Security Assessment Mission (CFSAM), estimates annual production volumes for South Sudan. The production data contained in the annual CFSAM reports are the most considered the most comprehensive available.<sup>146</sup> According to those reports, from 2006 until 2008, average production fell 10 percent per year. After a slight cereal surplus in 2009, deep deficits followed—in fact, much more pronounced than the deficits from 2006 until 2008—and in 2012 reached its lowest level. The following figure shows the estimated cereal surplus/deficits between 2006 and 2012.

**Figure 13. South Sudan’s Estimated National Cereal Surplus/ Deficit, 2006–2012**



Source: Constructed by USAID-BEST using data from FAO/WFP CFSAM reports from 2007, 2008, 2009, 2010, 2011, and 2012.

146 The USAID-BEST team has heard a number of critiques of the CFSAM’s methodology, and although the team agrees that improvements in data collection may be possible, and even encouraged, the CFSAM data are nevertheless believed the best data currently available for this analysis.



For the last three specific years (2010-12) in volume terms, cereal production<sup>147</sup> reached 541,000 MT in 2010, representing a 42 percent reduction from the previous year. At the same time, consumption requirements reached around 885,000 MT leaving the country with a cereal deficit estimated at 344,000 MT.<sup>148, 149</sup> In 2011, an increase in area under cultivation, improved yields, good rainfall, and enhanced security in the country contributed to increasing cereal production to approximately 695,000 MT. However, consumption increased by 11 percent, due in part to population increases from returnees, refugees and natural growth, to approximately 986,000 MT, leaving the country with a significant cereal deficit. In 2012, demand for cereal is expected to surpass 1 million MT, but cereal production is expected to decrease by 19 percent to 563,000 MT—which would put the deficit that must be met by imports (both commercial and concessional) at an all-time high of 473,700 MT.

#### 4.2.3. Factors Affecting Supply

This section describes the three main factors that adversely affect domestic production and are responsible for the sharp decline in estimated cereal production for 2012:

- Poor/uneven rainfall.
- Budget limitations that result in insufficient commitment to agriculture.
- Land tenure history/policies.

The first factor is biophysical—inherent to the land. The last two factors are institutional or cultural.

**Poor/uneven rainfall.** Almost all of South Sudan’s agricultural production is rain-fed, so rainfall variability is a major factor in determining crop performance. In all of South Sudan’s states, cumulative rainfall for 2011 was below the long-term average for most of the season, with notable variations across states. Around the country, rains started slightly later than usual and were unevenly distributed. This, coupled with dry spells that interrupted the usual rains, caused overall low national crop yield.<sup>150</sup>

<sup>147</sup> Cereal production figures refer to harvest from the previous year (e.g., the 541,000 cereal deficit above for 2010 refers to what was actually harvested in 2009).

<sup>148</sup> FAO/WFP, February 2012, Crop and Food Security Assessment Mission to South Sudan (CFSAM).

<sup>149</sup> Consumption requirements are based on estimates of between 80 and 120 kg per capita per annum, adjusted for each county based on accumulated consumption information. The production in CFSAM 2010 was initially reported to be 660,000 MT; however the CFSAM 2011 noted that the production number in the CFSAM 2010 was overestimated and adjusted downward to 541,000 MT.

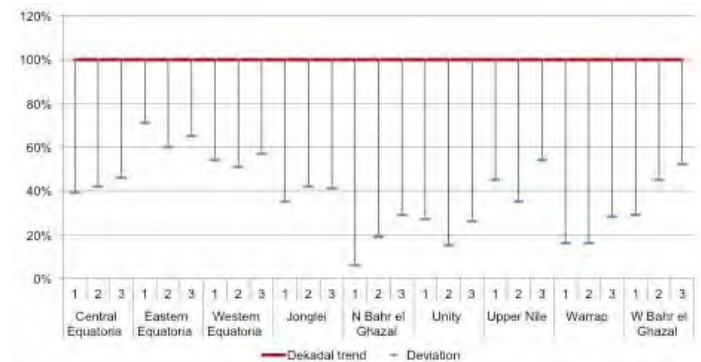
<sup>150</sup> CFSAM 2012.

Among the states:

- The most adversely affected states were Northern Bahr el Ghazal, Warrap, Unity and Upper Nile States, which recorded long periods of below-normal and poor rainfall.
- Northern Bahr el Ghazal recorded 71 to 94 percent below-normal cumulative rainfall.<sup>151</sup>
- Jonglei, Lakes, Western Bahr el Ghazal, and the Equatorias region were minimally affected by poor rainfall, but still recorded below-average cumulative rainfall. The cumulative rainfall deviation for the Equatorias region in 2011 ranged from 29 percent to 61 percent below average rainfall.

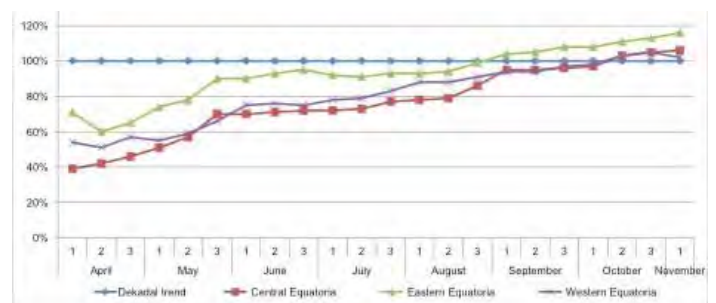
Figures 14 and 15 show deviations from the average cumulative rainfall for all states at the beginning of the season in April, and then throughout the whole season of April-November.

**Figure 14. Dekadal Deviation of 2011 Cumulative Rainfall from Long-term Average Cumulative Rainfall for April<sup>152</sup>**



Source: Created by USAID-BEST using FAO/WFP Crop and Food Security Assessment Mission 2012 data.

**Figure 15. Dekadal Deviation of Cumulative Rainfall from Long-term Average Cumulative Rainfall for 2011 Growing Season, April-November**



Source: Created by USAID-BEST.

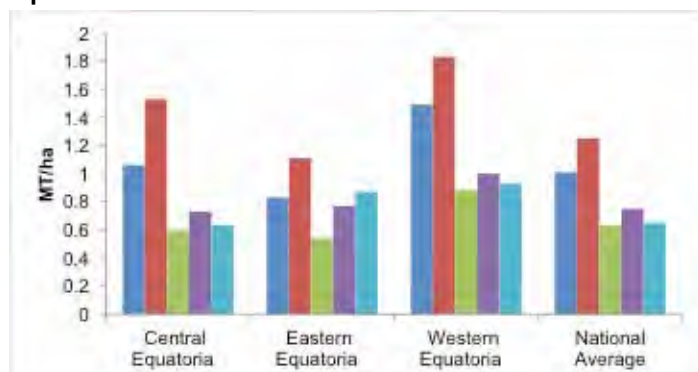
<sup>151</sup> CFSAM 2012 and GIEWS-FAO, March 2012, Country Brief.

<sup>152</sup> Almost all of South Sudan’s agricultural production is rain-fed; therefore, rainfall variability is a major factor in determining crop performance.

Among the Equatorias region in 2011, Eastern Equatoria was affected the least, with rain fall 29 to 35 percent below normal, followed by Western Equatoria, with rain fall 43 to 49 percent below normal. Central Equatoria was the most affected, with rain fall 54 to 61 percent below normal. This translated into a yield decline in 2012 for Western and Central Equatoria of 7 and 14 percent, respectively, compared with 2011, and a slight yield increase in Eastern Equatoria.

The figure below shows yields by state, for the Equatorias region and nationally for 2008-12. Specifically for the 2012 data, measuring the 2011 cropping season, Central Equatoria recorded the poorest rainfall of the three states (see Figure 15), and also produced the poorest average yields of the the three states in 2012 (see Figure 16).

**Figure 16. Average Yield by State (MT/ha), 2008-2012 Season, April-November**



Source: Constructed by USAID-BEST using data from FAO/WFP CFSAM reports from 2007, 2008, 2009, 2010, 2011, and 2012.

**Budget limitations.** The Government of South Sudan (GoSS), through its development plan, recognizes that increasing agricultural production is fundamental to alleviate food insecurity. In an effort to increase support for agricultural development, the 2011 GoSS total budget allocation to agriculture increased by 23 percent over the previous year.<sup>153</sup> Although this suggests increasing support for agriculture, the budgetary commitment to agriculture is in fact limited and insufficient: for the last five years, the average allocation to agricultural development has remained at an extremely low 1.15 percent of the 2012-2013 national budget.

This limited support restricts producers' access to improved inputs such as seeds, fertilizers and tools, and to advisory services such as veterinary assistance, extension crop protection, irrigation, water-harvesting schemes, mechanization, and post-harvest facilities. During USAID-BEST team field visits, producers confirmed that inadequate seed distribution systems and lack of basic equipment such as hand tools were major constraints to increasing production in South Sudan.

In recent years, the GoSS has made some important progress in distributing seeds and tools. In 2010, after a relatively good harvest season, the GoSS was able to store seeds, and later distribute them to vulnerable producers (for example, returnees). This seed

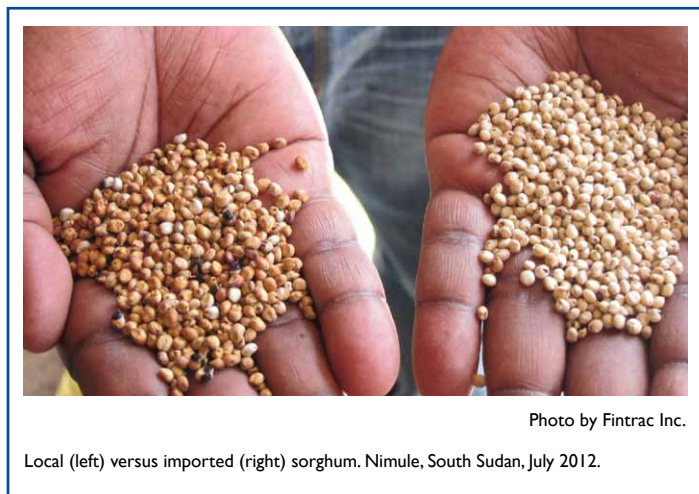
<sup>153</sup> Oxfam, July 2012, Tackling the food deficit in the world's newest country.

distribution was made possible through the support of NGOs and FAO. According to the 2012 CFSAM, 165,000 households received seeds and tools in 2011, which allowed them to plant that year.<sup>154</sup> In 2012, better seed availability ameliorated the impact of prolonged periods of poor rainfall, by allowing some producers to plant (or re-plant) when rainfall improved.

**Land tenure history/policies.** A complex and somewhat unclear land tenure system negatively affects domestic production. Historically, land ownership has been communal and followed customary law. Since independence, South Sudan has not yet sanctioned new laws to regulate the relationship between the government and traditional authorities. From the government's perspective, public and/or state ownership represents the best management system. However, traditional authorities generally favor communal ownership, because it helps ensure their continued authority. Currently, there is almost no private land ownership in the country.

Lack of private land ownership negatively affects production. For example, farmers cannot use land as collateral to obtain credit. Investors (for example, foreign direct investment or FDI) are unwilling to invest in production (including food and cash crop production) because they cannot officially and legally acquire land.

South Sudan also faces the particularly complicated issue of resettling and reintegrating internally displaced persons (IDPs) and returnees who lost their land rights during the civil war. Although customary land tenure systems and traditional authorities facilitate access to land for those returning to their original communities (for example, their birthplace), the current system does not facilitate access to land for returnees settling in new communities.<sup>155</sup>

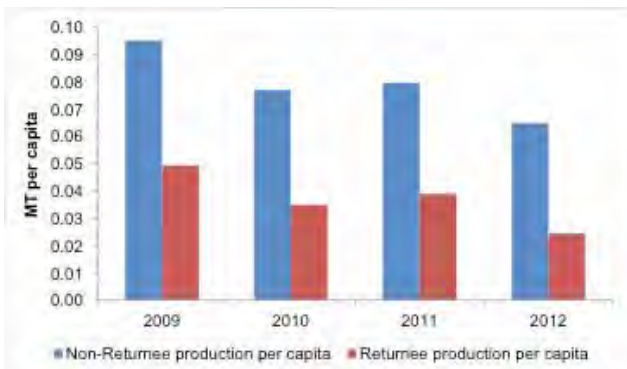


<sup>154</sup> FAO/WFP, February 2012, Crop and Food Security Assessment Mission to South Sudan (CFSAM).

<sup>155</sup> USAID, 2010, Land Tenure and Property Right for Southern Sudan and Deng NPA, March 2011, The New Frontier: A Baseline Survey of Large-scale Land-based Investment in Southern Sudan. The Deng report details 2.64 million ha of land in South Sudan (an area larger than Rwanda) that was "sought or acquired" by foreign investors from 2007-10. According to Deng, some of these foreign investments have not been fully transparent because, prior to 2011 GoSS independence, it was not clear which government agency had the authority to vet and approve these proposed land deals.

The following figure compares returnees and non-returnees' per capita cereal production (maize, millet, and sorghum) for 2009–2012. In each year, non-returnees produced considerably more than returnees.

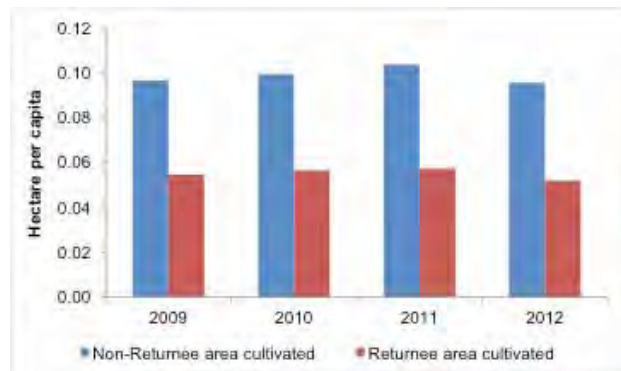
**Figure 17. Average Production Per Capita, Non-Returnee vs. Returnee, 2009–2012**



Source: Constructed by USAID-BEST using data from FAO/WFP CFSAM reports from 2007, 2008, 2009, 2010, 2011, and 2012.

Since non-returnees have much more land to cultivate, this disparity in raw production makes sense. The next figure shows that non-returnees had almost the twice as much access to land as returnees. Insufficient access to land can negatively affect returnees' production.

**Figure 18. Average Area Cultivated Per Capita, Non-Returnee vs. Returnee, 2009–2012**



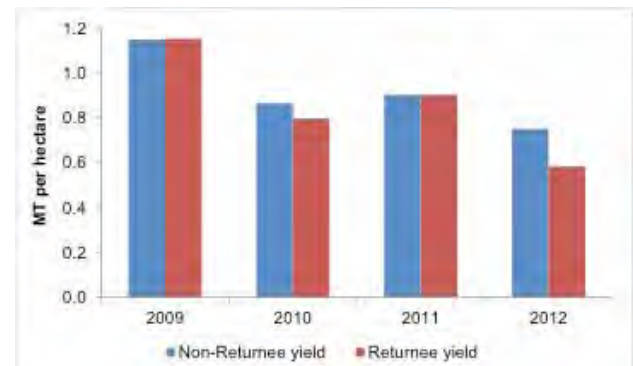
Source: Constructed by USAID-BEST using data from FAO/WFP CFSAM reports from 2007, 2008, 2009, 2010, 2011, and 2012.

In terms of per capita/per hectare yield, however—which takes into account the amount of land cultivated—the disparity between non-returnee and returnee production vanishes. The following figure below bears this out:

- In 2009 and 2011, yields for non-returnees and returnees were almost identical.
- In 2010, and more so in 2012, non-returnee production is marginally greater than returnees.

However, this comparison does not control for possible differences in the quality of land each group cultivates, and further empirical work is needed to better understand the noted differences in productivity. Nevertheless, it seems reasonable to infer (1) that better access to land (and possibly to land of varying quality) by non-returnees creates advantages over returnees, and (2) those advantages would be eliminated—and agricultural production greatly increased—if returnees were given access to comparable quantities and quality of land.

**Figure 19. Average Yield Per Hectare (MT), Non-Returnee vs. Returnee, 2009–2012**



Source: Constructed by USAID-BEST using data from FAO/WFP CFSAM reports from 2007, 2008, 2009, 2010, 2011, and 2012.

Given (a) South Sudan's reliance on rain-fed agriculture, (b) the growing but limited financial support to the agricultural sector, and (c) unresolved land tenure issues, short-term production is unlikely to increase—and the magnitude of national cereal deficits is likely to remain relatively constant. Unless commercial imports make up the deficit, food aid may be necessary to ensure adequate consumption, particularly in areas underserved by markets.

#### 4.2.4. Factors Affecting Demand

This section describes two of the key factors currently affecting demand for staples (both domestically produced and imported: 1) changes in income and 2) population growth and mobility.

**Changes in income.** In general, demand for food increases with household income, particularly for poor households.

As reflected in the following figure, comparing 2008 with 2012:<sup>156</sup>

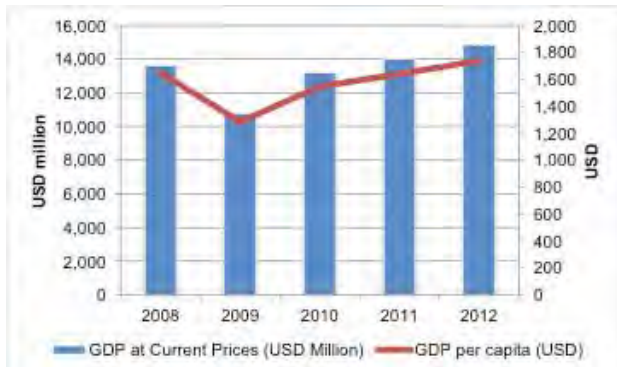
- South Sudan's GDP increased from SDG28,505 million (US\$13,630 million) in 2008 to SDG34,256 million (US\$14,862 million) in 2012, an increase of 20 percent.
- GDP per capita also increased, from SDG3,451 (US\$1,650) in 2008 to SDG4,005 (US\$1,737) in 2012, an increase of 16 percent.

In fact, South Sudan's GDP per capita is one of the highest in the region.

<sup>156</sup> South Sudan National Bureau of Statistics, August 2011, Release of first Gross Domestic Product (GDP) and Gross National Income (GNI) figures for South Sudan by the NBS; note SDG refers to old Sudanese pounds.

However, these GDP increases must be interpreted cautiously. The 6 percent annual growth rate projected from 2009 by the GoSS does not account for the pipeline shutdown, or the border closure. Moreover, GDP increases do not necessarily equate to higher household income. Some GDP growth (whether absolute, or per capita) is attributable to income earned by foreigners, likely FDI in oil production. Currently, the main beneficiaries of oil revenues are the GoSS and foreign companies with oil extraction rights.<sup>157</sup> Moreover, high dependency on oil revenues and recent oil disputes are expected to slow household income growth in the future.<sup>158</sup> See Annex I for more details.

**Figure 20. Gross Domestic Product (GDP) and GDP per capita**



Source: Constructed by USAID-BEST using South Sudan National Bureau of Statistics.

Note: Projections were calculated for 2012 based on oil production throughout the calendar year, and oil production was shut down in January 2012. Data for 2011 and 2012 were generated by USAID-BEST using the 6 percent growth projected by the South Sudan National Bureau of Statistics.

South Sudan's high regional GDP per capita also obscures economic group disparities. For example, rural populations are generally poorer than urbanites and earn most of their income from the agricultural sector.<sup>159</sup> For rural populations, purchasing power and demand are seasonal and usually low—or completely exhausted—when own production is low. Market purchases in rural areas tend to be high between April and May, when farmers have fewer resources than other times during the year. Although there is evidence of a seasonal effect on demand, this remains an empirical question.<sup>160</sup>

**Shifts in population.** Overall, and as reflected in the following figure, South Sudan's 2012 population is higher than in 2009. However, between 2009 and 2012, substantial shifts in population occurred. Total population declined from 2009 to 2010 because of significant population movement from South Sudan to Sudan. However, after 2010, the population significantly increased, from

<sup>157</sup> See Annex I for details on foreign oil extraction rights.

<sup>158</sup> According to the 2012 CFSAM, oil revenues represent 71 percent of total GDP.

<sup>159</sup> According to the South Sudan Bureau of Statistics, 83 percent of the population is rural.

<sup>160</sup> The seasonal effect on demand is an empirical question because it is very hard to determine without further research whether seasonal demand is higher for farmers with low cash reserves and low own availability of food on the market during lean season in April/May, or whether it is higher in September when farmers have more access to cash and they have access to more of their own food.

approximately 8.75 million in 2010 to 9.10 million in 2012,<sup>161</sup> driven by an increase in returnees. The population increased markedly in 2011 and 2012; this was attributable to positive natural population growth, coupled with a significant influx of returnees.

**Figure 21. Population and Consumption Requirement for Non-Returnees and Returnees, 2009–2012**



Source: Constructed by USAID-BEST using data from CFSAM 2012.

Consumption requirements between 2009 and 2012 followed the same pattern as the changes in population. Consumption requirements decreased sharply between 2009 and 2010, but increased sharply in both 2011 and 2012.

Although income streams from oil production are not well-distributed to the population, declining oil production revenue negatively impacts the ability of the GoSS to support agriculture. A continued influx of returnees will only intensify the short-term need to increase own food production, or increase incomes to purchase imported food in markets.

## 4.3. LOCALIZED FOOD DEFICITS

### 4.3.1. Overview

This section reviews and considers the following:

- Cereal surplus and deficit production areas at the subnational level, using state-level and county-level data.
- How residency status (returnees versus non-returnees) impacts average household food deficits at those subnational levels.
- Why production from the Equatorias region is insufficient to satisfy food demand throughout South Sudan.

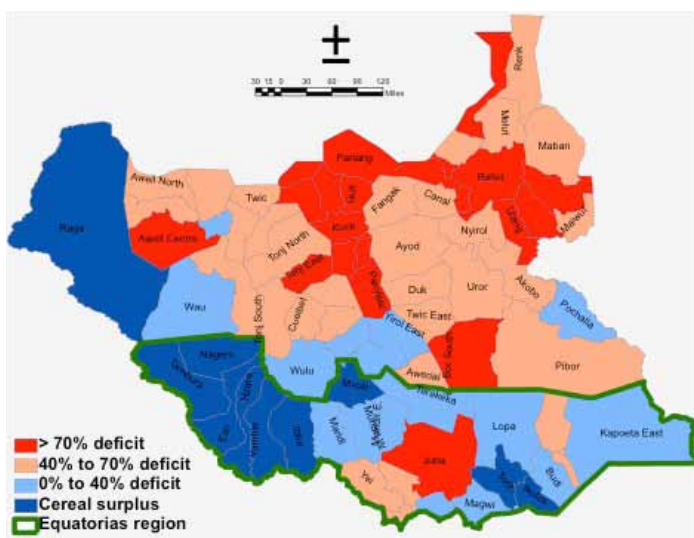
**Cereal deficits by county.** According to the 2012 FAO/WFP, February 2012, Crop and Food Security Assessment Mission to South Sudan (CFSAM), the Equatorias region were the only South Sudan states that had production surpluses in 2011, except for one county (Raga) in Western Bahr El Ghazal. However, even within the Equatorias region, production was not evenly distributed. In Western Equatoria, seven out of ten counties had surpluses. In

<sup>161</sup> FAO/WFP, February 2012, Crop and Food Security Assessment Mission to South Sudan (CFSAM); other sources have higher population estimates, e.g. the World Bank and the Population Reference Bureau.

Eastern Equatoria, only two counties had surpluses, and they were small. In Central Equatoria, all counties reported cereal deficits, with only Terekeka's deficit approaching a 'zero' cereal balance.

The following map illustrates surplus and deficit counties using data from the 2012 CFSAM. "Major deficit" counties are those in which production levels are 70 percent below the national cereal requirement.<sup>162</sup> "Cereal surplus" counties produced enough or more than enough to meet local food requirements. The map clearly shows that the surplus cereal counties are concentrated in the Equatorias region—particularly Western Equatoria and parts of Central and Eastern Equatoria. Lowland, drier areas in Eastern Equatoria are deficit areas, including Kapoeta North, East and South counties. Juba, which includes the main urban center, is a major deficit county.

**Figure 22. Estimated Cereal Surplus and Deficit Counties for 2012**



Source: USAID-BEST created using the FAO/WFP Crop and Food Security Assessment Mission data 2012.

The estimated 2012 cereal deficit for the Equatorias region is significantly lower than the rest of the country. On average, the estimated 2012 deficit in the Equatorias region is 13.8 kg per person; the national deficit is 45.8 kg per person. At the national level (that is, outside the Equatorias), only Raga county (Western Bahr el Ghazal state) has a 2012 surplus (16.3 kg per person). All other counties have deficits.<sup>163</sup>

<sup>162</sup> This analysis uses classifications for food insecurity that are similar to those used in the South Sudan Humanitarian Update: January–April 2012 (United Nations Office for the Coordination of Humanitarian Affairs or OCHA). Other studies have used similar classifications, with slight differences. For example, the FAO/WFP, February 2012, Annual Needs and Livelihood Analysis Report 2011/2012 uses similar food security classifications but distinguishes three categories: high, medium, and low. The South Sudan statistical yearbooks classify these categories in terms of food deprivation, with the lowest category 23–27 percent and the highest 64–74 percent.

<sup>163</sup> Production and requirements were computed from data on production, population, and cereal requirements from the 2012 CFSAM.

Within the Equatorias region, average deficit/surplus figures varied considerably among counties, and compared with state levels. For example, on average:<sup>164</sup>

- Western Equatoria overall had a 31.8 kg per person surplus, but Ibba county alone had a 124 kg per person surplus.
- Eastern Equatoria overall had on average a 30 kg per person deficit, but Ikotos county had a 21.3 kg per person surplus.
- Central Equatoria overall had a 64.8 kg per person deficit, but in Terekeka county the deficit was only 2.8 kg per person.

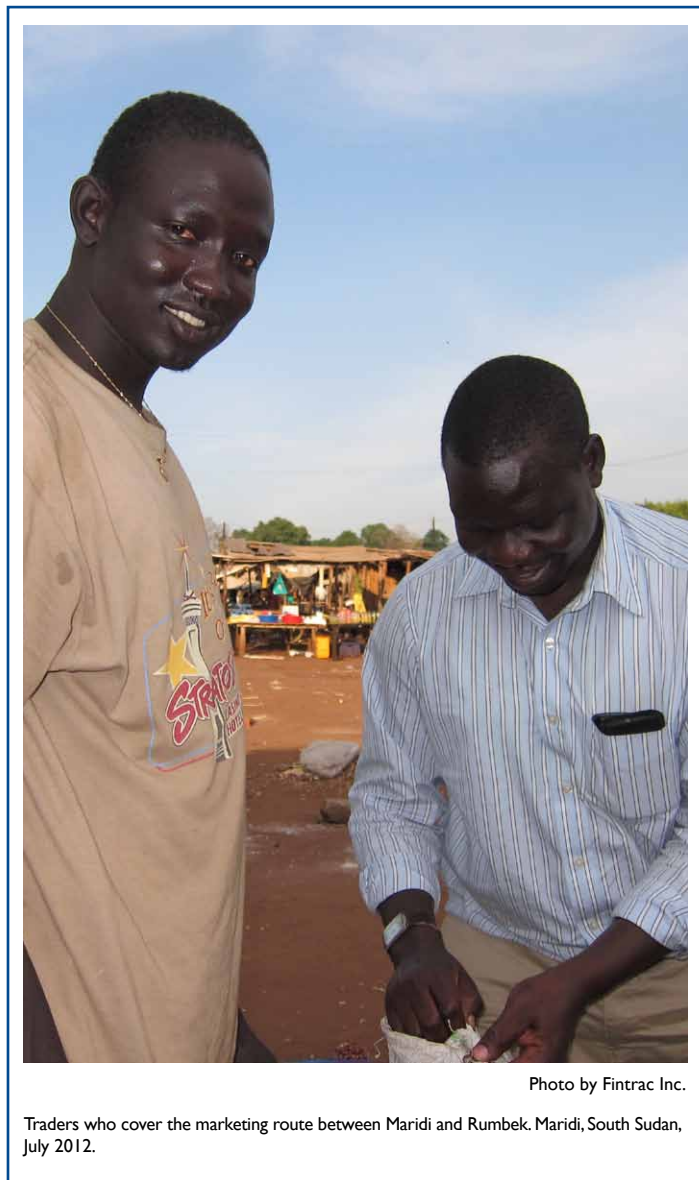
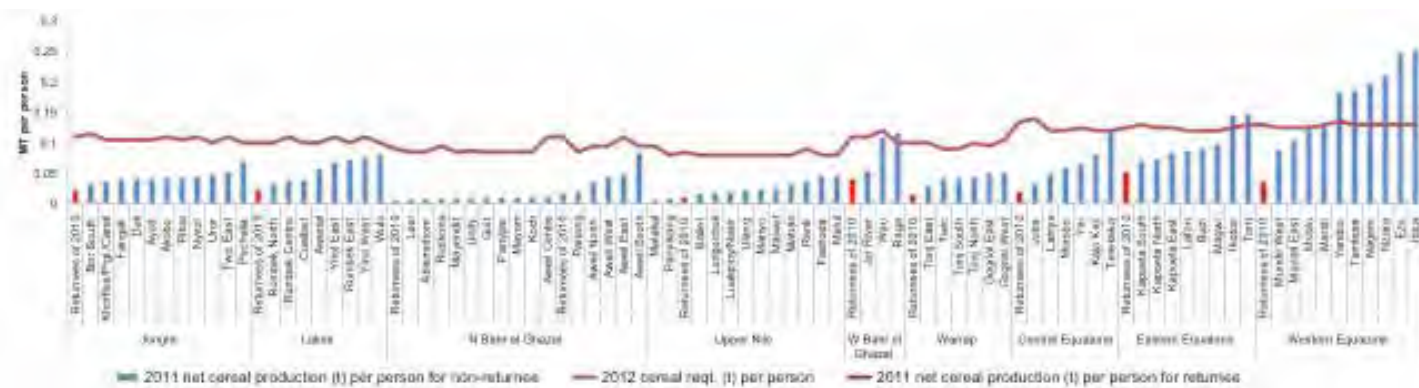


Photo by Fintrac Inc.

Traders who cover the marketing route between Maridi and Rumbek. Maridi, South Sudan, July 2012.

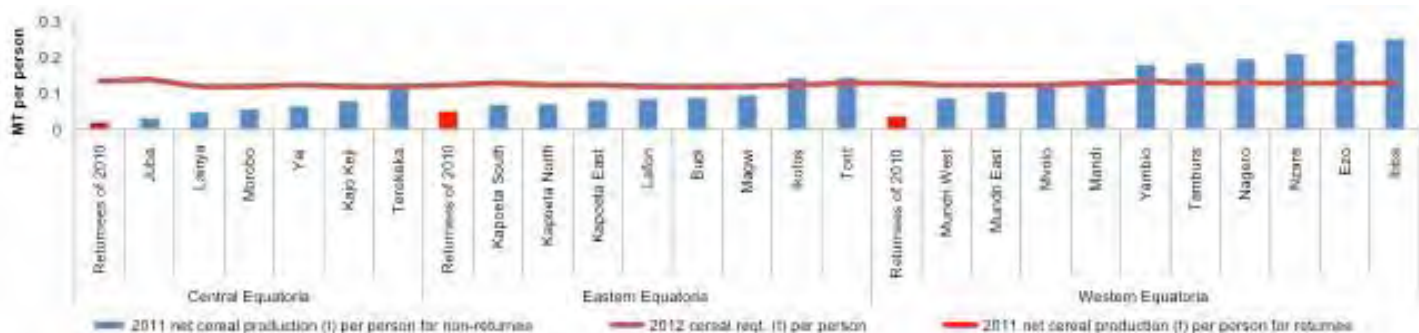
<sup>164</sup> Production and requirements were computed from data on production, population, and cereal requirements from the 2012 CFSAM.

**Figure 23. Per Person Cereal Production/Cereal Requirement for South Sudan 2012**



Source: Created by USAID-BEST with data from 2012 CFSAM.

**Figure 24. Per Person Cereal Production/Cereal Requirement for the Equatorias Region 2012**



Source: Created by USAID-BEST with data from 2012 CFSAM.

**Deficits by residency status.** The cereal deficit markedly increases when returnee populations are distinguished. Western Equatoria reported a 92.4 kg per person deficit for returnees. Eastern Equatoria had a 72.2 kg per person deficit. Central Equatoria had a 114.6 kg per person deficit. Figure 23 summarizes per capita cereal production in 2011 and 2012 requirements for the entire country. Figure 24 summarizes per capita cereal production in 2011 and 2012 requirements for various Equatorias counties.

FEWS NET production and market flow maps (presented in Annex II) present average production and marketing information for individual commodities, including maize and sorghum, and suggest similar geographic distribution of surpluses and deficits. According to the FEWS NET maps, maize and sorghum production is concentrated in Western, Central, and parts of Eastern Equatoria. Counties in Western and Central Equatoria, including Juba and Terekeka, record sorghum surpluses in the first season. However, in the second season for sorghum, both Juba and Terekeka register minor deficits. Western Equatoria accounts for most of the maize surplus; only a few counties in the southern part of Central Equatoria register a surplus of

maize and sorghum. Juba and Terekeka counties register minor deficits of maize in the first season, but Terekeka records a maize surplus in the second season.<sup>165</sup>

The following map in the following figure reflects population density and the existing road network in South Sudan. Many of those roads are in very poor condition, especially during the rainy season, when they may become impassable.

Interpolating all of these data, the following observations can be made:

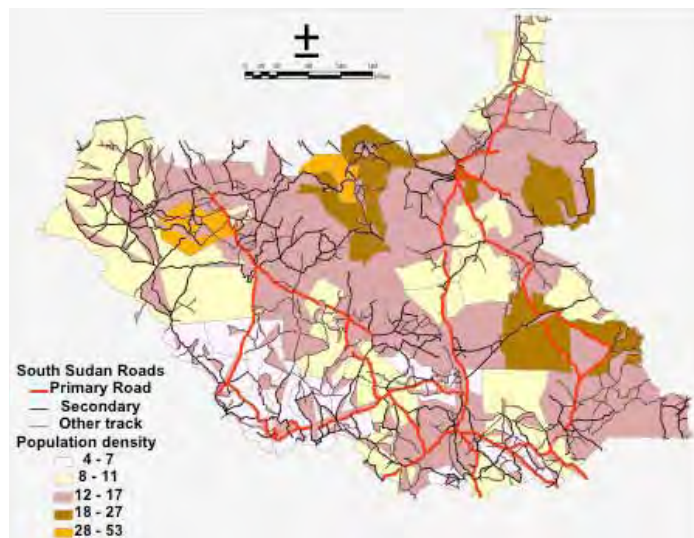
- As indicated in both above figures, almost all cereal surpluses in the Equatorias region originate from Western Equatoria.<sup>166</sup> In order to reach areas of higher population density that have cereal deficits—primarily urban and peri-urban Juba within the Equatorias region—those cereal surpluses would need to be transported over very poor infrastructure. The difficult transport is an impediment to improved overall food security in the Equatorias.

<sup>165</sup> FEWS NET production and market flow maps (see Annex II) no longer reflect the reality of market flows since the official border closure between Sudan and South Sudan earlier in 2012.

<sup>166</sup> FAO/WFP, February 2012, Crop and Food Security Assessment Mission to South Sudan (CFSAM).

- Juba, in particular, has access to Ugandan cereal surpluses via the paved road south to Nimule on the Uganda border. This superior transport route means that greater Juba's cereal deficits are usually met through products from Uganda rather than other regions of the Equatorias.
- Uneven production within the Equatorias region, coupled with an inferior road network, presents an impediment to reducing localized deficits in South Sudan.

**Figure 25. South Sudan Transport Networks and Population Density**



Source: Created by USAID-BEST based on 2012 CFSAM data.

Note: Urban Juba's population concentration is not reflected on the map because the map is based on population density at the county level. Recent refugee flows in 2012 of over 200,000 refugees into Unity and Upper Nile states (Source: UNHCR, September 2012) are also not reflected in the above map.

Note: Urban Juba's population concentration is not reflected on the map because the map is based on population density at the county level. Recent refugee flows in 2012 of over 200,000 refugees into Unity and Upper Nile states (Source: UNHCR, September 2012) are also not reflected in the above map.

This analysis suggests that:

- Areas with higher localized food deficits may need to rely on food aid in the short run.
- Areas with the potential to increase supply in the short run can use local production surpluses to satisfy their growing consumption requirements.
- Because returnees have fewer opportunities to contribute to production, the influx of returnees will likely increase cereal deficits in the short run.

While this analysis relates primarily to 2012 cereal production and population, similar patterns were observed in previous years. National cereal deficits were reported for all years between 2008 and 2012 except for 2009, when a small national surplus of 4.9 kg/person was recorded and the Equatorias region recorded a surplus of 47.9 kg/person. On the other hand, it is worth noting that this analysis centers on domestic production of cereals. While cereals make up the bulk of the South Sudan diet, livestock and other food crops are available and are important. Therefore, focusing solely on cereal production may not capture the total household food deficits and resources in the Equatorias region.

Although compared with the rest of country, the Equatorias region appears to have the lowest cereal deficit per capita, a well-targeted Title II program may nevertheless be appropriate for this region, for a number of reasons:

- Many counties within the Equatorias region still have high cereal deficits (15 of 24 counties) and high levels of food insecurity (for example, the drier parts of the three Kapoeta counties and Yei county).<sup>167</sup>
- Returnees, who are generally more vulnerable than local populations, are present in significant numbers within the Equatorias region (approximately 57,000 as of May 2012).
- There are opportunities to increase agricultural production within the Equatorias region, and these potential surpluses could be transported to localized deficit areas, provided that transportation networks are improved.
- Ugandan food imports currently minimize recorded cereal deficits in Juba town and the surrounding areas, but these imports are typically not available in more remote food insecure zones of the Equatorias region, and when Ugandan imports are available, they are typically expensive because of high transaction costs.
- Title II programming can be used to target farmers to promote good agricultural practices such as soil conservation, better tilling practices, improved input usage, and well-managed crop husbandry. Given the appreciable potential in the region, these practices can generate increased agricultural production, and those production increases can be further targeted to areas within the region with relatively higher food insecurity levels.

The above points are further elaborated in the key considerations section at the end of this Chapter.

<sup>167</sup> USAID/OFDA, May 2012, Sudan to South Sudan Population Movement.

## 4.4. PRIVATE MARKET CAPACITY TO MEET DEFICITS

The capacity of private markets to decrease South Sudan's massive structural cereal deficit depends on the performance of both local and regional markets. An understanding of how markets function for domestically produced staples, as well as imports, is crucial for ascertaining whether there are still underserved populations, and whether there is scope for distributed food aid or other food assistance such as cash or vouchers.

This section reviews the regional trade markets that are important to South Sudan, and then presents Structure, Conduct, Performance (S-C-P) analysis for South Sudan (see text box). South Sudan imports about 90 to 95 percent of all goods consumed in the country. Before the 2005 Comprehensive Peace Agreement (CPA), Sudan was the most important trade partner. Increasingly, Uganda, Kenya, Ethiopia, and other neighboring countries are becoming important trade partners.

The combined dynamics of market structure, conduct, and performance contribute to understanding South Sudan's agricultural commodity market systems, and the private sector's capacity to minimize the food deficit.

### STRUCTURE, CONDUCT, PERFORMANCE FRAMEWORK

The Structure-Conduct-Performance (S-C-P) framework recognizes links between the structure of a market (for example, e.g., the number of buyers and sellers, and the nature of the commodity), the conduct of participants (e.g., how prices are set, and what rules are followed), and the eventual performance of the market. Performance is judged by the degree to which the market meets a diverse set of goals. For example, a food marketing system may be considered "functioning well" if it is technically efficient, or results in affordable retail food prices. A market analysis using a S-C-P framework can be well suited to low-cost, rapid appraisal techniques. For specific guidance on using an S-C-P framework in food security analysis, please see FEWS NET's Market Guidance entitled "Structure-Conduct-Performance and Food Security". ([http://www.fews.net/docs/Publications/MT%20Guidance\\_%20C%20P\\_No%202\\_En.pdf](http://www.fews.net/docs/Publications/MT%20Guidance_%20C%20P_No%202_En.pdf)) research to better understand evolving local market conditions, needs, and the potential range of appropriate responses in South Sudan.

### 4.4.1. Regional Trade Overview

**Historical trade.** Historically, and until 2011, the food trade in what is now South Sudan was dominated by Arab traders from the northern part of Sudan (often referred to as the "Jellabas" after the loose-fitting outer robes they wear).<sup>168</sup> According to one local researcher, after the CPA, and prior to South Sudan's independence, total Jellaba trade share was about US\$1.7 billion per year; in contrast, the entirety of East Africa's trade share was about one half that level.<sup>169</sup> The Jellabas' main trading advantage was their slightly lower prices compared with Ugandan and Kenyan traders, who faced higher transportation costs.

Since Sudan's independence, Jellabas maintained their exclusive market power by operating strong domestic cartels, and by developing their own transportation and market information networks. Jellabas moved food and other general merchandise to the south by Nile barges and the famous "suk" lorry. By 2005 the Jellabas' cartel had collapsed, but after the CPA, they resumed north-to-south trade along the same old cost-effective road and river routes. However, because of the cartel collapse, they began sharing markets with Uganda and Kenya traders. Despite shared markets, Jellabas continued to be a major supplier to the south until the border was closed in 2011.<sup>170</sup>

**Current trade partners.** In 2011, conflicts between South Sudan and Sudan resulted in a shift in trade routes in favor of East African countries, especially for the bordering southern zones of South Sudan.<sup>171</sup> As South Sudan struggled to fill the supply gap by sourcing from East African neighbors, Nimule became a major port of entry into South Sudan. According to estimates, currently, this border point handled twice as much trade compare to Kaya. Kaya is a key transit point for Ugandan, and Congolese traders.

Several factors contributed to Nimule's trade surge, some of which are: (1) the completion of the Nimule/Juba tarmac road in 2012, shortening the travel time to Juba; (2) the declining Kenyan trade crossing to Sudan at Lokichoggio/Nadapal due to very poor road conditions in northern Kenya, and (3) insecurity along the Nadapal/Kapoeta road.<sup>172</sup> Figure 26 illustrates the tonnages of maize and sorghum imported through four different border points.

<sup>168</sup> From 1989 until 2005, in war zones, and particularly around the garrison towns of Juba, Wau, and Malakal, a new "army merchant" emerged who traded commodities from the north, and priced them at levels which represented, in some cases, a civil servant's monthly salary (see Olf Laessing, "North-South Sudan tensions hamper Nile trade" (Reuters, Oct 5, 2001).

<sup>169</sup> Wanjohi Kabukuru, October 2011, Sudan: The South Sudan Pie. [www.nl-aid.org](http://www.nl-aid.org).

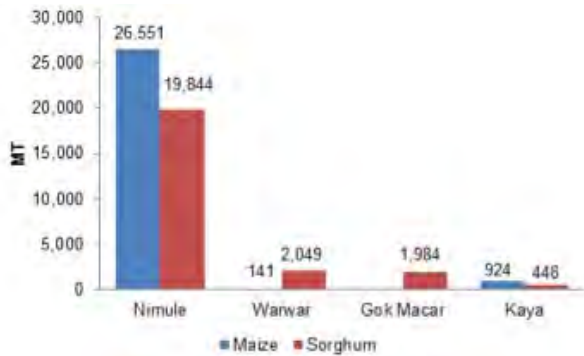
<sup>170</sup> According to Konyokonyo Chamber of Commerce.

<sup>171</sup> According to key informants.

<sup>172</sup> Despite Nimule's growing importance, Kaya and Nadapal are expected to remain important ports of entry.



**Figure 26. South Sudan Imports by Entry Border Point (May 2012-August 2012)**



Source: Created by USAID-BEST using FEWS NET trade data.

Note: GokMacar and Warwar are located in the northern border with Sudan and are shown here for reference. Nimule is located in the southern border with Uganda and Kaya is located in the southern border with DRC and Uganda.

Ethiopia has also opened a road to eastern South Sudan and is now supplying a small but increasing amount of food stuffs and general merchandise to Upper Nile and Unity States, through the Gambella Region.<sup>173</sup> This water/road route is already functioning again between Gambella and South Sudan and is likely to grow in significance in the future.

Currently, Juba depends almost entirely on Ugandan and Kenyan traders to supply its food requirements. However, trade from these countries is not enough to decrease the food deficit created after trade from Sudan stopped. In the short run, it is unlikely that East Africa and Ethiopia can supply enough food to South Sudan. A recent FEWS NET South Sudan food security outlook, suggest for example, that increased grain supplies from Uganda could only partially mitigate market supply shortfalls though not at significantly reduced prices due to high transportation costs.<sup>174</sup> This suggests, as stated above, there may still be need for some concessional import to fill the total gap.

#### 4.4.2. Market Structure, Conduct, and Performance Analysis

For this report, the S-C-P analysis focuses on cereal marketing systems based on three types of cereal trading:

1. Cross-country long distance trading, linking neighboring countries (for example, South Sudan and Uganda).
2. Mid-distance trading, linking states (for example, Rumbek and Maridi, Yambio and Wau).
3. Short-distance trading, linking peri-urban centers to nearby rural areas (for example, Mundri and Karika).

<sup>173</sup> This opening recalls the significance of the Ethiopian port of entry during the 19th and early 20th centuries along the Baro/Akobo/Sobat/Nile river system, which carried coffee from the highlands of Ethiopia to Khartoum for export to the rest of the world.

<sup>174</sup> FEWS NET, October 2011 to March 2012, South Sudan Food Security Outlook.

The predominant traders for these routes are as follows:

- Cross-country long distance trading: dominated by large-scale local and foreign traders, travelling long distance across neighboring countries to source the cereal to supply main urban centers in South Sudan.
- Mid-distance trading: dominated by a small number of large-scale local traders supplying locally produced cereals to mostly peri-urban centers in South Sudan during harvest season.
- Short-distance trading: dominated by local producers and local small scale traders who supply nearby markets with local cereals after harvest.

This S-C-P analysis centers on the Equatorias region. Within the Equatorias region, the cereal markets analyzed included (1) Juba, (2) Mundri, (3) Maridi, (4) Yei, (5) Yambio, (6) Kajo Keji, (7) Nimule, and (8) Torit. For each market, the analysis highlights main actors, price determination procedures, and the ability of private market actors to satisfy demand at affordable prices for consumers.

In addition to the USAID-BEST data collected during field visits, this analysis draws on a previous S-C-P analysis conducted by Ngigi in South Sudan.<sup>175</sup> Ngigi's analysis focused on agricultural marketing systems for grain cereals in four major urban markets—Juba, Rumbek, Wau, and Malakal—and found that:

The agricultural marketing system in South Sudan was organized around three major channels:

1. Large-scale traders that moved large volumes of storable staple commodities around the country.
2. Small-scale traders who individually had insufficient loads to hire entire trucks, but pooled with others to share transport trucks.
3. Transporter/traders, who were commonly truck owners combining transportation, buying, and reselling functions.
4. Internal commodity sources were important for supplying the above four urban markets. However, local cereal producers, in competing with imports from neighboring countries, were hampered by relatively poorer road transport infrastructure, which posed major operational problems.<sup>176</sup>

**Market structure.** At present, approximately 1.1 million South Sudan households produce cereals on very small plots (on average, 0.75 hectare per household).<sup>177</sup> Some producers trade small surplus quantities—usually only their own production—in local markets. These producers travel short distances by foot or by bicycle to avoid the trucking and transaction costs associated with long-distance trading. As noted above, South Sudan's farming

<sup>175</sup> Ngigi, Margaret, 2008, Structure, Conduct and Performance of Commodity Markets in South Sudan.

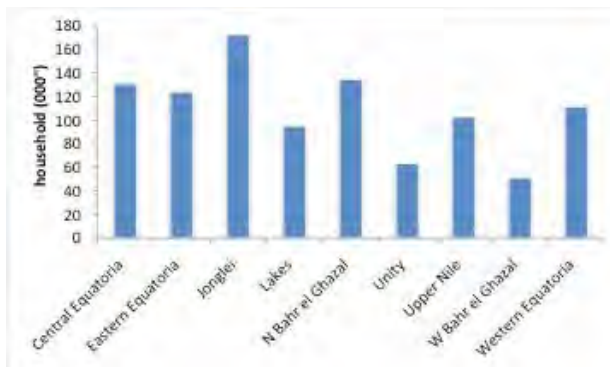
<sup>176</sup> Ngigi, Margaret, 2008, Structure, Conduct and Performance of Commodity Markets in South Sudan. Ngigi's analysis also included markets in Uganda and Sudan.

<sup>177</sup> FAO/WFP, February 2012, Crop and Food Security Assessment Mission to South Sudan (CFSAM).

households cannot produce sufficient volumes to supply markets around the country. Increasingly, imports from Uganda supply large-scale volumes to local markets.

Most cereal farming households are concentrated in Jonglei, the Equatorias, and Northern Bahr el Ghazal, and only a fraction of those households produce a marketable surplus. The following figure illustrates the distribution of cereal farming households by state.

**Figure 27. Number of Cereal Farming Households in South Sudan, by State (2012)**



Source: CFSAM 2012.

**Marketing channels and routes.** As noted above, there are three primary trading channels for cereals in South Sudan. Small-scale traders generally buy from local producers and sell in local markets. These traders can also travel to various regions, depending on the season and cereal availability. However, few small-scale traders move products across states due to high transaction costs.

Large-scale local traders generally source from other countries due to limited production in South Sudan. Although they sometimes engage in mid-distance trading during harvest seasons (when supply is available), in most instances local production is insufficient to justify the cost. For an example, a large-scale trader in Mundri indicated that when he sources maize from Uganda (more than 600 km away) he transports about 25 to 30 MT per trip. However, when he sources from Karika (less than 30 km away) during harvest season, he only transports about 7 to 10 MT because of the limited quantities available. Such limited quantities increase the per unit cost of locally produced cereals, and encourage large-scale traders to source supply from neighboring countries.

Large-scale local and foreign traders are concentrated in major urban centers, and particularly in Juba. They are predominantly Ugandans living in South Sudan. They generally have significant amounts of capital and business connections, and are capable of sourcing from distant markets such as Gulu and Kiriadongo in north and central Uganda, respectively. Despite cross border barriers, numerous en-route roadblocks, and high transaction

costs for long-haul transport, they are able to maintain profits because of increasing demand in South Sudan and the large volumes traded.

**Market conduct.** Local and imported cereals are distributed through the marketing channels and routes described above. During the USAID-BEST field visit in July 2012, it appears that no specific producer or trading group currently dominates South Sudan’s cereal markets; prior to independence, however, as previously mentioned, Arab traders and army merchants dominated. Because of the dearth of dominant players in the cereal market, new traders (mostly East African) have emerged, and former South Sudanese traders have resurfaced.<sup>178</sup> In the past, local traders relied on long-established Arab trader market information and transportation networks. After the collapse of the Arab cartels, these new players are learning to build their own—and newer—networks.

Most local and foreign large-scale traders operate in Juba, where competition is strong. In Konyonoyo market in Juba town, traders have formed The Chamber of Commerce of Konyokonyo Market. The USAID-BEST field team found no evidence that these traders collude to fix prices or influence trade. The Chamber’s main objective is to advocate for traders with the government on issues related to administrative procedures and traders’ needs and expectations.

Outside Juba, a small number of traders control trade, but lack market power to restrict entry (see text box). However, because of (1) the limited capacity those traders to increase capital and engage in long-distance trade, and (2) the limited regional availability of the tradable quantities necessary for mid-distance trade, “de facto” market power is conferred on those few traders that can access adequate capital and/or goods. For example, in Mundri, field interviews revealed that only two traders were able to engage in mid-distance trade.

#### TRADITIONAL MARKET POWER VERSUS DE FACTO MARKET POWER

In a traditional model, the behavior of market actors (market conduct) influences market power. They restrict entry and/or quantity to assert control over prices in order to make large margins. De facto market power is not caused by actors’ behavior; rather, low productivity de facto restricts the tradable quantities and hence the number of traders involved in trading.

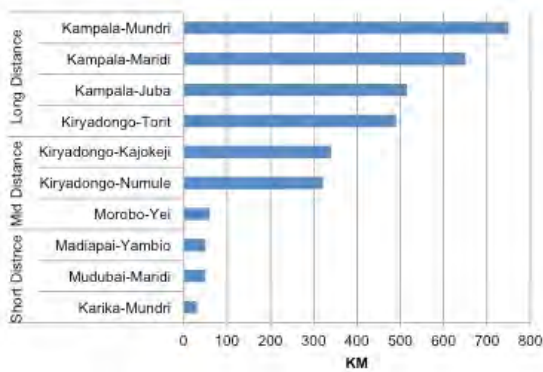
**Performance.** Availability of, and access to, staples are critical measures of market performance. Depending on the dominant trading channel in each specific South Sudanese market, traders seem able to satisfy demand at market prices most consumers can afford.

<sup>178</sup> These are mostly large traders who trade long distance.

This section will discuss measures of market efficiency in more detail. For this analysis, maize was selected because maize is the most traded commodity available from local farmers in the Equatorias region, and local maize supply is currently complemented by imports from Uganda.

The three trading channels analyzed, and key related routes, are shown in the following figure.

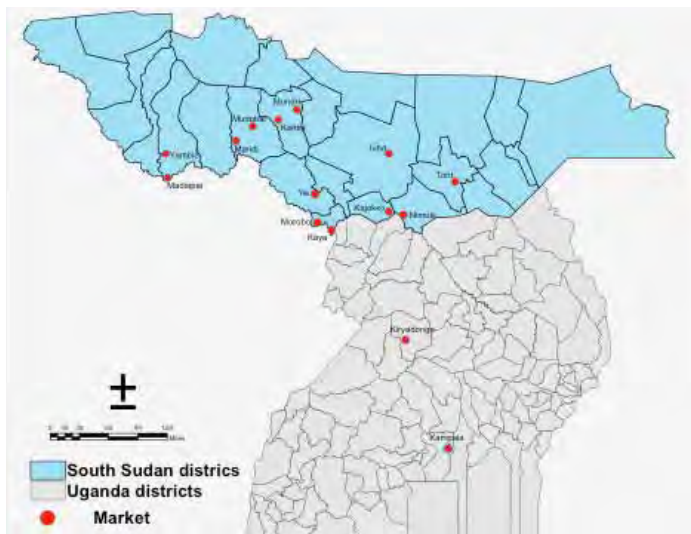
**Figure 28. Analyzed Trading Channels and Related Routes**



Source: USAID-BEST, as adapted from South Sudan Cost-to-Market Report, August 2011.

The following map shows various markets in South Sudan and in Uganda where maize is traded.

**Figure 29. Major Maize Trading Markets in Equatorias Region –South Sudan and Uganda**



Source: Created by USAID-BEST based on field work

In Juba and Torit, two important urban centers, long-distance trade dominates markets. These centers are connected by a main highway and other secondary routes to northern Uganda. In both markets generally, prices are low and profits margins small. According to traders, their main strategy is to move volumes faster rather than selling at high prices and larger profit margins. In these markets, traders supply maize year round, which is enough to meet local demand throughout the year.

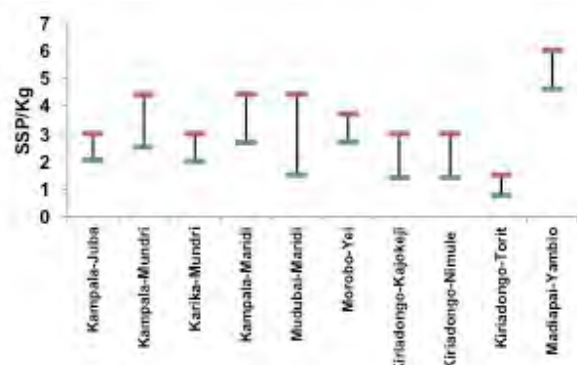
In Mundri and Maridi, two relatively important urban centers located further west and far from the main road to Kampala, imported maize is relatively more expensive. In these markets, few local traders are involved in long-distance trading. During harvest season in Western Equatoria, these traders revert to short- and mid-distance local trade. In Mundri, during the harvest season traders source mostly from Karika, which is closer (located 27 km southeast) and easily accessible. As expected, during harvest season, local prices are relatively low and demand is adequately met. During the lean season, maize prices are relatively higher, reflecting seasonal shortages.

In Western Equatoria, during harvest season producers and small scale traders are able to supply nearby markets at generally low seasonal prices. However, producers and traders in isolated areas struggle to supply markets. In Maridi, prices are high even though it is relatively close to Mudubai, a maize-producing area, because the truck route is quasi-inaccessible. Producers from Mudubai generally transport maize by foot or bicycle, which limits the volumes transported and increases per unit costs.

Other peri-urban centers such as Yei and Yambio rely almost entirely on local maize production. During harvest, supply is enough to meet local demand and prices are generally low. During the lean season, consumers either substitute products (for example, consuming cassava or sorghum) or buy products intended for food aid. During a market visits to Yei in July 2012 (lean season), some traders were selling WFP food aid and military rations from the GoSS.

Finally, in the border towns of Kajo Keji and Nimule, maize is directly imported from Uganda. Prices are generally lower than in the rest of the country. The lower prices can be partially explained by low transaction costs attending short-distance trade, but as a trader explained, residents from border towns are often exempt from paying custom taxes, which can significantly lower overall costs. The following figure shows source and destination prices markets for various marketing routes.

**Figure 30. Source and Destination Prices of Maize for Various Marketing Routes**



Source: Created by USAID-BEST field data.

## METHODOLOGICAL NOTE – SPATIAL ARBITRAGE MODEL

Before engaging in trading, traders examine price differentials between different markets and determine where to source commodities and where to sell them. In other words, a trader bases his decision on a simple spatial arbitrage model. In this model, the price at which traders sell cereals in destination areas is equal to the price in source areas, plus transportation costs. This relationship can be expressed in the following equation:

Price of grain in deficit area (PD) = Price of grain in surplus area (PS) + Transaction costs (T)

If this relationship holds, the markets in-country or in the region are said to be integrated, and the arbitrage between the two areas results in market efficiencies. In such cases, traders in the private sector have great incentives to move surpluses from production areas in the country or region to relative deficit areas where the demand is relatively high. This relationship often holds where all market actors can access consistent and current information about market conditions, and where market actors can store the product easily, without additional cost.

Price differences in two places rarely represent only transportation costs. Instead, in addition to transportation cost, there is a margin. The margin covers the opportunity cost of the trader's time.

Margin (M) = Price of grain in deficit area (PD) – [Price of grain in surplus area (PS) + Transaction costs (T)]

This expression suggests the following: If the margin is negative, there is no trade. This could be the case when transaction costs are too high. If the margin is positive, but small, trade may or may not occur. Traders may decide to trade even when margins are very small; in that case large quantities can offset small margins. If traders cannot trade large quantities, they may decide not to trade. If the margin is large, there is a large incentive to trade. However, traders will not always be able to take advantage of that large margin to engage in trading because large margins can be an indication of market power restricting entry to other traders, or an indication of seasonal shocks to supply that restrict tradable available quantities, or high transportation costs. Traders can be prevented from trading because of impediments to efficient arbitrage, such as trade barriers, or risk aversion. Finally, traders may fail to take advantage of existing large margins simply because they do not have the necessary information on prices in one or more of the markets, or the necessary credit to engage in such trade.

Based on findings from the July 2012 field visit and further study, the capacity of the private sector to meet localized cereal deficits can be summarized as follows:

- South Sudan domestic cereal production is insufficient to decrease the vast national cereal deficit in 2012.
- Within the Equatorias region, the most fertile region in the country, only Western Equatoria produces some cereal surplus. However, this surplus is insufficient to satisfy local demand. In the Equatorias region, only cereal imports can satisfy growing demand.
- In Juba and Torit, two main urban markets, imported cereals from Uganda satisfy demand year round, and at low prices which are accessible to most consumers.
- In other urban and peri-urban areas in Equatorias region:
  - Only a few large-scale local traders can source cereals from Kampala due to limited capital and high transaction costs.
  - During the harvest season, producers and small-scale traders are the most important players moving locally produced cereals. However, some large-scale traders will also transport cereals to local markets.
  - Traders' access to maize production areas is the most important factor in determining consumer prices.

When local production can satisfy demand, it is only possible during a limited time due to the lack of producer's storage capacity.

- In other peri-urban towns (for example, Yei):
  - There is limited long-distance trade.
  - Consumers rely on local production or substitute maize consumption with other available staples, when necessary.
  - Food aid is sometimes sold to fill the seasonal supply gap and satisfy demand.

The above information should serve as a guide to awardees when making programming decisions related to distributed food aid and food security activities, particularly if the objective is increasing cereal production. For example, the distribution of food aid could be coupled with activities that increase productivity for smallholders. This could be achieved, as noted previously, by targeted activities that create incentive to change agricultural practices. This approach would reward farmers' efforts to increase productivity.

### 4.4.3. Measures of Market Efficiency

This section presents results from an analysis of market efficiency, which included markets in South Sudan and the region. More information is provided for understanding how both national and localized cereal deficits can be decreased through trade, focusing primarily on how traders in South Sudan decide to engage in trading.

The section also analyzes transaction costs as they affect traders' margins along different marketing routes. Then, this section examines whether various markets within South Sudan and the region are effectively integrated—that is, whether information (including price information) is shared across markets—because integrated markets create incentives to produce as well as to trade.

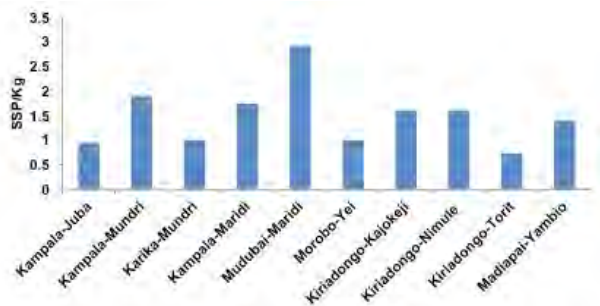
**Decision to trade.** Analyzing market power in South Sudan is difficult because there are no available data on quantities traded domestically. However, as noted previously, field observations suggest that no specific groups have controlled the markets since the Arab cartels were disbanded following South Sudan's independence. Importantly, as also discussed above, domestically traded quantities are restricted at present by low production and low productivity.

Barriers to trade have been analyzed in previous assessments and will not be deeply analyzed here.<sup>179</sup> However, custom taxes are included in this analysis, because they represent additional transaction costs that impact traders' margins. Traders' risk aversion is not analyzed here because doing so would require more in-depth data than are now available. The next two sections focus on those issues that the USAID-BEST team found most important in explaining the South Sudanese decision to trade: transaction costs and market price information. (Also see the text box on the previous page.)

Transaction costs affect traders' margins and markets integration, respectively. To examine those costs, we have used data collected during our field visit, along with time series price data collected by FEWS NET and the South Sudan National Bureau of Statistics. This analysis focuses mainly on maize because it is the most traded cereal in the Equatorias, but similar results are shown for sorghum.

**Transaction costs and traders' margins.** During the USAID-BEST field visit, 10 different marketing routes were studied, with all transaction costs recorded and analyzed for how they impact margins. The figure below shows trader margins for each of these marketing routes before deducting transportation costs. These margins are equivalent to simple price differentials between source markets and destination markets. As discussed earlier, these margins are small when the destination markets are urban centers or when the markets are seasonal. Margins are larger when markets at the production areas are not accessible.

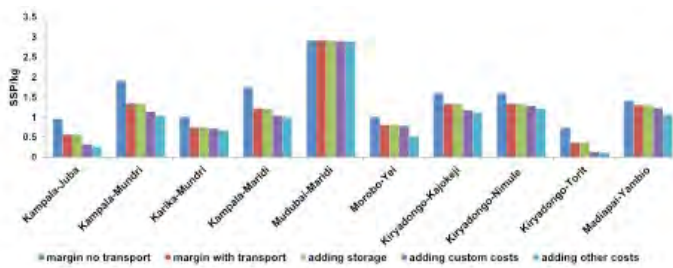
**Figure 31. Trader Margins for Various Marketing Routes Before Deducting Transportation Costs**



Source: Created by USAID-BEST using data collected during field work.

To analyze how different transaction costs affect these margins, one transaction cost at a time is introduced. The following figure shows the effect of different transaction costs on trader margins.

**Figure 32. Effect of Different Transaction Costs on Trader Margins**



Source: Created by USAID-BEST using data collected during field work.

**Transportation costs.** Transportation cost varies across marketing routes. It ranges from zero South Sudanese Pounds (SSP)—for example, when traders transport their goods by foot or by bicycle—to SSP 0.56 per kg. Transportation costs reduce trader margins by significant amounts, but to varying degrees. As reflected in the figure above, transportation costs appear to significantly affect margins for traders sourcing cereal from Kampala; this is explained by the long distance between Kampala and the four identified South Sudan urban markets.

Transportation costs have the least effect on margins for traders operating in border towns. This is simply a reflection of the short distance to Kiryadongo, Uganda where traders source their maize. The Mudubai-Maridi marketing route is unique; transport costs do not apply because traders move maize by foot or by bicycle.

**Storage costs.** In South Sudan in general, and in the Equatorias in particular, traders typically store their goods under semi-permanent, unsecured sites. They generally rent the sites on a per shipment basis, at an average cost of SSP 0.038 per kg (range: SSP 0.007 to 0.13 per kg). Compared with transportation costs, storage costs appear to be very low, and therefore as reflected in the previous figure have only minimal effect on traders' margins.

<sup>179</sup> Yoshino et al., 2011, Enhancing the Recent Growth of Cross-Border Trade between South Sudan and Uganda.

**Customs and taxes.** As of July 2012, South Sudan does not have an international tariff rate system. Customs officials use their own tariff books which are both complex and not standardized. Taxes paid at customs include duties, value added taxes, and goods and services taxes. On average, traders pay SSP 0.14 per kg for customs duties (range: SSP 0.005 to 0.2 per kg). Customs expenses affect trader margins more than storage, but not as much as transportation costs.

**Other costs.** These include loading, offloading, market licensing, ground fees (market entry fees), and all other petty payments. The impact of these costs on traders margins is small. On average, a trader pays SSP 0.08 per kg (range: SSP 0.06 to 0.27 per kg).

In sum:

- Transportation appears to be the most important costs, followed by customs taxes.
- After accounting for all transaction costs, trader margins remain positive in all 10 marketing routes studied, and are large in some cases.<sup>180</sup>
- With these positive margins, there may be incentive to trade.
- This raises the question: why is trade not flourishing?

The next section examines another important measure of market efficiency: the level of market integration throughout the country and the region. The degree of integration impacts incentives to trade.



<sup>180</sup> The FARM project conducted a similar exercise in 2011. They also found that traders were making small but positive margins in most of the marketing routes they considered.

**Market integration as a measure of market efficiency.**

This section examines the extent of cereal market integration in and between South Sudan and key markets in three of its neighbors (Sudan, Uganda, and Kenya). Integration is defined here as a set of markets that share common long-run price information:<sup>181</sup> that is, the degree to which price changes in one market are reflected in another market.

This analysis uses price data from FEWS NET, FAO, and the CLIMIS project, under the South Sudan National Bureau of Statistics. FEWS NET began collecting cereal market prices in 2006, and has gradually expanded its geographic coverage. The CLIMIS project has been collecting data since 2009.<sup>182</sup> The USAID-BEST team examined the degree to which South Sudan and regional cereal prices co-move. However, because of limited data on other commodities, this analysis examines South Sudan local market prices for sorghum and white maize grain only.

**INCENTIVE TO TRADE**

Price differences between locations and over time are necessary to create incentives for market actors to engage in trade. Spatial price differences are usually not as much of a concern as is price variability (i.e., excessive or little variability). Excessive price variability can signal a lack of market integration across space, while little variability can signal price control.

Inadequate provision of public goods (especially roads), inefficient information flow, and limited market infrastructure (e.g., credit institutions) can all cause failures in the market, which may manifest as poor market integration. Understanding the degree of market integration between two markets can help diagnose problems in agricultural commodity markets. For example, if market margins are significantly larger than the cost of transportation between two markets, that may indicate that markets are not sharing information, or there are trade barriers or credit constraints. If the costs of transportation are much higher between two markets than for other market pairs or in nearby countries, this may suggest that road quality, imperfect competition in the transport sector, or excessive checkpoints are preventing improved market performance.

<sup>181</sup> Rivera and Helfand, 2001, The Extent, Pattern, and Degree of Market Integration: A Multivariate Approach for the Brazilian Rice Market.

<sup>182</sup> Time series data on trade flows across districts are currently not available in South Sudan. If such data were available, testing the time efficiency of arbitrage would have been easier to analyze. As a second-best option, this analysis presents trade flow information as informed by existing price data.

**Analysis.** As reflected in the Figures 33 and 34, respectively:

- White maize market prices have been relatively stable and positively correlated throughout the period 2009 to 2012. Prices began to rise in early 2011, reaching record-high prices in mid-2012.
- Throughout the period considered for sorghum (2006-2012), sorghum market prices within the markets analyzed tended to follow the same trends especially during 2006–2009.<sup>183</sup> After 2009, however, the markets became volatile, as reflected in the prices variations shown in the following figure for sorghum; prices spiked dramatically near the beginning of 2011. While overall prices tended to move in the same general direction, the spreads between the markets grew increasingly larger starting in 2009, and continued separating more drastically after 2010.

As noted above, for both quantities, prices began to increase significantly in 2011. The apparent pivot point for these increases was the South Sudan independence referendum in January 2011.

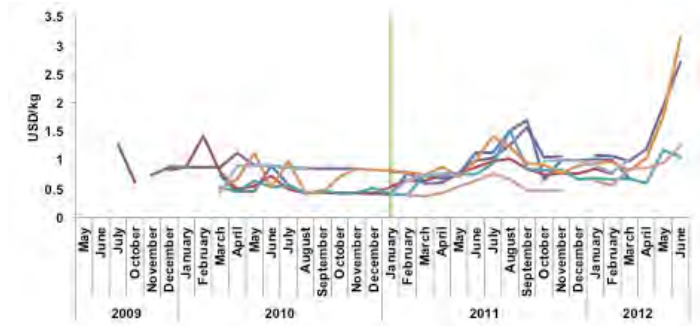
One key informant noted that during the period leading up to the referendum vote, Renk County in Upper Nile state lost the majority of its commercial farmers when they withdrew to Sudan. This loss was significant and has had continuing repercussions. The farmers were Arabs from Sudan who had operated privately owned mechanized commercial farms in Renk County. Going back to the 1950s, those farms supplied populations on both sides of the proposed South Sudan border, including Jonglei, Juba, Khartoum, White Nile, and parts of Blue Nile states. The loss of these commercial farmers negatively affected production levels and market supply in South Sudan starting in November 2010; the impact was still felt in mid-2012.

The disruption in Renk County typified the overall situation in South Sudan at that time, which was characterized by persistent market shortfalls and increased market prices. That situation actually worsened after independence in July 2011, for the following reasons:

- Just before the referendum, South Sudanese returnees flocked into the border towns near the northern South Sudan border, resulting in sudden increased demand.
- Insecurity caused by various militia groups in Unity and Upper Nile states disrupted market supplies, resulting in supply shortfalls and higher prices in those regions.
- The sustained, official trade restrictions by Sudan on commodity flows to South Sudan post-independence has further decreased market supplies and driven high prices.
- The Sudanese government declared a state of emergency in all the border states, disrupting and reducing the informal trade (smuggling) that had emerged during the sustained trade restriction.

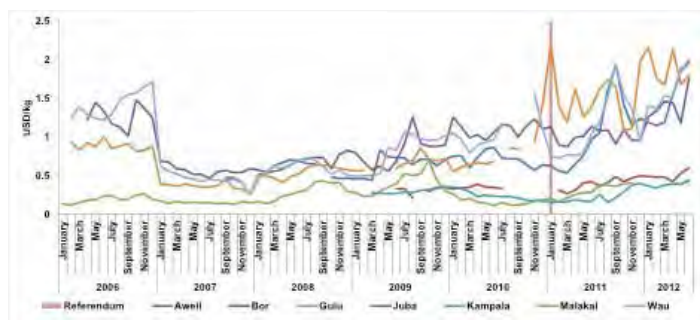
<sup>183</sup> For the econometrics analysis, we start with the year 2009, for which data are more complete.

**Figure 33. South Sudan White Maize Grain Prices (USD/kg), 2009–2012**



Source: Created by USAID-BEST, using data from CLIMIS data.

**Figure 34. South Sudan Sorghum Prices, (USD/kg), 2006-2012**



Source: Created by USAID-BEST, using data from FEWS NET

**Pre- and post- independence.** The co-movement of prices is further analyzed using Pearson’s correlation coefficients to indicate the degree of market integration.

**Maize:** The two tables below show the results of market integration between 2009 and 2012 for maize, and from 2006 to 2012 for sorghum. The strongest correlations for maize exist between Yambio and Rumbek (0.832) and Juba and Aweil (0.829), whereas Wau and Juba share little to no correlation. Moreover, nearly half of the markets are weakly correlated. Rumbek appears to be moderately integrated with all markets, most likely because of its central location, but also because of its high maize production. These figures suggest that the majority of white maize prices are independent of neighboring domestic market prices.

At a regional level, over the period from 2009 to 2012 Aweil, Juba, and Wau appear to have relatively strong links to markets in Uganda and Kenya (see immediately below). Aweil white maize exhibited strong correlation with the neighboring country markets of Kenya and Uganda, with the strongest link to Arua. Juba appears to have moderate links to Kenyan and Ugandan markets. All the other markets considered (Wau, Torit, Rumbek, Kujok, Yambio) appear to have weaker correlations with the regional markets.

**Table 8. Pearson Correlation Matrix for South Sudan, Uganda, and Kenya for White Maize Grain, 2009–2012**

	Aweil	Juba	Wau	Torit	Rumbek	Kuajok	Yambio	
Aweil								South Sudan
Juba	0.829***							
Wau	0.701***	0.283						
Torit	0.292	0.325	0.170					
Rumbek	0.699***	0.668***	0.707***	0.595***				
Kuajok	0.196	0.203	0.038	0.086	0.201			
Yambio	0.585**	0.596**	0.723***	0.365	0.832***	0.479		
Arua	0.754***	0.596***	0.467***	0.121	0.478**	0.197	0.393*	South Sudan – Uganda
Kampala	0.621***	0.488***	0.446**	0.003	0.488***	0.180	0.243	
Eldoret	0.718***	0.697***	0.430**	0.217	0.441**	0.057	0.258	South Sudan – Kenya
Mombasa	0.654***	0.632***	0.462***	0.166	0.490***	0.093	-0.017	
Nairobi	0.706***	0.656***	0.538***	0.164	0.544***	0.259	0.242	

Source: Created by USAID-BEST, using data from FEWS NET and National Bureau of Statistics.

Notes: \*correlation is significant at the 10% level; \*\*correlation is significant at the 5% level; \*\*\*correlation is significant at the 1% level.

**Table 9. Pearson Correlation Matrix for South Sudan, Uganda, and Kenya for Sorghum, 2006–2012**

	Aweil	Juba	Wau	Malaka	Bor	
Aweil						South Sudan
Juba	0.599***					
Wau	0.872***	0.837***				
Malaka	0.709***	0.628***	0.667***			
Bor	0.726***	0.639***	0.688***	0.671***		
Gulu	0.327**	0.148	0.246**	0.281**	0.122	South Sudan – Uganda
Kampala	0.433	0.297*	0.364**	0.055	0.502**	
Eldoret	0.483***	0.339***	0.285**	0.368***	0.193	South Sudan – Kenya
Mombasa	0.271**	0.161	0.152	0.384***	0.227	
Nairobi	0.433***	0.319***	0.238**	0.455***	0.720***	

Source: Created by USAID-BEST, using data from FEWS NET.

Notes: \*correlation is significant at the 10% level; \*\*correlation is significant at the 5% level; \*\*\*correlation is significant at the 1% level.

**Sorghum:** The strongest sorghum price correlations exist between the markets of Wau and Aweil (0.872) and Wau and Juba (0.837). Due to the geographical proximity of the Wau and Aweil markets, evidence of a strong price relationship is not surprising. All other South Sudan markets can be described as moderately integrated (0.599–0.726).

South Sudan sorghum markets exhibited limited correlation with the neighboring country markets of Kenya and Uganda from 2006 to 2012, with only Bor being weakly linked to Kampala and moderately linked to Nairobi. (See tables below.)

**Post-referendum.** Following the referendum in January 2011, the oil shutdown that followed in early 2012, and the resulting trade blockade between South Sudan and Sudan, the regional trade dynamic changed substantially. To account for the new regional trade dynamic, we consider a shorter sub-period (2011–2012), which corresponds to the period from and after the referendum.

**Maize:** As reflected in the maize correlation table below, South Sudan's domestic markets for white maize prices do not show much integration with the markets of Kenya or Uganda. Post-referendum, Aweil, for example, is no longer linked to any of the regional markets. Trade appears to be concentrated into Juba, which has much stronger correlation with the regional markets. All other South Sudanese markets appear to have weak to no correlation with regional markets.

**Sorghum:** For sorghum, and as reflected in the sorghum correlation table below Table 11, market integration appears to be improved during 2011–2012, although most markets are still weakly correlated. Aweil now appears to be correlated with Gulu and only weakly with Kampala. Juba, as is the case with white maize, has more links with Kenyan and Ugandan markets. The integration of Juba and regional markets, particularly with Uganda, may be explained by the recently completed (mid-2012) paving of the Juba-Nimule road.



**Table 10. Pearson Correlation Matrix for South Sudan, Uganda, and Kenya for White Maize Grain, 2011–2012**

	Aweil	Juba	Wau	Torit	Rumbek	Kuajok	Yambio	
Aweil	1							South Sudan
Juba	0.719***	1						
Wau	0.835***	0.623**	1					
Torit	0.738***	0.485**	0.569**	1				
Rumbek	0.699***	0.639**	0.830***	0.501**	1			
Kuajok	0.252***	0.571**	0.466	0.278	0.09	1		
Yambio	0.776***	0.833***	0.843***	0.382	0.832***	0.479	1	
Arua	0.468**	0.775***	0.421*	0.293	0.27	0.444	0.581**	South Sudan – Uganda
Kampala	0.178	0.552**	0.463**	0.025	0.255	0.097	0.587**	
Eldoret	0.394	0.774***	0.321	0.1682	0.150	0.492*	0.417	South Sudan – Kenya
Mombasa	0.281	0.671**	0.455**	0.181	0.196	0.539**	0.430*	
Nairobi	0.403	0.807***	0.546**	0.249	0.378	0.570**	0.552**	

Source: Created by USAID-BEST, using data from National Bureau of Statistics.

Notes: \*correlation is significant at the 10% level; \*\*correlation is significant at the 5% level; \*\*\*correlation is significant at the 1% level.

**Table 11. Pearson Correlation Matrix for South Sudan, Uganda, and Kenya for Sorghum, 2011–2012**

	Aweil	Juba	Wau	Malaka	Bor	
Aweil	1					South Sudan
Juba	0.501**	1				
Wau	0.945***	0.559**	1			
Malaka	0.235	0.317	0.352	1		
Bor	0.589***	0.691**	0.619***	0.423**	1	
Gulu	0.836***	0.590**	0.852***	-0.092	0.847***	South Sudan – Uganda
Kampala	0.543**	0.644***	0.567**	0.125	0.810***	
Eldoret	0.368	0.511**	0.382	0.000	0.382	South Sudan – Kenya
Mombasa	0.155	-0.018	0.137	-0.115	0.363	
Nairobi	0.398	0.641***	0.427**	0.335	0.737***	

Source: Created by USAID-BEST, using data from FEWS NET.

Notes: \*correlation is significant at the 10% level; \*\*correlation is significant at the 5% level; \*\*\*correlation is significant at the 1% level.

From the above analysis and tables, several observations can be made to inform the key considerations section that follows:

- Within South Sudan, both before and after the referendum, markets appear to be sharing information in the short-run.
- Markets for sorghum (the bulk of which is locally produced), appear to be better integrated than markets for white maize grain (the bulk of which is imported from neighboring countries).
- Post-referendum, the situation within South Sudan has changed little. Markets have remained related to each other, with weak to moderate price transmission.
- Post-referendum, the situation between South Sudan and its regional neighbors changed considerably for maize but not for sorghum. Over the longer period analyzed, maize markets appear to be more integrated with regional markets. The links appear particularly significant in Juba and in Aweil. However, sorghum markets changed little; there were few links to markets

in Kenya and Uganda either pre- or post-referendum. This is not surprising since maize has been more commonly traded with South Sudan's southern neighbors (Uganda and Kenya) than sorghum.

- Post-referendum, regional trade seems to be concentrated in Juba, which appears to be linked to all regional markets considered for sorghum, and to four out of five markets for white maize.

## 4.5. KEY TARGETING CONSIDERATIONS FOR TITLE II DISTRIBUTED FOOD AID

This report was written in August/September 2012, and as of that time, USAID plans to fund a new Title II development program in South Sudan in FY13 or FY14. This planned program is expected to complement the current Jonglei State Food Security Programme (JFSP) Multi-Year Assistance Program (MYAP), implemented by Catholic Relief Services (CRS), in Jonglei State until June 2014.

This potential new program can build on current food security gains achieved from the JFSP program and other linked USAID interventions. USAID has preliminarily proposed that a new development program should consider the region covering the states of Western Equatoria, Central Equatoria, and Eastern Equatoria, and target very food insecure areas within that region. Successful food security programming can create improved livelihoods and reduce poverty for targeted areas, and help consolidate much-needed development gains following South Sudan's independence.

This Chapter reported analytical findings on national and localized food deficits in South Sudan, and the private market's capacity to supply deficit areas. This section presents key considerations for all distributed food aid interventions in-country. Topics covered include: geographic, seasonal, and household/individual targeting; potential activities; commodity selection; and food aid leakages. The following chapter will discuss potential uses for cash/voucher programming in the Equatorias.

The most significant consideration is very basic: with the long history of conflict and emergency food aid in South Sudan, how can food assistance be successfully programmed to minimize dependency and encourage behavior changes? A wide range of food security stakeholders were interviewed during the USAID-BEST field work in-country in July 2012, including local farmers, federal/state/local GoSS officials involved in agriculture, local and international NGOs, traders, the private sector, the UN, and other USAID implementing partners. This wide range of individuals almost uniformly stated that interventions need to prioritize agricultural development to improve long-term food security for South Sudan, especially to take advantage of the agricultural potential within the Equatorias. A number of interviewees argued that if food aid is distributed, it should be very targeted and focused on emergency shocks, refugees, returnees, and only those deemed most vulnerable within targeted communities.

Food security programming can also effectively target those areas with a relatively higher potential to increase agricultural production. This has potential to increase the sustainability and impact of agricultural training and increased production. Title II programs can improve food security for appropriately targeted individuals and communities. Further, Title II awardees should use the full range of tools available (such as FFA, FFV, behavior change and communication activities (BCC), and MCHN/"1,000 days" programs—all detailed later in this section and the next chapter—and cash/vouchers) to effectively target interventions for those that are the most food insecure in the Equatorias.

**Geographic targeting.** CRS' current JFSP MYAP targets eight counties within Jonglei state for food security interventions. Any future Title II developmental programming that targets the Equatorias should apply lessons learned from CRS' current MYAP and ADRA's recently ended SSHiNE MYAP that targeted Warrap and Northern Bahr El Ghazal.

The USAID-BEST Project recommends that any potential future Title II developmental program that is targeted for the Equatorias be focused on the most vulnerable and food-insecure counties/payams within those three states. Targeting should take into account the agro-ecological zones within the region (see the first figure of this Chapter) cereal surpluses/deficits for particular counties, and other relevant factors (for example, the concentration of NGO activity in the targeted zone, level of local government support, complementarity with other development interventions, physical security, and local transport capacity). The FANTA Food Security Country Framework (to be completed later in the fall of 2012) can also be used by all development stakeholders to effectively determine optimal regions for potential programming, using health, nutrition, and other related data.

Additionally, cereal surplus/deficit information by county for the last two CFSAMs for South Sudan (2011 and 2012)<sup>184</sup> shows that:

1. In Eastern Equatoria, the counties with the largest cereal deficits are in the drier northern and eastern parts of the state (for example, Lafon, Kapoeta East, Kapoeta North, and Kapoeta South counties).
2. In Central Equatoria, all counties outside Juba have significant cereal deficits except for Terekeka.
3. In Western Equatoria, most counties have cereal surpluses except for Mundri East, Mundri West, and Maridi counties.

The above sources, along with the analysis on cereal surpluses/deficits presented earlier in this Chapter (see the first three figures under the "Localized Food Deficits" section for detailed cereal production and requirement data) should help inform and guide geographical targeting considerations for potential Awardees.

<sup>184</sup> As mentioned earlier in this Chapter, during field work, the USAID-BEST study team heard significant skepticism expressed by many key interviewees about the CFSAM methodology used in calculating county-level cereal surpluses and deficits. The surpluses/deficits data presented in this Chapter should be interpreted as approximations.

Program consolidation should also be considered to maximize program impact. Potential programming that targets agro-pastoralist or pastoralist areas within the Equatorias should apply “lessons learned” from ongoing MYAPs in the Karamoja region of Uganda, and from the drier zones covered by CRS’ JFSP in the southeastern part of Jonglei State.

Finally, in coordination with the GoSS, international donors have taken lead roles in health programming in each of the ten states. USAID/South Sudan is the health lead for Western Equatoria and Central Equatoria. If potential awardees implement Title II development programs in either of those two states, efforts should be made to integrate resulting food security and health programming efforts to maximize impact.

**Seasonal targeting.** Potential Title II development programming should consider a number of seasonal factors. The lean season in the Equatorias is generally from May to August, and potential beneficiaries should be expected to have the highest levels of food insecurity during that period. Importantly, there are slight variations in lean seasons based on specific microclimates and variations in rainfall patterns within the three Equatoria states.

CRS’s JFSP MYAP in Jonglei State undertakes FFA programming, and lets the local communities decide whether activities should be implemented in the dry or rainy seasons. This is a good practice, because local community members and their leaders typically know local conditions and variations the best, and are empowered through this strategy. Potential awardees should conduct appropriate local assessments and utilize local communities and their knowledge to determine the most effective programming, taking into account seasonal conditions, local market conditions, and integration of program activities for particular targeted counties and payams.

**Household/Individual targeting.** Targeting of households and individuals should take into account nutrition status and labor availability, among other factors. National nutritional indicators are as follows for children under 5 years of age: 27.6 percent are underweight; 22.7 percent are wasted; and 31.1 percent are stunted.<sup>185</sup> In general, nutrition statistics are slightly better in the Equatorias compared with other South Sudan states, but there remain significant areas within the Equatorias that have high rates of severe and global acute malnutrition (SAM and GAM).<sup>186</sup>

CRS’ current JFSP MYAP requires significant labor input for FFA work, including building or repairing roads, dykes, and other infrastructure. Potential Title II partners should assess labor availability and capacity on an individual household basis when designing programmatic interventions.

In evaluating overall food security levels for South Sudan, both nationally and in the Equatorias region, access, availability, and utilization are all key issues under the standard food security

framework. Western Equatoria generally has less of a challenge with food availability than Central Equatoria or Eastern Equatoria, but access and utilization remain significant challenges in all three Equatoria states. Further, malnutrition in South Sudan is not just linked to inadequate quantities of food. Utilization is also a key contributor to food insecurity. Malnutrition can also be targeted and improved through the following interventions: improved infant/young feeding practices; improved hygiene/sanitation; increased access to quality health services; improved health messaging; and reducing the overall high disease burden in-country (for example malaria, diarrhea, HIV, and respiratory infections).<sup>187</sup>

Targeting in food assistance programs can always be improved. CRS’ JFSP MYAP utilizes the criteria of high relative need, high return on investment, and complementarity for its program. This approach provides a good framework for future Title II development programming in South Sudan. Additionally, communities should play a large role in determining levels of vulnerability for selecting beneficiaries, and consideration should also be given for refugees, returnees, those chronically vulnerable to shocks, and those households with the potential to increase agricultural production. For example, households with higher levels of land availability, education, and agricultural potential could more effectively utilize agricultural training, provided inputs, and market information sharing.

USAID-BEST field interviews in July 2012 in all three Equatoria states confirmed anecdotally that local stakeholders generally supported the above criteria in determining potential beneficiaries for food assistance and linked food security programming. Finally, the USAID FARM (Food, Agribusiness and Rural Markets) project is targeting smallholder farmers in nine payams in each of the three Equatorias (27 payams overall) to improve production of agricultural staples, primarily through subsidized, improved seed and fertilizer. Potential Title II Awardees should ensure that proposed interventions complement rather than conflict with these related activities, especially if the two programs (the current JFSP MYAP and a new Title II program) are operating in proximity to one another.

**Activity type.** CRS’ current JFSP MYAP utilizes FFA programming to improve infrastructure (for example, roads and dikes) that will improve agricultural production, along with interventions to conserve soil and water, and improve seed quality and access for beneficiaries within Jonglei state. Some of these interventions may be applicable to similar agro-ecological areas within the Equatorias regions. Other interventions may be more appropriate for areas that have different agro-ecological characteristics. The full range of FFA, FFV, MCHN activities, Behavior Change and Communication (BCC), and other food security interventions should be considered for potential programmatic implementation within very food insecure areas of the three Equatoria regions.

<sup>185</sup> WFP, February 2012, Annual Needs and Livelihoods Analysis 2011/2012 South Sudan and GoSS/MoH, 2010, South Sudan Household Survey.

<sup>186</sup> WFP, February 2012, Annual Needs and Livelihoods Analysis 2011/2012 South Sudan,

<sup>187</sup> WFP, February 2012, Annual Needs and Livelihoods Analysis 2011/2012 South Sudan and USAID/TANGO/FANTA, 2007, Sudan Food Assistance Transition Study.



Photo by Fintrac Inc.

Mid-size maize trader, operating between Nimule and Uganda. Eastern Equatoria, South Sudan, July 2012.

For MCHN programs,<sup>188</sup> preventive and/or recuperative approaches to malnutrition among infants and young children should be considered. Both preventive and recuperative programming, similar to existing MCHN programs in other Title II development countries with a focus on under age five, could be considered and adapted for South Sudan. Programs that encourage improved infant and young child feeding practices through BCC, and Water and Sanitation/Hygiene (WASH) practices need not be accompanied by large volumes of in-kind food aid, especially in the South Sudan context.

<sup>188</sup> For further guidance on the appropriate design of MCHN interventions generally, and Preventing Malnutrition in Children Under 2 Approach (PM2A) specifically, please see USAID's Commodities Reference Guide, accessible via [http://www.usaid.gov/our\\_work/humanitarian\\_assistance/ffp/crg/sec1.htm](http://www.usaid.gov/our_work/humanitarian_assistance/ffp/crg/sec1.htm), and FANTA Project's PM2A Technical Resource Materials (TRM) and other related guidance, accessible via <http://www.fantaproject.org/pm2a>.

PVOs interested in implementing preventive approaches (for example, a "1,000 Days" approach that targets women from early pregnancy until the time the child is 24 months old) should bear in mind lessons learned from the ADRA MYAP, and other current and previous programming. ADRA utilized the PM2A "1,000 Days" approach for its earlier SSHiNE MYAP. The program ended in June 2012, and no formal final evaluation was done for the MYAP because of the shortened program implementation period and other significant challenges.<sup>189</sup> However, a policy brief and technical papers describe some of the lessons learned during ADRA's shortened program. There were a number of factors that impeded full implementation of the program. The primary factors were: operating in a remote, unstable, and very challenging work environment; inadequate and delayed program implementation by ADRA; and the delayed or blocked arrival of US commodities for the PM2A program.

PVOs considering this approach will need to fully study ADRA's experience in NBEG and Warrap and draw relevant conclusions about the feasibility or appropriateness of a preventive MCHN program in the Equatorias Region. There are a number of distinct characteristics in the two operational areas (past and proposed) which would influence the feasibility of such programming, a sample of which is outlined in the table below.

**Table 12. Select Characteristics of Past and Proposed Programming Areas**

Characteristic	ADRA PM2A Program	Proposed New Area
Operational Area	Warrap and NBEG	Western/Central/Eastern Equatorias
Ethnic group's tendency to share food	Primarily Dinka, food is shared	Many ethnic groups, culture of sharing food may or may not be as strong, also includes agro-pastoral zones
Availability of Health Services	Low	Low to Improved
General Stability	Poor	Improving
# of Returnees (as of 5/2012)	Approximately 105,000 in 2 states	Approximately 57,000 in 3 states
Ease in Delivering US Title II Commodities	Harder	Easier (less remote)
Implementation	2 years, 2010-12	3-5 years

<sup>189</sup> ADRA senior staff members in Juba were interviewed and detailed management, security, logistics and operational context issues when explaining why the SSHiNE MYAP ended prematurely, after only 2 years.

USAID and PVOs should consider multiple approaches to addressing malnutrition for pregnant mothers and infants under 5, based on evolving operating conditions and market function in the Equatorias Region, where a new Title II development program is expected to be implemented in FY13 or FY14.

Many stakeholders interviewed during USAID-BEST field work in July 2012 expressed the need to rebuild agricultural extension services and provide better agricultural information. This market information could be disseminated through information officers, and could include information on prices, estimated harvests, storage facilities, and other topics relevant to farmers. Training could be provided through Title II Awardees for improved agricultural extension workers and information officers, either through government channels or informally.

USAID should encourage PVOs to consider creative options to improve malnutrition through LRP, cash, or voucher programming, where feasible, appropriate, and possibly complemented by other Title II resources.

**Commodity selection.** Maize, sorghum and millet are the preferred cereals in South Sudan, and maize is likely the most preferred cereal throughout the Equatorias region, but with many local variations for actual cereal preference. Consumers prefer peas and lentils to beans, partially because peas and lentils require a generally shorter cooking time, and therefore less firewood. Vegetable oil is commonly used in cooking, is a high-value commodity, and is in demand because very little is produced locally.

CRS's current JFSP MYAP distributes sorghum, peas, and vegetable oil. CRS's current daily ration for FFA activities is 2,500 g of sorghum, 250 g of yellow split peas, and 150 g of vegetable oil. Participants can only work a maximum of 20 days per month. The USAID-BEST field team was unable to visit the JFSP program due to USAID's preference to conduct field work in the Equatorias region, and time and transport constraints. CRS reported that all of its above JFSP commodities are readily accepted by beneficiaries, and are easily imported into the country.

ADRA's recently completed SSHiNE MYAP distributed bulgur wheat, lentils, vegetable oil, and regionally-purchased CSB to Warrap and Northern Bahr el Ghazal states. Bulgur wheat for the ADRA SSHiNE MYAP was delayed by GoS officials at Port Sudan due to lengthy food inspections, and this led to delayed and incomplete distributions of the bulgur wheat.<sup>190</sup>

Maize and lentils have also been commonly used for previous USAID-funded emergency food aid distributions in South Sudan.

If any commodities are being sold on the market by beneficiaries, vegetable oil would probably be the likeliest choice because of its higher potential value relative to the cereal or pulse in a ration. However, the team was unable to visit any markets in Jonglei state to observe whether this is taking place.

ADRA tried to distribute US-produced CSB for its SSHiNE MYAP. However, the GoSS blocked its importation because of GMO content. ADRA then sourced and purchased regionally-produced CSB in Kenya, and transported it, with delays, to its SSHiNE project implementation sites. If potential Awardees plan to propose CSB as a distribution commodity (e.g., as a potential component of a MCHN program), they should determine beforehand whether the GoSS will permit the importation of US-produced CSB due to its GMO content, or whether a regional purchase in East Africa would be necessary and feasible.

Potential awardees should make any necessary adjustments to fit local conditions or dietary requirements when planning programmatic interventions. For example, CRS decided to supplement its FFA ration with salt because Jonglei state has low per capita salt consumption compared with the national average. Salt consumption is higher in the Equatorias, but potential awardees may also choose to include salt based on measured local diet deficiencies.

<sup>190</sup> USAID-BEST field interview with ADRA SSHiNE staff, Juba, July 2012; if prospective Title II Awardees would like to consider distributing bulgur wheat, they should determine in advance whether local communities would accept this commodity, and whether the GoSS has any issues with importing it.



## CHAPTER 5: THE ROLE OF LOCAL AND REGIONAL PROCUREMENT, CASH, AND VOUCHER PROGRAMMING

Compound farming system capable of producing only enough for self-consumption. Maridi, South Sudan, July 2012.

Photo by Fintrac Inc.

**Evidence of food aid leakage in local markets.** Food aid leakages onto local markets have historically been a significant challenge in South Sudan because of the very high levels of distributed food aid donated during the many years of conflict. The USAID-BEST team visited markets throughout the three Equatorias regions, and only saw USAID commodities for sale (cornmeal and vegetable oil) in Yambio town.<sup>191</sup> This was reported to USAID/South Sudan, and likely came from nearby distributions in IDP camps in the DRC. WFP commodities were seen at markets in Yei town and Konyokonyo in Juba, and were also reported by CRS to be for sale at the market in Bor town. For example, WFP sorghum food aid (approximately 30 sacks of 50 kg each) were seen for sale in Yei market. Traders at Yei market also reported that sacks of maize for sale came from soldiers who sold their military rations. Potential Awardees should ensure that food aid leakages are minimized. Some actions could include rigorous targeting, follow up to ensure targeted beneficiaries utilize their rations and understand the full nutritional benefits of vegetable oil in their diet, and health messaging that could improve food security utilization for targeted families.

<sup>191</sup> With respect to USAID commodities, in Yambio market in July 2012, 4 tins containing 4 liters of vegetable oil and a dozen 25 kg bags of cornmeal were seen for sale; this was reported to USAID Juba with some accompanying lot numbers.

### 5.1. INTRODUCTION

This Chapter examines the potential use of local and regional procurement (LRP), cash, and voucher programs in the Equatoria region of South Sudan (that is, the states of Western Equatoria, Central Equatoria, and Eastern Equatoria)<sup>192</sup> as a possible complement to in-kind Title II food aid.

Although to date, Title II resources have not been used for LRP, cash, or voucher programs in South Sudan, cash and voucher programs funded through other sources have been implemented in South Sudan, and potential development programming should be informed by the lessons learned.<sup>193</sup> This will enable future Title II awardees to consider both in-kind food aid and non-food aid interventions, selecting the most efficient based on appropriateness to the local context, market dynamics, beneficiary preferences, and available resources — while still following USG regulations.

<sup>192</sup> Together, these states are sometimes referred to in this report as “the Equatorias region”.

<sup>193</sup> Many of the cash and voucher program that are being implemented are emergency programs. These can however inform post recovery and development programs.

## DETERMINING THE APPROPRIATE RESPONSE TO FOOD INSECURITY

When food is available on markets and affordable for poor, food insecure households, in-kind food aid may not be the most appropriate option for addressing food insecurity. Depending on local market conditions, transfers through direct cash payments, vouchers, public employment schemes, or other transfer systems may be more suitable development interventions. Similarly, when local or regional markets function well, and sufficient food is available, transoceanic food aid may not be necessary. By procuring food from local or regional markets, donors may move it more quickly and cheaply to beneficiaries. Locally procured food may also be more culturally appropriate.

Answers to critical questions help inform decision-makers about the appropriateness of in-kind, LRP, cash, and voucher programs. Those questions include: (1) Are local markets functioning well? (2) Can poor, food insecure households access food from local markets? (3) Is there sufficient food supply in local or regional markets for donors to procure from those markets?

If local markets are functioning well, cash transfers may offer a viable option for addressing food insecurity among the poor. This determination involves understanding two key issues: (1) Market access - how well the food insecure households are connected to local markets. (2) How rapidly local market supply can respond to an unanticipated shock that causes a spike in demand.

Early research is critical to determine whether there is sufficient food supply in local or regional markets to allow donors and/or implementing partners to procure food without inadvertently harming poor households who buy food in those same markets. When identifying the markets that can provide the most sufficient, cost-effective, and timely supply, critical questions include: (1) Which local or regional markets are potential sources of adequate supply? (2) How might prices in these markets be affected by large donor purchases? (3) How do local and regional purchases compare with transoceanic procurement in terms of purchase costs, transport costs, potential market price impact, cultural appropriateness, nutrition, and storability?

The answers to these questions are country-specific and often region-specific.

This chapter begins with an overview of current LRP, cash, and voucher programs in South Sudan, and discusses the array of factors that influence program success. The overview also highlights potential benefits of these programs relative to transoceanic food aid, and the various risks that come with implementing each program type. Three types of programs<sup>194</sup> are reviewed: (1) WFP programs, both under P4P and regional purchases; (2) OFDA-funded programs; and (3) other prominent donor programs.

To gauge the potential benefits of LRP over transoceanic aid shipment, the USAID-BEST team compared their timeliness, cost efficiency, and recipient satisfaction. Research conducted in multiple country settings<sup>195</sup> suggests that for cereals, LRP is preferable to transoceanic shipments in terms of time saving and cost saving, and for cash and voucher interventions. Overall, however, neither cash nor voucher programs appear to be superior to LRP; this suggests that program context and objectives play an important role in determining which response is most appropriate.

## 5.2. PREVIOUS AND CURRENT LRP, CASH, AND VOUCHER PROGRAMS IN SOUTH SUDAN

This section reviews past and current LRP, cash, and voucher programs. Three types of programs are reviewed:

- WFP P4P and regional purchases.
- OFDA-funded programs.
- Other prominent donor programs.

The review is not intended to be exhaustive; rather, programs were selected for review based on their anticipated relevance for donor programming in the Equatorias.

### 5.2.1. World Food Programme

**WFP Cash Reintegration Package (CRP).**<sup>196</sup> The CRP is US\$6 million pilot project that provides a combination of cash transfers and in-kind food aid to returnees to help them reintegrate into their former communities. Of the US\$6 million program total, US\$2 million is earmarked for in-kind food aid and US\$4 million for cash transfer. The in-kind food aid is distributed directly by WFP, while the cash component is implemented through Kenya Commercial Bank (KCB). The CRP program was just beginning to be implemented during the USAID-BEST field work during the summer of 2012, and the results of this program are expected in 2013.

<sup>194</sup> The review is not exhaustive. We selected the most relevant programs visited during our field work

<sup>195</sup> Barrett et al., 2012, The Timeliness and Cost-Effectiveness of the Local and Regional Procurement of Food Aid.

<sup>196</sup> WFP, 2012, Corporate Market Scoping Mission Report for Republic of South Sudan, and information obtained from WFP officials.

The CRP is being implemented because WFP projects, for July–December 2012, an average influx of 5,000 returnees per month in Juba, Wau, and Aweil — a total of 30,000 returnees. The CRP pilot project, scheduled to run for that same six-month period, targets urban and peri-urban locales. Specifically, the CRP targets returnees in Juba, Wau, and in Aweil.

Before returning to South Sudan, returnees must officially register with the International Organization for Migration (IOM) in Sudan, indicating their point of destination. Upon arrival at their designated point, returnees receive three months of assistance for reintegration, described as a “one month of food, two months of cash” approach. Specifically, the CRP package<sup>197</sup> consists of the following:

For each returnee, an in-kind food aid ration of 500 g of cereal, 55 g of pulses, and 30 g of vegetable oil per day for one month.

At the end of the first month, WFP gives cash to each returnee to enable personal market purchases. The amount given to each returnee is a function of the market price conditions, but should be equivalent to the in-kind ration provided the first month.

The rationale for the program design is that the one month of food aid provides new returnees with immediate, secure food. Because returnees are often not familiar with the new environment or the functioning of local markets, the delay in providing cash ensures returnees have time to adapt to their new settings, geography, and the market environment.

In administering the CRP, WFP:

- Monitors markets and collects weekly price data to track inflation for the major staples (maize, sorghum, beans, and vegetable oil).
- Monitors KCB bank operations to ensure that distribution is cost efficient.

One of the concerns with providing cash to buy food is whether beneficiaries actually use it for that purpose. According to a field interview with a WFP cash and voucher officer in Juba, 60 to 80 percent of the distributed cash is used to buy food.

The interviewed WFP officer also noted that WFP has a contingency plan to revert to in-kind food aid distribution (temporarily or for the duration of the program) if any of the following occurs:

- If cash transfers become too difficult to implement.
- If prices become too volatile.
- If the amount of cash distributed insufficient for beneficiaries to purchase the expected standard quantity of rations.
- If the operations are no longer cost efficient or KCB bank fails to deliver the agreed services.

<sup>197</sup> Two weeks’ worth of food or cash is given at a time. WFP reports it uses this approach for cash transfers to allow WFP to revert to in-kind if necessary.

Because of the potential demand that cash programming can create, WFP collaborated with FAO, with organization taking a slightly different approach. By distributing in-kind food aid and cash to beneficiaries, WFP’s CRP primarily targets the demand side. FAO targets the supply side (production and marketing), for example through cash-for-work or incentives to farm. Overall, the CRP’s cash transfers are not expected to have a large impact on markets because of the amount are relatively small. At the end of the CRP pilot, scheduled for December 2012, WFP and FAO will evaluate how the CRP has impacted reintegration and food insecurity, and decisions will be made on whether to continue, scale up, or modify it.<sup>198</sup>

**WFP Local and Regional Procurement and Purchase 4 Progress (P4P).** WFP engages in both regional procurement for distribution within South Sudan, and P4P to target smallholders. While regional procurement in support of South Sudan programming has been ongoing for many years, P4P activities in South Sudan began only in 2010.

For its P4P program WFP engages smallholder farmers using forward delivery contracts (FDCs).<sup>199</sup> In South Sudan, FDCs were issued for the first time in December 2011 (with the delivery date scheduled for the end of February 2012) in response to various challenges encountering by smallholder farmers and WFP, including limited surplus, absence of standardized prices, and extremely limited access to credit.<sup>200</sup> WFP officials report that, thus far, they have purchased 300 MT of maize in Western Equatoria in 2012<sup>201</sup> under P4P using the FDC mechanism.

Under FDCs, targeted farmers sign a contract with WFP prior to planting, and a fixed contract price is established with no provision for renegotiating (although WFP has an option — but not an obligation — to match a higher price). Local purchases using FDCs face a number of challenges in South Sudan, including difficulties negotiating prices with smallholder farmers, and difficulties purchasing agreed-upon quantities because sellers are frequently displaced between signing an FDC and harvest.

Cereal surpluses in South Sudan are small and geographically scattered. Therefore, WFP collaborated with a local NGO, Rural Action Against Hunger (RAAH), to introduce crib cages and sieving tables at the community level, and to facilitate the aggregation of maize in Yambio and Maridi, where purchases were made.<sup>202</sup>

<sup>198</sup> According to interviews with key informants and WFP officials, WFP provides cash transfers every two weeks to allow WFP to revert to in-kind if necessary.

<sup>199</sup> A forward delivery contract is an agreement between WFP (the buyer) and a registered P4P vendor (the seller, typically a farmers’ organization), for the seller to deliver a specific quantity and quality of a specified commodity to the buyer at an agreed time in the future.

<sup>200</sup> WFP, 2012, Purchase for progress updates.

<sup>201</sup> WFP also reported that 116 MT of sorghum were purchased in 2012.

<sup>202</sup> Crib cages and sieving tables are cages use to temporarily store harvested agricultural commodities.



WFP/South Sudan also conducts regional purchases, mostly from Uganda, Tanzania, and Kenya that take advantage of forward purchasing facilities.<sup>203</sup> For example, a forward purchasing facility in Kenya allows massive purchase of cereal available in the region, and various WFP offices procure cereal from there. But WFP can also buy from different countries in the region directly. In 2011, under the LRP program, WFP also purchased 35,000 MT of maize from Tanzania.<sup>204</sup>

### 5.2.2. USAID Office of Foreign Disaster Assistance (OFDA)

OFDA is the office within USAID responsible for providing emergency humanitarian assistance in response to international crises and disasters. OFDA funds cash and voucher programs in South Sudan.

Currently, OFDA is funding two cash and voucher programs in the Equatorias: (1) the cash program, ending in December 2012 and implemented in Western Equatoria by World Vision; and (2) two programs (described below) ending in March 2013 and implemented by Cooperative Housing Foundation (CHF) in Central Equatoria.

OFDA also funds cash and voucher programs in the northern part of South Sudan. One example is the cash and voucher program for returnees targeting North Bahr el Ghazal state and implemented by African Development Solutions (ADESO). See below for detailed program descriptions of the CHF and the ADESO programs.<sup>205</sup>

**CHF.** CHF is currently implementing the IMPROVE PLUS<sup>206</sup> (May 2012-May 2013) program. This is an extension of the IMPROVE program which ended in April 2012. IMPROVE built upon the successes achieved initially under the SETTLE<sup>207</sup> program.

IMPROVE PLUS activities focus on enabling the productive reintegration of returnees into host communities. They do so by strengthening food security and creating opportunities for durable livelihoods through agricultural production and market-oriented micro-entrepreneurship.

Activities target periurban areas in Morobo, Juba,<sup>208</sup> and Torit counties. The program has three main components: (1) an agriculture program (including seed vouchers), (2) Asset Building Groups (ABGs), and (3) a water and sanitation education component, which is integrated in the first two components.

203 The Forward Purchase Facility (FPF) programs are pilot programs of the World Food Programme (WFP) in different countries that allow WFP to make advance purchases of cereals and other food items at favorable prices to provide for future food aid emergency needs.

204 WFP also anticipates a favorable 2012 market because Tanzania is expecting a bumper harvest.

205 No description of World Vision's program is included because the team is awaiting a response from World Vision staff with program details.

206 The acronym "IMPROVE" stands for "Increasing Market Potential for Returnees through Opportunities for Viable Economic development."

207 The acronym "SETTLE" stands for "Supporting Economic Transition by Transforming Livelihoods and Environments."

208 Program targeted Khor Wulliang area near Juba town.

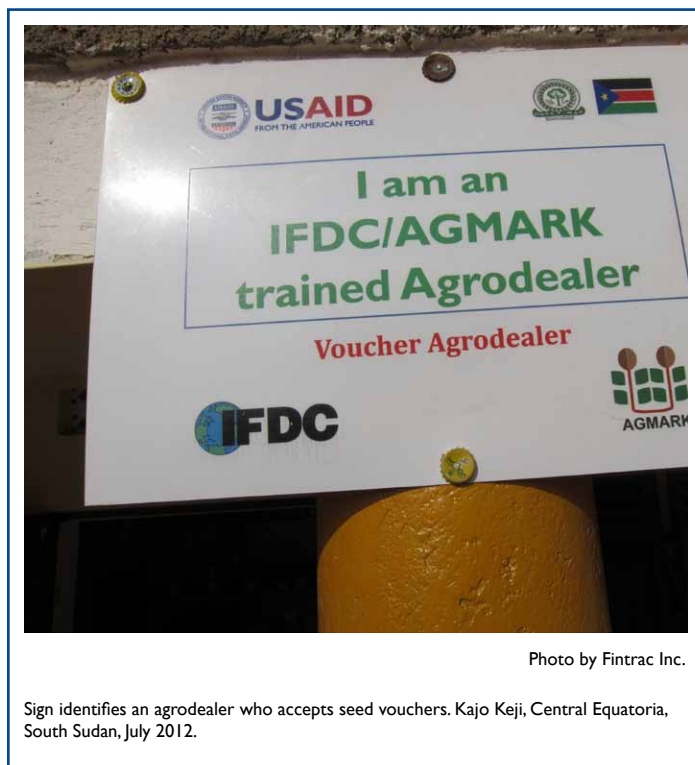


Photo by Fintrac Inc.

Sign identifies an agrodealer who accepts seed vouchers. Kajo Keji, Central Equatoria, South Sudan, July 2012.

Cash and vouchers are distributed under the agriculture and the ABG components. Vouchers are used to distribute food to 17 different groups with approximately 20 members per group. Each group cultivates a 2-feddan (equal to 0.84 hectares) field in one of the project bomas.<sup>209</sup> The cuttings and seeds are for improved cassava, maize, groundnuts, beans, and sesame. The seed voucher program is intended to help farmers diversify their crop portfolios.

Cash is distributed conditionally under a standard cash for work (CFW) program. Under the ABGs component, CFW enables small groups of entrepreneurs to work together to increase their resources and productive capacity.<sup>210</sup>

The previous IMPROVE program (ended in April 2012) also resulted in a cash infusion into the local economy to strengthen an existing market linkage between Bungu Payam and Juba Town through a CFW program. Specifically, CHF supported the development of a secondary dirt road connecting rural communities to markets along the Juba-Yei transit road, planning to rehabilitate 17 km of underdeveloped road (previously passable only by bicycle or on foot), and to connect several rural bomas to more urban and peri-urban market activity. The road project employed 100 people who were organized in 10 groups; each group was given a section to rehabilitate. Each individual in the group was given US\$5 per day (approximately SSP15/day), and cash was paid twice monthly.<sup>211</sup> Each individual worked 60 days.

209 Bomas are the lowest South Sudan administrative boundary sub-division.

210 CHF, 2011, South Sudan: Empowering the Displaced, Creating Livelihood; and personal communication with CHF officials.

211 The wage rate is equivalent to the current unskilled labor minimum wage rate in South Sudan, which is roughly equivalent to the lowest grade (17) for unskilled government workers.

Beneficiaries were male youth (aged 18-30). The objective was to create productive opportunities for them to contribute, even in the short term, to reintegration through the rehabilitation of their own communities. Additionally, with few skills and employment opportunities, male youth provide an ample labor pool for the construction activities proposed under this CFW activity. However, a minimum of 40 percent of the IMPROVE CFW participants were women.



Photo by Fintrac Inc.

Treated maize seed sold under a seed voucher program. Kajo Keji, South Sudan, July 2012.

CFW activities infused US\$32,000 into the local economy, supporting beneficiary access to basic supplies and services, including food, education, and medical treatment.<sup>212</sup> However, at the end of the project only half (9.5 km) of the road was completed. The program fell short because gold mining activity resumed in the area and paid a higher daily wage rate (SSP30 per worker), attracting the majority of the available labor.<sup>213</sup>

**African Development Solutions (ADESO).** ADESO implemented the Agriculture and Food Security/Economic Recovery and Market Systems (ERMS) Program from June 2011

212 Initially, each laborer planned to work 50 days and the activity was planned to infuse US\$ 25,000 in the local economy.  
 213 CHF had other non-agricultural related cash program such as shelter and resettlement programs.

to June 2012. (A new cycle was beginning at the time of the July 2012 field visit.) This is a cash-based transfer program covering Northern Bahr el Ghazal and targeting 1,500 households on both a conditional and unconditional basis. Returnees are the target; each is given US\$60 per month to buy food. The monthly amount is based on a pre-initiation assessment to ascertain the minimum basket requirements for a household of six members.<sup>214</sup>

ADESO has faced several implementation challenges. A May 2012 evaluation concluded that commodity price increases were the main challenge, because they significantly affected the beneficiaries' minimum basket requirement. Another challenge was that the officers coordinating the distribution withdrew after realizing that they were not considered beneficiaries. ADESO then engaged a commercial agent based Aweil to transfer cash to beneficiaries. Out of the 1500 targeted, about 1400 individuals were reached.

Although the cash transfer targeted returnees, the program had other cash components, including a livelihood grant, which selected 300 people based on their business skills. Each beneficiary received US\$200–500; the specific amount of each grant was determined based on pre-implementation assessments. According to an ADESO official, the new (2012–13) cycle is expected to include a voucher component aimed at supporting local traders, in addition to returnees and farmers.<sup>215</sup>

**5.2.3. Other Major Donors**

**Mercy Corps.** The €1.2 million MORAL<sup>216</sup> program, implemented by Mercy Corps and funded by ECHO, targets Agok and Abyei region. The objective of MORAL was to ensure food security in addition to other basic needs in Agok, where WFP was providing half-rations directly to families. Beneficiaries were selected based on a vulnerability matrix. The program targeted:

- 750 households with five unconditional cash transfers of SSP185 each to purchase basic needs over five months.
- 1,000 households with access to income through cash-for-work (CFW) projects.
- 2,500 households with vouchers for one maloda (metal part of a hoe) and three malwas (3 kgs) of sorghum seed for planting in 2012.

Mercy Corps intervened on the demand and the supply side of the seed and tool voucher program. Mercy Corps increased demand by providing seed and tool vouchers, but also increased supply by organizing traders and providing inputs to blacksmiths.

The SSP185 cash transfer was unconditional, meaning there was no specific action required of the beneficiary to receive the transfer. Some beneficiary households saved the money during

214 Personal communication with ADESO, September 2012.  
 215 Food Security and Livelihood Cluster (FSLC), May 2, 2012, Urban Livelihoods Sub-Cluster Meeting Note for the Record and interview with ADESO officials.  
 216 The acronym "MORAL" stands for "Market-Oriented Rehabilitation of Agricultural Livelihoods."

April and May, improving their resiliency to future shocks. Other households purchased productive assets, such as goats, and a few even began micro-businesses to sustain a small amount of income. However, as prices started rising significantly in June, less savings occurred.<sup>217</sup>

The CFW projects consisted of building school classrooms, water points, and market drainage. Each able body in the household was allowed to participate and was paid US\$5–6 per day.

The voucher program was implemented through local traders supplying seed and blacksmiths supplying malodas (hoes). According to Mercy Corps' own evaluation, the seed voucher component was successful. Traders were able to supply high quality seed to households during the entire project period. Blacksmith produced malodas using Mercy Corps-provided materials or metal sheets that they purchased. In the latter case, blacksmiths could sell malodas for SSP15 each and still make a profit.

The program faced a number of challenges including the following:

- Once traders became aware of the voucher program, they imposed speculative price increases for seeds.
- On average, the price of sorghum seed was SSP35 per malwa (3kgs), but some unscrupulous vendors began charging SSP50 per malwa.
- Although prices remained stable during most of the project period, inflation needed to be monitored. Had the value of the SSP continued to fall and prices continued to increase, contingency plans were in place to revert to more in-kind programming.<sup>218</sup>

**Catholic Relief Services (CRS) Seed and Tool Fair Demonstration program.** This program is funded by ECHO and is implemented in Torit and Ikotos Counties of Eastern Equatoria (Hiyala and Imotong payams, respectively), with total funding of €78,936. Beneficiaries of the seed and tool programs are returnees, IDPs, and vulnerable community members. Targeting is done using seed security assessments, data from the local authorities and the Relief and Rehabilitation Commission, and beneficiary registration through extension agents. Producers are farmers within the community who have surplus seeds, and the tools are sourced from local markets. Typically, a voucher for SSP60 is given to vulnerable households to purchase seeds and tools during the seed market fairs. CRS redeems the vouchers from the sellers and pays the vendors the cash equivalent.<sup>219</sup>

**Save the Children (SCF).** The Improving Income and Food Security cash program is a small-scale cash intervention in Aweil County funded by ECHO.<sup>220</sup> The project provides a monthly transfer of €32 (SSP110) to between 1,400–2,500 beneficiary

households. The transfer is designed to address both the household food gap as unconditional grants and Cash-for-Work (CFW) activities. Beneficiaries receive the transfer for working 16 days per month on community-based projects (collective farming, construction of schools, and nutrition education sessions).

SCF is facing two primary challenges. Currently, SCF handles the cash distributions, but has encountered enormous logistical challenges in handling cash. SCF is therefore considering using traders to issue cash through a cash-voucher intervention. The second challenge is the recent closure of the Sudanese border, which has contributed to food price inflation. Food-price increases have had a negative impact on the ability of households to access their full food and non-food needs.<sup>221</sup>

Between April 2009 and June 2010, SCF implemented a cash intervention pilot project in Baac Payam, Aweil East County, with funding from ECHO. According to SCF's own evaluation, the following lessons were learned:

- If appropriate security precautions are taken, cash transfers have potential to be an appropriate intervention in the post-conflict South Sudan.
- Cash transfers were generally not misused by beneficiaries for this particular pilot project.
- Beneficiaries were able to build assets with the cash that they received.
- Selective targeting processes were possible, even though most of the people in the communities targeted were poor.

#### **Action Against Hunger/ACF International (ACF).**

Between May–June 2012, ACF implemented a cash and voucher program in four counties in Warrap and North Bahr el Ghazal with ECHO funding. The program had two components of cash-based transfers: (1) increasing access to seeds through vouchers, and (2) increasing access to tools by providing grants to groups to invest in income generation activities (IGA).

Seed availability was not a problem in the local market. However, the sudden break of border war between Sudan and South Sudan and the shutdown of oil production distorted the market and created scarcity and increased the price of seeds as does for all other commodities.

To increase access to seeds through voucher, ACF targeted both the demand side and the supply side for improved seeds. On the demand side, ACF distributed cash-voucher to buy seeds to 5,200 households; each household received a one-time payment of US\$30. On the supply side, ACF identified 20 to 30 seeds suppliers in its operational areas of Warrap and Northern Bahr el Ghazal states traders and negotiated with them to supply seeds to farming households. Ultimately, ACF agreed to work with 19 traders, finalized prices, and introduced them to beneficiary households before distributing the vouchers. ACF

217 Mercy Corps, 2012, Market-Oriented Rehabilitation of Agricultural Livelihoods (MORAL) program evaluation.

218 According to Mercy Corps officials.

219 According to CRS officials in South Sudan.

220 SCF, 2011, An evaluation of Save the Children's Cash Transfer project in Aweil East County, Northern Bahr el Ghazal State, South Sudan.

221 SCF, 2010, Improving Income and Food Security through Cash Transfers; and SCF, 2011, Cash Emergency Preparedness Assessment.

reported that the supply response was good.<sup>222</sup> In most cases, however, the beneficiary households received less seed than planned because of price volatility and other unforeseen events.

The main objective of this ACF program was to promote IGAs that could help improve nutritional status by diversifying household diets. Beneficiaries were selected based on households with children then or previously enrolled in ACF's Outpatient Therapeutic Feeding Programs (OTPs); vulnerable households with IDPs or returnees; and vulnerable host population households. The process of identifying beneficiaries first involved community sensitization to ACF's program, then selecting households that fit the aforementioned criteria and resided in the targeted counties. In 2012, the program selected 200 beneficiaries, who then were organized in groups of 3–5 people to create a business plan using a standardized, ACF-provided format. No individual grant was given, but each member of the group received US\$160–165 (for a maximum of US\$800–825 total per group). Transfers were disbursed in two installments. An analysis of the beneficiaries' business plans and training in business management were integrated into the project's implementation.

### AN EXPANDED TOOLBOX REQUIRES EXPANDED KNOWLEDGE TO INFORM DONOR CHOICES

LRP, cash, and voucher programming have been practiced by international development agencies for decades, but their use has rapidly increased in recent years. With the growth in these alternative tools to address food insecurity, donors are faced with new questions about the most effective way to support vulnerable populations.

Donors must now ask themselves a slew of new and critical questions: Is the purchase of food within the country (local) where it is to be distributed or in a nearby country (regional) the best way to improve the effectiveness of food aid responses relative to transoceanic shipment? If purchases are made locally, should they be made by the beneficiaries themselves (cash/voucher), or should the food be distributed in-kind by donors and partners?

None of these alternatives is inherently superior to the others. Therefore, donors and their implementing partners need to assess which response is the most effective depending on multiple factors, including program objectives; market conditions; local social and cultural contexts; and donor funding resource availability.

The major challenges faced by the program included (1) poor seed availability, which led to inflation and, in turn, led to beneficiaries receiving less seed than planned; and (2) price increases, which forced ACF to disburse all of the payments earlier than planned to allow some beneficiaries to develop their businesses as planned, and to allow the other beneficiaries to access the planned quantity of seed.<sup>223</sup>

222 ACF, 2012, Cash Grant To Support Income Generation Activities.

223 ACF, 2012, Cash Grant to Support Income Generation Activities.

ACF had prior experience with cash programming to promote IGAs. In 2008, 2009, and 2010-2011, ACF implemented cash transfer programs in response to chronic malnutrition in Aweil East in Northern Bahr el Ghazal and Twic and Gogrial West Counties of Warrap state. The program addressed chronic livelihood vulnerability, an important contributing factor to the acute malnutrition prevalent in the target area.

## 5.3. LESSONS LEARNED AND RECOMMENDATIONS FOR INTEGRATED PROGRAMMING

This Section summarizes the key lessons learned from LRP, cash, and voucher programming both globally and in South Sudan in particular, and includes discussion of the factors that influence timeliness, cost efficiency, and recipient satisfaction. This section also includes, within the discussion of each lesson learned, specific recommendations on how LRP, cash, and voucher programming can complement a new Title II program targeting the Equatorias in South Sudan.

### 5.3.1. Potential Advantages of LRP Relative to Transoceanic Food Aid

Broadly speaking, donors and implementing partners use LRP to accomplish the following:<sup>224</sup>

- Improve the timeliness of food delivery particularly during emergencies, but also in developmental programs;
- For in-kind imported food aid, improve the cost efficiency of the resource transfer to enable coverage of a larger number of beneficiaries.
- Provide food more suited to local tastes.
- Develop markets in ways that would not be possible using in-kind transoceanic food aid.

These objectives, and related concerns, are discussed in greater detail below.

**Timeliness of food delivery.** Timeliness is an important factor and may be the dominant concern in some cases, particularly for emergency responses. Timeliness concerns may even justify paying above-market prices.

Generally, local and regional purchases are expected to be easier and faster to deliver than transoceanic shipment. However, given the increase in USAID pre-positioned stocks, this may not always be the case; some studies argue that pre-positioning and/or stockpiling of transoceanic food aid have advantages over LRP. On the other hand, comparing US-funded LRP activities in nine countries, Lentz, Passarelli, and Barrett found that LRP resulted in time savings of nearly 14 weeks, a 62 percent gain

224 Tschirley and Anne Marie del Castillo, 2006, Local and Regional Food Aid Procurement: An Assessment of Experience in Africa and Elements of Good Donor Practice.

compared to transoceanic food aid.<sup>225</sup> This time savings can be even higher for landlocked countries such as South Sudan, particularly when shipments of US food aid are held up at regional ports or borders.<sup>226</sup>

It is highly recommended that future LRP and Title II programming include a plan to mitigate those factors that are most likely to delay food delivery in South Sudan. These factors include:

- Inadequate supply response to increased demand arising from LRP, and resulting price inflation.
- Poor transportation infrastructure and road networks.
- En-route frictions, including formal/informal road blocks and complex customs procedures.

Each factor is addressed in greater detail below.

*Timely supply response.* Agricultural commodity supply is ensured by both domestic production and cross-border trade. As the analysis in Chapter 4 reveals, South Sudan's agricultural production and productivity is very low, and surplus production, if any, is often small and scattered. In fact, only a few counties in the entire country produce surpluses. In a typical year, the country faces significant cereal deficits. Limited agricultural production and poor infrastructure can impede efficient and timely local procurements.

P4P, a WFP local purchase program, encountered delivery delays in 2012. Those delays were attributable to small and scattered surpluses,<sup>227</sup> and the slow pace of aggregation by farmers' organizations.<sup>228</sup> To reduce delays in delivery, WFP worked in collaboration with local NGOs (for example, RAAH-Rural Action Against Hunger), to facilitate aggregation and eventually improve the timeliness of delivery.

Compared with local purchases, regional purchases generally have access to a larger supply of agricultural commodities, and aggregation is less of a problem. For example, as noted above, in 2011 WFP's East Africa regional office purchased 35,000 MT of maize in Tanzania without difficulty because of better harvests and the ability to bring these harvests to regional markets. Regional purchasing is also enabled by forward purchasing facilities; this mechanism significantly reduces aggregation time. On the other hand, it is worth noting that regional food availability frequently changes over time and across countries. In 2011 and 2012, for example, Tanzania produced significant regional surpluses, while production in Uganda decreased. Donors planning future regional purchases must monitor agriculture production in the region in order to identify the markets with sufficient supply.

225 Lentz, Passarelli, and Barrett, 2012, *The Timeliness and Cost-Effectiveness of the Local and Regional Procurement of Food Aid*.

226 For example, Lentz, et al. find that in Uganda — a landlocked country bordering South Sudan and one of its key trading partners — the time savings for LRP relative to transoceanic food aid is approximately 20 weeks (compared with the average of 14 weeks for all studied countries).

227 In 2012, WFP succeeded in purchasing only 416 MT of cereals under its P4P program in the Equatoria region, which produced roughly 300,000 MT of cereals in 2011, according to the February 2012 CFSAM.

228 WFP, 2012, purchase for progress update.

*Transportation networks.* In South Sudan overall, transportation networks are poor. The relatively better roads (tarmac, and unpaved but maintained roads) are those linking South Sudan to its southern neighbors. In-country, the roads that link different regions, and feeder roads, are generally in bad condition and not maintained. Transportation of locally produced commodities is severely constrained by poor road networks, leading to significant delays. Locally procured commodities are mainly transported in small quantities, using bicycles.

*Physical barriers.* These include road blocks, police check points, and time-consuming customs procedures, all of which can significantly delay delivery of food aid, whether LRP or Title II in-kind food aid. During the USAID-BEST field visit to the Equatorias in July 2012, it appeared that most of the road blocks and police stops that were causing delays had been temporarily removed. Any future program will need to reassess road conditions at the time of implementation.

*Taxes and customs.* For cross-border purchases, relief food aid is exempt from custom taxes and often faces fewer custom procedures at the borders. On average, a WFP shipment takes less than six hours to clear customs at the Nimule crossing.<sup>229</sup>

*Security.* Security remains a significant challenge in South Sudan. During the field visit to the Equatorias, for example, the Torit-Kapeota route was discouraged because of reported insecurity.

In sum, LRP offers great potential for faster food delivery for emergency relief and/or for programs aimed at addressing seasonal hunger gaps. *Studies have shown that* in landlocked countries, projects relying on LRP, cash, or vouchers instead of transoceanic shipments saved between 11 and 24 weeks of time in delivering aid.<sup>230</sup> In South Sudan, time savings from LRP can be considerable because the country is both landlocked and far from the nearest port. However, further studies may be needed to determine the extent of these time savings.

In order to ensure timely food delivery, the following are recommended specifically for the Equatorias:

- Understand local and regional food production patterns and monitor local and regional areas of potential surplus.
- Understand seasonal feeder road conditions and identify current and potential en-route challenges such as road blocks and police check points; understand how these can affect delivery.
- Understand regional marketing routes and current customs procedures and how these can affect delivery.
- Monitor evolving security situations for particular at-risk transportation routes.

229 According to custom officials at the Nimule border.

230 Lentz, Passarelli, and Barrett, 2012, *The Timeliness and Cost-Effectiveness of the Local and Regional Procurement of Food Aid*.

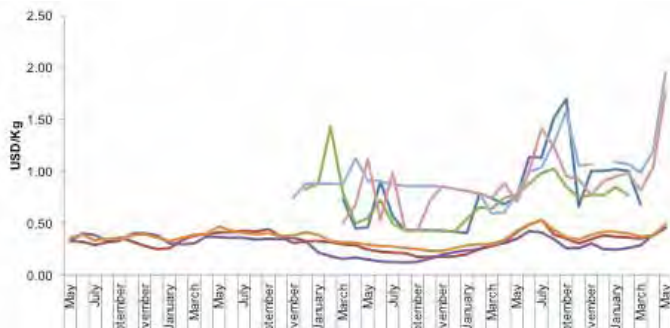
**Cost efficiency.** Many past studies have shown that when market conditions are favorable, LRP typically reduces procurement costs through savings in commodity purchase, transport, and handling.<sup>231</sup> Lentz, Passarelli, and Barrett compared US-funded LRP activities in nine countries and found that procuring food locally or regionally can result in average savings of more than 50 percent.<sup>232</sup> However, cost advantages of LRP vary significantly depending on the commodity. Cost savings are generally higher for cereals, as compared with pulses and processed, fortified blended cereals.

In South Sudan, LRP programming has the potential for significant cost savings for the following reasons:

- Transoceanic shipments are particularly expensive for landlocked countries.
- Cereals (maize, sorghum, and millet) are the major staples and large quantities of food aid shipped in the country are cereals.

While cereal prices have spiked in recent years in South Sudan, prices of cereals remain relatively cheap in the region, due to significantly better transport infrastructure and market performance. The following figures compare prices of white maize in South Sudan to prices in Kenya and Uganda.

**Figure 35. White Maize Prices in South Sudan, Kenya, and Uganda (USD/kg), May 2008–May 2012**



Source: Constructed by USAID-BEST using data from South Sudan National Bureau of Statistics.

To illustrate cost savings from an LRP program as compared to transoceanic aid, an LRP sale is calculated in South Sudan using data from field observations and data collected by the USAID Food, Agribusiness and Rural Markets (FARM) project.<sup>233</sup> The average costs for LRP from USAID-BEST field data and USAID FARM project data are US\$709 per metric ton and US\$611 per

231 The most recent studies include, Lentz, Passarelli, and Barrett, 2012, The Timeliness and Cost-Effectiveness of the Local and Regional Procurement of Food Aid. and Hanrahan, 2010, Local and Regional Procurement for U.S. International Emergency Food Aid.

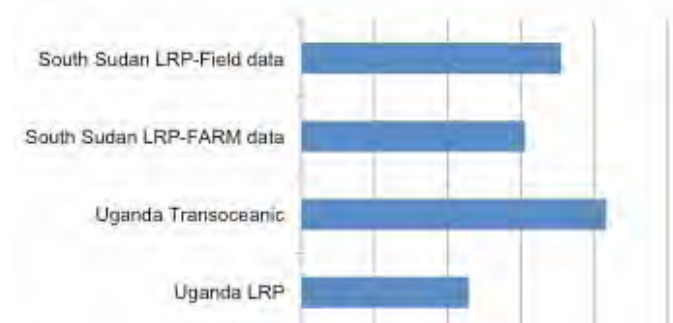
232 Lentz, Passarelli, and Barrett, 2012, The Timeliness and Cost-Effectiveness of the Local and Regional Procurement of Food Aid.

233 The Food, Agribusiness and Rural Markets (FARM) Project, funded by USAID, is helping South Sudan to rapidly increase agricultural productivity in selected commodities, increase trade, and improve the country's capacity to develop commercial small-holder agriculture. The FARM Project is focused on four staple crops: maize, sorghum, cassava, and groundnuts.

metric ton, respectively.<sup>234</sup> Because transoceanic shipment costs from the US to South Sudan cannot be precisely stated, Uganda is used as a proxy.<sup>235</sup> The following figure shows LRP cereal costs for South Sudan, Uganda, and transoceanic shipments to Uganda. The figure indicates that the cost for LRP in South Sudan, calculated using USAID-BEST field data, is higher than using FARM project data; this could be explained by the fact that field visit data were collected in July, when the price of maize is generally high. The figure also indicates that compared with transoceanic delivery, average savings for LRP are 15 percent for USAID-BEST field data and 25 percent for USAID FARM project data. Assuming that the costs of delivery in South Sudan are higher than in Uganda, those savings could be even larger. However, when comparing the average cost for LRP in South Sudan to the cost in Uganda in absolute terms, the cost in South Sudan appears higher. The following factors may explain the higher costs for LRP in South Sudan:

- Higher costs for local purchase in South Sudan compared to Uganda due to higher prices of cereals in South Sudan.
- Poor road infrastructure in South Sudan and poor feeder roads.
- Longer distances to the nearest ports.
- Higher transaction costs (storage, loading and offloading, search, and aggregation).<sup>236</sup>

**Figure 36. Hypothetical Cereals Costs for LRP versus Transoceanic Shipments**



Source: Constructed by USAID-BEST using data collected during field visit, FARM project data and Lentz, Passarelli, and Barrett 2012 study results.

In sum, experience has shown that cost savings for LRP relative to transoceanic shipment depends largely on the type of commodity. LRP is less expensive for cereals, but transoceanic shipments have cost advantages for processed commodities. Since cereals are a main staple in South Sudan, food aid programs can save significant amounts through local purchases. For future programs, USAID-BEST recommends the following:

234 During its field visit, the USAID-BEST team collected data on the costs traders incur to move maize via various marketing routes. Similar data were collected by the FARM project — specifically, data on costs to move maize and other crops from farms to markets.

235 The underlying assumption is that because Uganda has better infrastructure and is closer to Mombasa, cost of transoceanic delivery is higher in South Sudan than in Uganda. Data from Uganda are drawn from Lentz, Passarelli, and Barrett.

236 In South Sudan traders who bring grain from Uganda have complained that the cost of loading and unloading is often exaggerated in South Sudan.

Generally focus LRP programs on cereals, but use transoceanic shipment for other processed food (for example, vegetable oil) and possibly pulses.

Monitor cereal prices and conduct an assessment before implementation because of quickly changing market conditions in South Sudan.

Understand the local and regional production patterns. For instance, local purchase (even if on a limited scale) in the Equatorias is recommended at harvest times, specifically:

- Between July and August for maize.
- Between August and September for millet and sorghum.
- Purchase commodities near the targeted distribution area to further capture cost savings. According to WFP officials, experience from WFP/South Sudan shows that out of the 15 local purchases completed under P4P between 2010 and 2012, eight were distributed within the same state and 12 were distributed either within the same state or in the neighboring state.

**Beneficiary preferences.** For any food aid program to succeed, it is important that the foods involved are appropriate to the recipients' culture (see text box), diet, and cooking habits, for the following reasons:

Beneficiaries who are accustomed to and satisfied with the foods they receive are more likely to consume them. Thus, if a program objective is to reduce malnutrition and hunger, that objective will more likely be met by foods that satisfy recipients. Likewise, recipients who are more satisfied with the foods they receive are less likely to waste them or to find other uses for it (for example, to feed livestock, to brew alcohol, or to sell in the market).

The overall well-being of beneficiaries increases when they are more satisfied with the food they receive, and with foods that require fewer preparation inputs (for example, fuel, water, time).

### **CULTURAL FACTORS MAY BE CRUCIAL: AN EXAMPLE**

The Agency for Technical Cooperation and Development (ACTED) has implemented a small-scale voucher intervention for returnees who were given the entitlements to redeem meals in newly established restaurants. However, cultural practices that prohibited the beneficiary population from receiving and consuming meals from persons unknown to them were a serious constraint to the project's implementation (WFP, 2012, Corporate Market Scoping Mission Report for Republic of South Sudan).

In South Sudan, further study may be needed to determine the comparative degree of recipient satisfaction of LRP- obtained versus shipped food across oceans. Some Title II partners have told the USAID-BEST team that so far, no complaints have been received from recipients. However, this anecdotal statement does not qualify as hard evidence of recipient satisfaction.

**Development effects.** LRP in the Equatorias could produce the following development effects:

- Because of increased demand, LRP could promote increased agricultural production, at the smallholder level (under P4P), and for medium and large agricultural producers (under regular local procurement mechanism).
- Because food sales will be stimulated, LRP could promote infrastructure development/improvements.
- Through the use of improved inputs (for example, seeds and/or fertilizer), LRP could spur the spread of technology.

### **LIMITED BUT GROWING MONEY TRANSFER STRUCTURES**

Because South Sudan is a new country, the range of available money transfer mechanisms in South Sudan is embryonic. Although all major towns have banks, other banking services, such as mobile banking, are almost nonexistent. This lag can be partly explained by the ongoing transition in South Sudan from traditional Islamic banks to a modern system and by substantial changes in the commercial banking system related to establishing this new country.

### **5.3.2. Potential Advantages of Cash and Vouchers Relative to LRP**

The benefits of LRP and cash and voucher programs over the transoceanic shipment are comparable in many ways.<sup>237</sup> However, cash has potentially lower transport and distribution costs than bulky commodities, and the ease of logistics with cash may allow assistance to be delivered more rapidly than other alternatives.<sup>238</sup>

*Cash and vouchers are time saving.* The time savings associated with cash and vouchers depends on the administrative burden of distributions.<sup>239</sup> For example, Upton and Lentz found that delivering cash can save time relative to local procurement, where food procurement systems are logistically complex and slow.

<sup>237</sup> For example, Lentz, Passarelli, and Barrett found that LRP, cash, and voucher programs all result in a savings of nearly fourteen weeks, a 62 percent gain in timeliness.

<sup>238</sup> Harvey, 2005, Cash and vouchers in emergencies.

<sup>239</sup> Upton and Lentz, 2011, Expanding the Food Assistance Toolbox.

*Cash and voucher delivery challenge.* In South Sudan, although food procurement is logistically complex, there are notable impediments to delivering cash and vouchers, including: 1) limited availability of financial services; 2) erratic/non-existent supplies of electricity; 3) lack of network connectivity for electronic transfers in areas of operations; and 4) security risks.<sup>240</sup>

Save the Children's Improving Income and Food Security cash program distributes cash directly in envelopes. Because this program involves the physical transit of cash, the direct-cash approach has become time-consuming and logistically difficult. SCF is now exploring using traders to issue cash through a cash-voucher system.<sup>241</sup>

For the three reasons cited above, ADESO, with the Economic Recovery and Market Systems (ERMS) cash programs, initially found it difficult to develop a feasible cash delivery mechanism. However, ADESO was ultimately able to find a local bank, Amal Bank that agreed to provide remote banking services and distribute the cash to beneficiaries.

*Adequate supply.* Even after beneficiaries have received cash or vouchers, further delays can ensue, including inadequate supply response similar to that described above for LRPs. Given the current food deficits in South Sudan, most donors and implementing partners develop programs that take into account both the demand and supply side of markets to ensure adequate and timely supply responses.

Many implementing partners are establishing contractual relationships with traders to secure timely supply.<sup>242</sup> For example, under its MORAL program, Mercy Corps contracted with local traders to implement a seed voucher program. In setting up those contracts, Mercy Corps was able, generally, to give farmers timely access to seed.

In urban and peri-urban areas, voucher programs are considered appropriate to ensure the timely delivery of development aid, and as just noted, traders can play an important contributing role. It is important to note, however, that it may take a significant amount of time to identify and select reliable traders who can ensure a consistent supply of basic commodities and honor contractual commitments — particularly when enjoying increasing demand for their products at the height of the lean season.<sup>243</sup>

### **Cost efficiency of cash and voucher relative to LRP.**

As noted by Harvey, comparing the cost efficiency of cash and vouchers with in-kind food aid may be difficult because it is often unclear what actual costs are included in the calculation

240 WFP, 2012, Corporate Market Scoping Mission Report for Republic of South Sudan.

241 WFP, 2012, Corporate Market Scoping Mission Report for Republic of South Sudan.

242 WFP, 2012, Corporate Market Scoping Mission Report for Republic of South Sudan.

243 WFP, 2012, Corporate Market Scoping Mission Report for Republic of South Sudan.

for each type of program.<sup>244</sup> For example, when calculating the cost of cash and voucher programs, the costs of transportation and distribution are borne by the beneficiary rather than the implementing agency. Since traders may help make the supply chain more efficient, it is possible that the beneficiaries' transportation costs can be minimized.

However, any gain in cost efficiency from a cash/voucher program, in the particular environment of South Sudan, can quickly be dissipated by "non-quantifiable" operation costs such as: 1) security risks, 2) high counterfeiting risk (in the case of vouchers), and 3) high fraud risk. Future programs must account for these problems and factor them into program costs.

Food prices also influence the cost of cash/voucher programs. High food costs can reduce the efficiency of cash and vouchers, and when transfers are not adjusted to fluctuating market prices, can also negatively affect beneficiaries' purchasing power. For example, prices of both maize and sorghum were relatively stable in South Sudan between 2007 and 2010, but prices began to rise in early 2011, reaching record-high prices in mid-2012. During the July 2012 field interviews, a number of implementing agencies emphasized commodity price increases as a major constraint to program efficiency. Mercy Corps and WFP also reported that they have developed contingency plans to revert to in-kind aid if recent price increases render cash/vouchers cost-inefficient.



Photo by Fintrac Inc.

CHF sub-office for an OFDA-funded re-integration program. Morobo, South Sudan, July 2012.

In sum, compared with LRP, cash/voucher programs have the potential to be time-saving and cost-efficient. In South Sudan, the following considerations are highly recommended:

- Given the volatility of the current economic and social environment, programs should be implemented at a small scale and for short durations, and include flexibility in program design to adapt to changing economic/social market conditions.

244 Harvey, 2005, Cash and vouchers in emergencies.



- Potential awardees should understand the banking system, and be able to identify reliable financial partners.
- Until South Sudan develops a self-sustained commodity market, cash/voucher programs should take the supply side into account by integrating local traders into the scheme.
- Potential awardees should evaluate potential risks such as security, counterfeiting, fraud, and inflation that could undermine program efficiency.
- Potential awardees should understand the cultural factors as they relate to uses of cash/vouchers.

### 5.3.3. Risks Associated with Cash, Vouchers, and LRP in South Sudan

Tschirley and del Castillo distinguish two type of risks associated with cash, voucher, and LRP: first order and second order risks.<sup>245</sup> First order risks are those that can be defined with some precision, and have potentially serious implications. Second order risks are less precise, are not specific to any given transaction, and have negative consequences that are likely to be less serious but are not quantifiable. This section discusses both types of risks in the context of South Sudan and their implications for cash/voucher and LRP programing.

**First order risks.** First order risks include the following:

1. Cash, vouchers, and LRP procurement may push local prices above import parity price (IPP), or above historical norms.
2. Traders may default on tenders.
3. Procured food may fail to meet minimum safety standards.

**Inflation.** The first risk listed — price increases — is one of the most serious. This is because cash, voucher, and LRP all affect the market in particular ways: Cash and voucher distributions stimulate demand. LRP will have two opposing effects: (1) procurement will stimulate demand; and (2) in-kind distribution will stimulate supply.<sup>246</sup> Typically, donor procurement occurs in one market, and distribution of the in-kind food aid purchased through LRP occurs in a different market. This requires donors to examine possible price increases (due to an increase in demand) in the procurement market, and possible price decreases (due to an increase in supply) in the distribution market.

Cash distributions increase the demand for normal goods, and if supply is not perfectly elastic, prices for those goods should increase in the distribution market which, for cash transfers, is the same as the procurement market. Vouchers will increase demand in the distribution market which, for vouchers, is the same as the procurement market. For most goods, local procurement will increase demand more than vouchers, which

245 Tschirley and Anne Marie del Castillo, 2006, Local and Regional Food Aid Procurement: An Assessment of Experience in Africa and Elements of Good Donor Practice.

246 Barrett et al., 2012, Market Prices and Food Aid Local and Regional Procurement and Distribution: A Multi-Country Analysis.

in turn will increase demand more than cash. Therefore, the risks of upwards pressure on prices is greatest with local procurement by donors and least with cash transfers.

Where donors distribute in the same market catchment area where they are locally procuring food aid, or if markets are completely integrated, it is possible to find a cancelling out of the effect on prices. While local procurement increases demand, and puts upwards pressure on prices, in-kind distribution of locally-procured food aid will also increase local supply in that same market. When additional supply is injected, local prices should fall with in-kind food aid, but not with vouchers or cash transfers, at least in the short run. Therefore, in theory, local procurement in the distribution market entails less risk of pushing prices above IPP compared with cash and voucher.

In South Sudan, such an outcome is plausible. Donors may be able to procure commodities within the Equatorias region for distribution within the Equatorias, with potentially less risk of inflation than if donors implement a voucher or cash program. Particularly when markets for a commodity are not fully integrated, a cash/voucher program can increase demand and prices can increase significantly. The effect on prices, however, will depend on the scale of the program.<sup>247</sup>

**Default.** The risk that traders will default on tenders has been a serious operational challenge for donors and organizations engaging in local procurement. To ensure a smooth pipeline, back-up sources of supply have become virtually essential.

In South Sudan, trader default rates are notably high. Figure 36 shows the different contracts WFP has signed between 2010 and 2012 for P4P. The figure compares the metric tons contracted versus the metric tons for the actual sale for each WFP P4P contract between 2010 and 2012 (to date). During 2011, default rates ranged from 40 percent to 100 percent; and for the ten purchases of 2011, defaults occurred in all but one contract. However, in 2012, there appears to be an improvement. Of the three contracts signed this year, two had no defaults and the third only had a default rate of nine percent.

**Figure 37. Contracted vs. Actual Sales for WFP P4P for Maize and Sorghum, 2010–2012**



Source: WFP/Juba P4P Program Office, August 2012

247 According to Tschirley and Castillo, 2007, this risk must be taken seriously whenever food aid procurement reaches 10 percent to 20 percent of marketed surplus in a country.

**Food safety.** The risk that procured food will fail to meet minimum safety standards is another frequently cited concern. As in most African countries, food commodities in South Sudan can fail to meet the same minimum standards of donor countries. The USAID-BEST team visited the Bureau of Standards in Nimule, which imposes a laboratory test for all food entering the country. A similar bureau with a similar charge is located in Juba. However, these offices often lack the equipment to conduct the prescribed tests and are also saddled with numerous administrative and financial challenges. As a consequence, it may be difficult to confirm that LRP sales meet international minimum standards.

In conclusion, LRP, cash, and voucher programs in South Sudan may encounter significant first order risks, including (1) hurting recipients because of price increases; (2) hurting producers; (3) missed deliveries because of trader defaults; and (4) delivering poor quality commodities because of low existing standards.

In order to mitigate these first order risks, USAID-BEST recommends the following for any future LRP, cash, or voucher programming in South Sudan:

- As long as markets are not well-functioning, or as long as local private traders are not capable of ensuring adequate supply, keep the program scale small to limit the magnitude of price effects.
- Integrate the supply side into the program design to ensure adequate supply response.
- Increase the search effort to identify reliable traders.
- Include quality requirements in contracts with producers.

**Second order risks.** The second order risks are not quantifiable; they are the medium- to long-term negative effects. For example, a cash, voucher, or LRP may create a dependency on aid programs. It is difficult to measure whether, and to what extent, these programs have over time created dependency in South Sudan. However, several cash, voucher, and LRP modalities are available that may mitigate dependency.

This section reviews some of these modalities as they may apply to South Sudan.

**Conditional cash transfer.** Cash transfers can be conditioned, for example, on skills training, income-generating activity, or attending health/nutrition education seminars.

**Work conditionality.** Conditional transfers are normally made in return for participation in work (e.g. food for work/training programs). Cash/vouchers for work programs are intended to help beneficiaries directly as well as support the wider community through the outputs. In the Equatorias, CFW is implemented by CHF under the ABGs program. CFW enables small groups of entrepreneurs to work together to increase their resources and productive capacity. Typically, wages covers beneficiaries' basic needs and do not compete with the local labor market. Usually, the wages are kept slightly below the market levels to serve as a

self-targeting mechanism. Unconditional cash transfers do not require any effort on the part of the beneficiary. In South Sudan, ADESO uses both conditional and unconditional cash transfers.

**Behavioral change conditionality.** Conditions on beneficiaries receiving assistance can be targeted at changing behavior (e.g. lactating mothers participating in care groups). Very often such cash or voucher transfers are used in combination with in-kind assistance in post-emergency recovery and development programming.<sup>248</sup> This type of conditionality was used by ADRA during its SSHiNE MYAP in Warrap and Northern Bahr el Ghazal states from 2010-12.

However, because by definition second order risks involve medium- to long-term effects, it is not known if these modalities are mitigating, or will mitigate, dependence on aid.

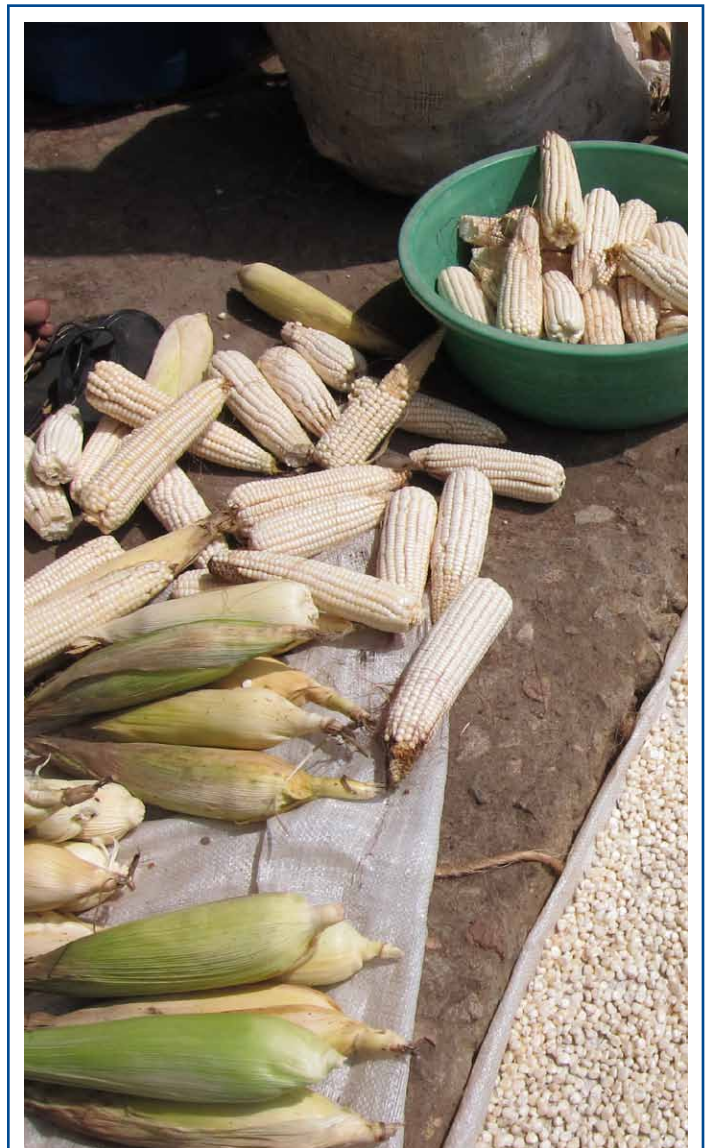


Photo by Fintrac Inc.

Maize from a farm in Nimule. Nimule, South Sudan, July 2012.

248 WFP, 2009, Cash and Voucher Manual.





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Bellmon Estimation Studies  
for Title II (USAID-BEST)

# USAID OFFICE OF FOOD FOR PEACE SOUTH SUDAN USAID-BEST ANALYSIS ANNEXES

**SEPTEMBER 2012**

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# PREFACE

During the months of June 2012 to August 2012, the USAID-Bellmon Estimation Studies for Title II (BEST) team undertook a study of the current state of agricultural markets in South Sudan to inform USAID food aid programming decisions. Field work was completed in July 2012.



# ANNEX I: ECONOMIC OVERVIEW

## I.i. Introduction

This Annex summarizes South Sudan's main economic indicators using available data from the Government of South Sudan (GoSS) and the most recent agricultural and livestock assessments conducted by donors and international organizations. The following topics are covered:

1. Gross Domestic Product (GDP) and Gross National Income (GNI).<sup>1</sup>
2. Exchange rates, inflation, and consumption.
3. Government revenues and expenditures.
4. Major industries.
5. Trade (imports and exports).
6. Economic linkages, agreements, and partners.
7. Major shifts in agricultural policy.

## I.ii. GDP and GNI

The GoSS has estimated that in 2010, the country's GDP was US\$13.2 billion and per capita GDP was US\$1,546. However, GNI was significantly lower: an estimated US\$8 billion overall and US\$984 per capita (see the table on GDP and GNI).<sup>2</sup>

**Table 1. 2010 Gross Domestic Product (GDP) and Gross National Income (GNI)**

Indicator	USD	SDG*
GDP (million)	13,227	30,000
GDP per capita (current)	1,546	3,564
GNI (million)	8,000	19,000
GNI per capita (current)	984	2,267

\* The official currency in 2010 was the Sudanese pound (SDG)

Source: South Sudan National Bureau of Statistics, 2011.

South Sudan's 2010 GDP was among the lowest in East Africa (see the figure on GDP for East Africa). Kenya, Ethiopia, and Tanzania registered significantly higher GDPs. However, South Sudan's per capita GDP and GNI for 2010 were among the

<sup>1</sup> According to the report referred to in the following footnote, Gross Domestic Product (GDP) measures the market value of all final goods and services produced in a country over a given period. Gross National Income (GNI) is the primary income received by residents from production of goods and services as salaries or profits.

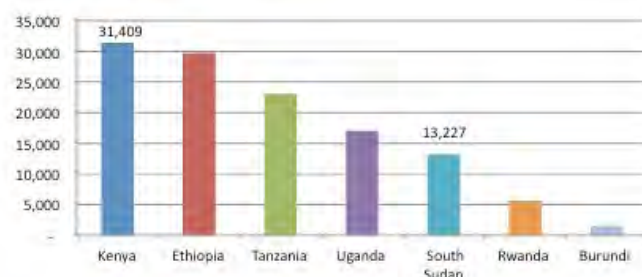
<sup>2</sup> South Sudan National Bureau of Statistics, August 2011, Release of first Gross Domestic Product (GDP) and Gross National Income (GNI) figures for South Sudan by the NBS.

highest in the region (see Figure 2). This regional differential was mainly attributable to oil production and revenues, and underscores their vital importance to South Sudan — in fact, 71 percent of total 2010 GDP and 97.8 percent of all GoSS revenues (see the figure on gross revenues).

But oil production is capital-intensive, and in South Sudan this means heavy foreign investment. The magnitude of that investment is reflected in the disparity between South Sudan's GDP and GNI, because in calculating GNI, income earned by non-residents is deducted from GDP.

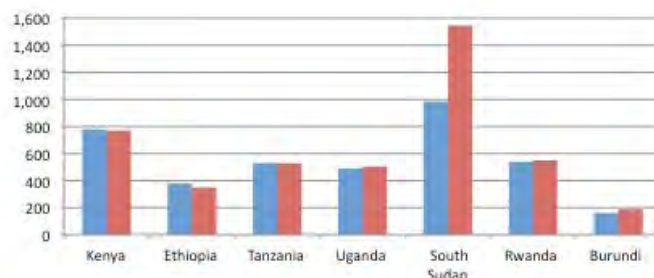
It is important to note, however, that these GDP and GNI indicators do not reflect income distribution.

**Figure 1. 2010 GDP for East African Countries (million USD)**



Source: South Sudan National Bureau of Statistics, 2011.

**Figure 2. 2010 GNI per capita and GDP per capita for East African Countries (current USD)**



Source: South Sudan National Bureau of Statistics, 2011.

### I.iii. Exchange rates

The official currency in South Sudan is the South Sudanese Pound (SSP). Although the Central Bank of South Sudan reports an official exchange rate on a daily basis,<sup>3</sup> there is also an unofficial rate widely accepted in market transactions.<sup>4</sup> The 2012 CFSAM<sup>5</sup> reported that the GoSS used a managed float exchange rate; as of October 2011, the unofficial exchange rate was SSP4 per US\$, close to what is reported in Table 2. In addition to the official and unofficial exchange rates, an important reference rate is the UN operational rate of exchange, exclusively used by all UN operations in South Sudan (Table 2).

**Table 2. Official and Unofficial Exchange Rates (US\$/SSP), August 2011-August 2012**

Month and Year	UN Official	GoSS Official	Market Unofficial
Unofficial	2.88	3.06	3.60
Aug-11	3.31	3.06	3.60
Sep-11	2.95	3.06	3.80
Nov-11	3.05	2.98	3.80
Dec-11	3.00	2.96	3.80
Jan-12		2.96	4.00
Feb-12	2.95	2.97	4.20
Mar-12	3.00	2.96	4.50
Apr-12	2.95	3.00	4.60
May-12	3.35	3.06	4.80
Jun-12	3.4	3.20	5.00
Jul-12	3.18	3.20	5.00
Aug-12	2.85	2.96	5.20

Source: UN Treasury (available at <http://treasury.un.org/operationalrates/Operational-Rates.aspx>), and key informants in South Sudan.

The official currency in Sudan is the Sudanese Pound (SDG). Originally, the exchange rate for the SSP was set at parity with the SDG, but information from the field suggests that exchange rates are volatile and higher than what is reported in official documents.

3 A key informant in Juba indicated that the official exchange rate is an average of daily rates taken over a month.

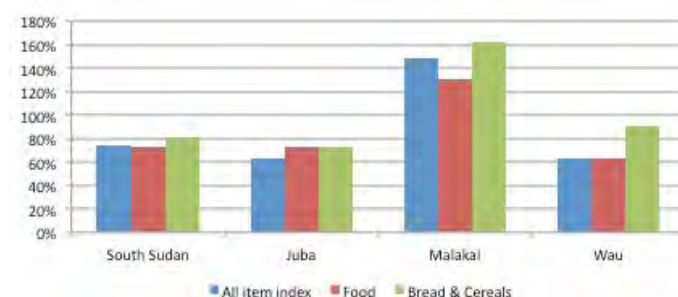
4 The unofficial exchange rate presented in this report was collected (by word of mouth) from dealers in markets, and some buyers in Juba. The unofficial rate presented in this report should serve only as reference to indicate the discrepancies existing among exchange rates.

5 FAO/WFP, February 2012, Crop and Food Security Assessment Mission to South Sudan (CFSAM).

### I.iv. Inflation

The Consumer Price Index (CPI) tracks price variations for various items or groups of items. The CPI is available for South Sudan as a whole, and for three specified areas in South Sudan: (1) Juba (Equatorias), (2) Malakal (north), and (3) Wau (northwest). Figure 3 presents CPI percentage variations in each of these areas from June 2011 to June 2012 for all items, for food, and for bread and cereals. All three CPI indices spiked dramatically after June 2011 — by more than 70 percent in South Sudan and more than 60 percent in Juba and Wau. However, the most pronounced price increase was observed in Malakal, where CPI increased well over 100 percent.

**Figure 3. CPI Variation, July 2011 – June 2012**

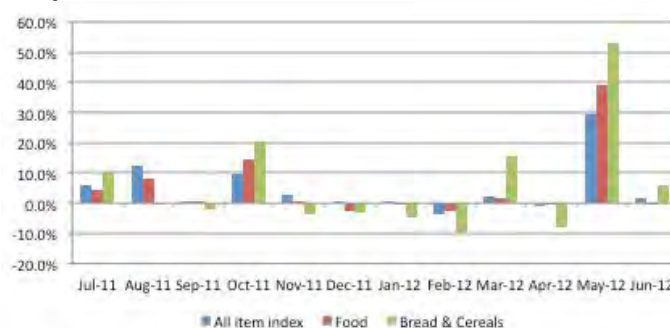


Base: June 2011.

Source: South Sudan National Bureau of Statistics, 2011.

Figure 4 shows monthly CPI variations from June 2011 to June 2012 for all of South Sudan, and reflects pronounced price volatility during this period. The highest percentage variation for all CPI items in South Sudan was observed from April to May 2012, when the all-items index increased by almost 30 percent, the food index increased by about 40 percent, and the bread and cereal index increased by more than 50 percent.

**Figure 4. South Sudan Monthly CPI Variation, July 2011–June 2012**



Base: June 2011.

Source: South Sudan National Bureau of Statistics, 2011.

## I.v. Consumption

As reflected in the 2010 consumption estimates contained in Table 3, South Sudan is among the poorest countries in the world. In 2010, the estimated average consumption in South Sudan was SDG100 per person per month — which equals about US\$30 per person per month, or US\$1 per person per day. These estimates also reflect:

- A dramatic difference in per-month consumption between poor and non-poor groups. On average, a poor person consumed about SDG39; a non-poor person consumed about SDG163. A significant disparity between rural and urban areas.

**Table 3. 2010 Average Per Capita Consumption**

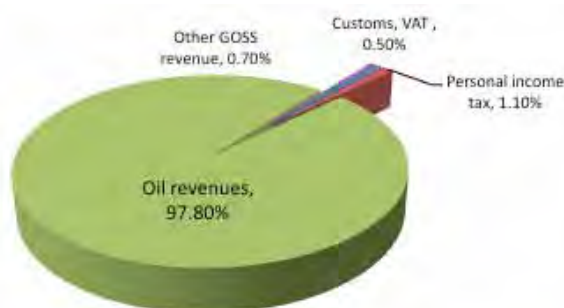
Consumption (per person/month)	SDG
Country average	100
Poor	39
Non-poor	163
Urban areas	168
Rural areas	88

Source: South Sudan National Bureau of Statistics, 2011.

## I.vi. Government Revenues and Expenditures

As previously noted, oil revenues are particularly important for the GoSS (see Figure 5). However, since January 2012, the GoSS has not been able to pump or sell oil because of disagreements with Sudan over transit fees. Currently, Sudan is the only available route for exporting oil out of South Sudan. It is estimated that this impasse has cost South Sudan over US\$2 billion<sup>6</sup>. However, in August 2012, Sudan and South Sudan reached a tentative agreement to soon restart oil production and transport.

**Figure 5. 2010 Government of South Sudan Gross Revenue by Source**



Source: South Sudan National Bureau of Statistics, 2011.

<sup>6</sup> *The Wall Street Journal*, July 22, 2012, South Sudan Struggles as Foreign Currency Dries Up.

Because of limited oil revenues, the GoSS requires support from donors to finance its expenditures and main investments. In fact, approximately 25 percent of all GoSS expenditures in 2011 were derived from donors' funds. As shown in Table 4, certain economic categories received more than that percentage of donor support in 2011; those categories included social/humanitarian (84 percent), health (57 percent), and infrastructure (37 percent).

**Table 4. 2011 Expenditure by Source and Category (million SDG)**

	GoSS Budget	Donors' Funds	Total	Percentage Donor's Fund
Accountability	196.84	74.78	271.62	28%
Economic functions	206.26	34.14	240.4	14%
Education	429.05	177.55	606.6	29%
Health	223.98	298.7	522.68	57%
Infrastructure	618.77	359.46	978.23	37%
Natural resources	275.75	118.01	393.76	30%
Public Administration	771.39	95.69	867.08	11%
Rule of law	561.38	3.91	565.29	1%
Security	1627.21	82.03	1709.24	5%
Social & humanitarian	128.52	668.62	797.14	84%
Transfers to states	727.97		727.97	0%
<b>Total</b>	<b>5767.12</b>	<b>1912.89</b>	<b>7680.01</b>	<b>25%</b>

Source: CFSAM, 2012.

## I.vii. Major Industries

### I.vii.i. Oil Sector

Before 2011, when Sudan and the former Southern Sudan (now South Sudan) were considered one country, they together held about 0.5 percent of all global oil reserves. After South Sudan became independent in July 2011, the majority of oil fields fell within its boundaries, making it owner of more than 75 percent of the oil (that is, 0.375 percent of all global reserves). However, all pipelines, refining, and export infrastructure remain north, in Sudan, making South Sudan dependent on Sudan to export oil.<sup>7</sup>

Before the conflict with Sudan, South Sudan was producing about 300,000 barrels per day, with sales contracts worth US\$2.14 billion. The main companies — all of them foreign — responsible for developing the South Sudan oil industry are the Chinese National Petroleum Corporation (CNPC), the Malaysian-owned PETRONAS, and the Indian-owned Oil and Natural Gas Corporation Limited (ONGC).<sup>8</sup>

<sup>7</sup> Sanders, Angelia, May 2012, *Sudan and South Sudan's Oil Industries: Growing Political Tensions*. Norfolk VA: NATO Allied Command Operations (ACO), Civil-Military Fusion Centre (CFC).

<sup>8</sup> Sanders, Angelia, May 2012, *Sudan and South Sudan's Oil Industries: Growing Political Tensions*. Norfolk VA: NATO Allied Command Operations (ACO), Civil-Military Fusion Centre (CFC).

## I.vii.ii. Agriculture, Livestock, Fisheries and Forestry Sector

Agriculture is the primary livelihood for the people of South Sudan. According to the GoSS, 78 percent of households derive their livelihood from farming and/or animal husbandry,<sup>9</sup> and these households generally practice subsistence farming.<sup>10</sup>

Agricultural land utilization is considered extremely low. The total area utilized for crop production is about 650,000 hectares (ha) to 1.3 million ha, which equals about 2–4 percent of total arable land. However, South Sudan has the potential to increase crop production: almost 90 percent of total agricultural land is appropriate for agricultural production, and 50 percent is considered “prime agricultural land.”<sup>11</sup>

Productivity is also low. Cereal yield is only about 0.5MT per hectare (MT/ha). As a comparison, average yield in Africa is more than 1 MT/ha, and in South Africa about 2.3 MT/ha.<sup>12</sup>

The Green Belt region has the highest potential for crop production. There, farmers grow crops such as maize, sorghum, millet, cassava, sweet potato, and groundnuts. Rice production was prominent before the conflict with Sudan, but has since nearly disappeared. However, some households still produce rice for their own consumption. Commercial crops include coffee and tobacco, and new crops such as soybean and cowpea are becoming more common. Fruit production includes bananas, plantains, pineapple, mangoes and citrus. Vegetables grown in this area are onion, okra, amaranths, cabbage, eggplant, pumpkins, and cucumber. Other important crops are cotton, pawpaw, sugarcane, and white sesame.<sup>13</sup>

The main barriers to increasing agricultural production and yields are:<sup>14</sup>

- Poor seed supply.
- Weeding timing and methods.
- Low input access and use.
- Pests and diseases.
- Security challenges.

9 South Sudan National Bureau of Statistics, June 2012, South Sudan Key Indicators.

10 FAO/IFAD/EU Joint Baseline Team, October 2010, The Joint Baseline Survey Report on the Agriculture and Animal Resources in Southern Sudan, Juba, Southern Sudan.

11 FAO/IFAD/EU Joint Baseline Team, October 2010, The Joint Baseline Survey Report on the Agriculture and Animal Resources in Southern Sudan, Juba, Southern Sudan.

12 USAID, September/October 2011, South Sudan's Greenbelt: Can tapping agriculture assets become the new nation's economic elixir?, *USAID Frontlines*. [http://transition.usaid.gov/press/frontlines/fl\\_sep11/FL\\_sep11\\_SUDAN\\_AGRICULTURE.html](http://transition.usaid.gov/press/frontlines/fl_sep11/FL_sep11_SUDAN_AGRICULTURE.html), accessed August 30, 2012.

13 FAO/IFAD/EU Joint Baseline Team, October 2010, The Joint Baseline Survey Report on the Agriculture and Animal Resources in Southern Sudan, Juba, Southern Sudan.

14 FAO/IFAD/EU Joint Baseline Team, October 2010, The Joint Baseline Survey Report on the Agriculture and Animal Resources in Southern Sudan, Juba, Southern Sudan.

The 2012 CFSAM estimates that there are about 12 million head of cattle in the country. Other livestock includes poultry, goats, pigs, horses, donkeys, and sheep. Commercial fishing is unexploited. Commercial forestry includes teak, natural mahogany, and gum arabica timbers.<sup>15</sup>

## I.vii.iii. Finance Sector

There are 30 commercial investment and agricultural banks currently operating in the country. Among the most prominent are Ivory Bank, Nile Commercial Bank, Buffalo Commercial Bank, Bank of Ethiopia, KCB Bank Group, and Equity Bank. For microfinance and microcredit loans, the most important institutions are Sudan Microfinance Initiative, Bangladesh Rural Cooperation (BRAC), Savannah Farmers' Cooperation (SFC), and Finance Sudan.<sup>16</sup>

## I.vii.iv. Businesses and Manufacturing Sector

Before the conflict with Sudan, the manufacturing industry included sugar, textile, cement, fruit, vegetable, and timber. The dominant manufacturing plant is Southern Sudan Beverages Ltd.

There are 7,333 registered businesses in the country. The majority of businesses are shops or restaurants (84 percent), and are located in Juba, with 2,683 registered businesses. Torit has the fewest, with only 260 businesses.<sup>17</sup>

## I.viii. Trade

According to GoSS estimates, 2011 exports totaled US\$9.5 billion, with more than 70 percent consisting of oil exports. Imports totaled US\$5.2 billion.<sup>18</sup> South Sudan imports about US\$200 to US\$300 million per year in food products. Cereal imports in 2011 exceeded 200,000 MT.<sup>19</sup>

Uganda has become a key trade partner for South Sudan. The demand for Ugandan products has been spurred by various factors, including post-conflict increases in consumption and construction, the official closure of the northern border with Sudan in January 2012, the paving of the Juba-Nimule road in early 2012, and the general lack of production in South Sudan.

15 FAO/WFP, February 2012, Crop and Food Security Assessment Mission to South Sudan (CFSAM).

16 South Sudan National Bureau of Statistics, June 2012, South Sudan Key Indicators.

17 South Sudan National Bureau of Statistics, June 2012, South Sudan Key Indicators.

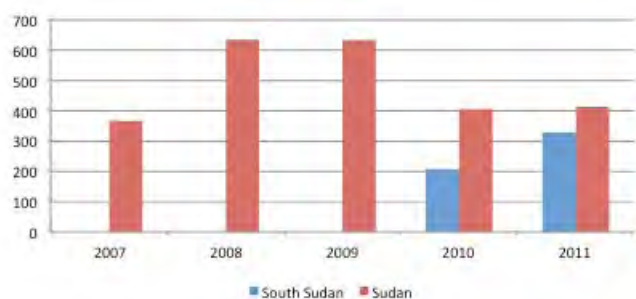
18 South Sudan National Bureau of Statistics, August 2011, Release of first Gross Domestic Product (GDP) and Gross National Income (GNI) figures for South Sudan by the NBS.

19 Ogwaro, Betty Achan. October 19, 2011, South Sudan: The World's Newest Investment Destination, *AgriBusiness Forum*. Johannesburg, South Africa.

According to data from the Uganda Bureau of Statistics, formal exports from Uganda to South Sudan increased by about 58 percent from 2010 to 2011 (see Figure 6). Although this increase can be partly attributed to decreased informal exports,<sup>20</sup> the robustness of the increase nevertheless illustrates Uganda's growing importance as a trade partner.

In May 2012, the Government of Uganda announced improvements to the Gulu-Nimule Highway, which are expected to encourage even more trade between the countries.<sup>21</sup>

**Figure 6. Uganda Exports to Sudan and South Sudan (million US\$), 2007–2011 African Countries (current USD)**



Source: Uganda Bureau of Statistics, 2012.

Notes: Sudan figures include both formal and informal trade. South Sudan figures include only formal exports. 2011 figures are provisional.

## I.ix. Economic Linkages, Agreements, and Partners

On July 9, 2011, South Sudan became the 196th country in the world and the 193rd member of the UN.<sup>22</sup> In 2012, it formally became a member of the International Monetary Fund (IMF) and the World Bank.<sup>23</sup> The GoSS has also submitted a letter of request to the World Trade Organization (WTO) — the first step toward developing an open and transparent trade policy and becoming an active WTO member.<sup>24</sup>

The GoSS is working with individual countries and multilateral organizations to attain wider recognition as a nation.<sup>25</sup> Table 5 below lists the countries that currently have embassies, high commissions, and/or consulates in South Sudan.

20 Bank of Uganda/Uganda Bureau of Statistics, June 2011, Informal Cross Border Trade Survey Report 2009–10, page 5. According to the Uganda Bureau of Statistics, "Informal Cross-Border Trade (ICBT) refers to trade transactions between residents and non-residents across the economic boundaries of two or more countries. These transactions are not recorded by Customs Authorities." [http://www.bou.or.ug/export/sites/default/bou/bou-downloads/publications/TradeStatistics/ICBT/All/Informal\\_Cross\\_Border\\_Trade\\_Survey\\_Report\\_2009\\_and\\_2010.pdf.pdf](http://www.bou.or.ug/export/sites/default/bou/bou-downloads/publications/TradeStatistics/ICBT/All/Informal_Cross_Border_Trade_Survey_Report_2009_and_2010.pdf.pdf) (accessed August 31, 2012).

21 The New Vision, May 10, 2012, *Uganda: Museveni Launches Gulu-Juba Road Works, to Cost Sh89 Billion*. <http://allafrica.com/stories/201205100860.html>, accessed August 30, 2012.

22 Ministry of Information, Republic of South Sudan, June 2011, *South Sudan Birth of a Nation - What comes next?*.

23 IMF, April 18, 2012, *Republic of South Sudan becomes IMF's 188th Member*, Press Release No. 12/140.

24 WTO, April 2012, *Republic of South Sudan - Request for Observer Status*.

25 GoSS, Regional Trade Agreements. <http://www.goss-online.org/magnoliaPublic/en/Business-and-Industry/Trade-Agreements.htm>, accessed August 30, 2012.

**Table 5. South Sudan – Embassies, High Commissions, and Consulates**

Contacts	Type of Representation
Belgium	Embassy
Canada	Embassy
China	Embassy
Denmark	Embassy
Egypt	Embassy
Eritrea	High Commission
Ethiopia	Embassy
European Union	Delegation
France	Consulate General
Germany	Embassy
India	Embassy
Japan	Embassy
Kenya	Embassy
Netherlands	Embassy
Norway	Embassy
South Africa	Embassy
Sudan	Embassy
Sweden	Embassy
Uganda	Embassy
United Kingdom	Consulate General
United States of America	Embassy
Zimbabwe	Embassy

Source: Based on LCA-Republic of South Sudan 2012, and key informant interview in South Sudan.

As an independent country, South Sudan will need to negotiate its own regional and international trade agreements. Table 6 below lists and summarizes the agreements currently being negotiated, according to the GoSS.<sup>26</sup>

**Table 6. South Sudan Trade Agreements under Negotiation**

Trade Agreement	Benefits
Common Market for Eastern and Southern Africa	Free trade area between 19 member states from Libya to Swaziland
East African Community	Free trade access
- Common tariffs on imports from third country	Embassy
African Growth and Opportunity Act	Export eligible products to the US duty free.
EU "Everything but Arms"	Duty-free and quota-free access for products into the EU

Source: GoSS, Regional Trade Agreements.

26 GoSS, 2012, Regional Trade Agreements. <http://www.goss-online.org/magnoliaPublic/en/Business-and-Industry/Trade-Agreements.htm>, accessed August 30, 2012.

## I.x. Major Shifts in Agricultural Policy

The Ministry of Agriculture and Forestry has drafted strategies to revitalize and advance agricultural production, and to ensure, among other things, population food security. Those strategies include:<sup>27</sup>

- Increasing productivity by promoting widespread use of technology and improved seed varieties. This includes:
  - Researching new seed varieties specifically for the South Sudan climate.
  - Creating a database of improved seed varieties available in the region.
- Encouraging farmers to increase commercial crop production by providing inputs.
- Encouraging the formation of farmers' associations.
- Providing extension services.

According to the Food and Agriculture Organization of the United Nations (FAO) Agricultural Survey, the GoSS manages the following agricultural programs to achieve its strategic goals:<sup>28</sup>

**Sudan Productive Capacity Recovery Programme (SPCRP):** A joint program with the European Commission, implemented by FAO. This program operates in Western Equatoria, Lakes, Western Bahr el Ghazal, Northern Bahr el Ghazal, and Warrap in South Sudan. The overall objective is to recover agricultural production and human capacities in the most vulnerable areas destroyed by the civil conflict between Sudan and South Sudan. To achieve those objectives, the program aims to (1) promote agriculture, livestock, and off-farm activities that will increase incomes and (2) strengthen local and non-state capacity.

**The Southern Sudan Livestock and Fisheries Development Project (LFDP):** This project is co-financed by the Multi-Donor Trust Fund (MDTF) and managed by the Ministry of Animal Resources and Fisheries (MARF). The main objective is to improve livestock and fisheries performance by (1) developing institutional capacity, improving services for animal health, rehabilitating livestock, and dairy markets, and (2) developing fish production and marketing.

**Southern Sudan Livelihoods Development Project (SSLDP):** This project is jointly financed by the International Fund for Agricultural Development (IFAD) and the Embassy of the Kingdom of the Netherlands, and is implemented by the Ministry of Agriculture and Forestry. This project covers areas in the states of Central Equatoria, Eastern Equatoria, and Jonglei.

27 Sudan Radio Service, September 28, 2010, GOSS Agriculture Ministry to Revitalize Agricultural Sector. <http://sudanradio.org/goss-agriculture-ministry-revitalize-agricultural-sector>; accessed August 30, 2012.

28 FAO/IFAD/EU Joint Baseline Team, October 2010, The Joint Baseline Survey Report on the Agriculture and Animal Resources in Southern Sudan. Juba, Southern Sudan.

# ANNEX II: AGRICULTURE OVERVIEW

## II.i. Introduction

Agriculture and livestock are the main livelihood activities for more than 80 percent of South Sudan's population, and both have great potential for expansion. Of the total land cover, 80 percent (around 512,000 sq. km) is considered suitable for crop and livestock production, but only 4 percent is now producing.<sup>29</sup>

The barriers to expansion are as follows:<sup>30</sup>

For agriculture production:

1. Vulnerability to climatic variations
2. Limited use of technology and inputs
3. Limited access to markets

For cattle and dairy production and commercialization:

1. Low milk production
2. Low meat production
3. Limited value addition
4. High animal mortality

The Government of South Sudan (GoSS) plans to increase production. To support that plan, the United Nations Food and Agriculture Organization (FAO) has drawn up a US\$50 million Interim Assistance Plan (IAP) for the agricultural sector aimed at (1) building capacity in ministerial and state agricultural extension offices, (2) establishing a seed production sector, and (3) establishing an urban and peri-urban agriculture component.<sup>31</sup>

## II.ii. Cereal Production Base and Trends

South Sudan's cereal production includes sorghum, maize, upland rice, and millet. Smallholder farming accounts for 80 percent of the country's cereal production. Unfortunately, these farmers are saddled with a number of constraints, such as high transport costs, unavailable agricultural inputs, and underdeveloped agricultural extension services.<sup>32</sup>

29 WFP, February 2012, Annual Needs and Livelihoods Analysis 2011/2012 South Sudan.

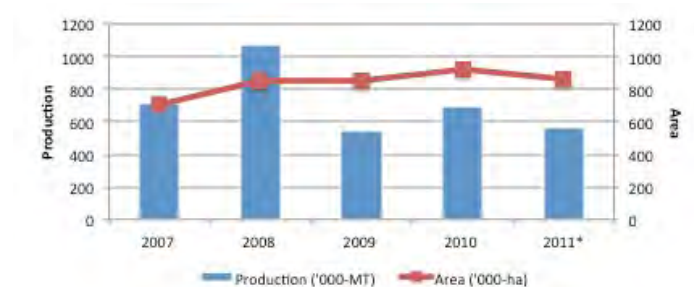
30 WFP, February 2012, Annual Needs and Livelihoods Analysis 2011/2012 South Sudan.

31 Based on USAID-BEST field visit/key informant interview, July 2012.

32 WFP, February 2012, Annual Needs and Livelihood Analysis 2011/12 South Sudan.

From 2007 to 2008, total area under production increased by 21 percent, and then remained relatively unchanged until 2011. After 2008, and despite the increase in area cultivated, overall production has significantly decreased, from 1.06 million MT in 2008 to 563,000 MT in 2011 — a 47 percent reduction (see figure 7). Yields decreased by 48 percent, from 1.25 MT/ha in 2008 to an estimated 0.65 MT/ha in 2011.<sup>33</sup>

**Figure 7. South Sudan Cereal Production and Harvested Area, 2007–2011**



\*Forecast

Source: CFSAM, 2012.

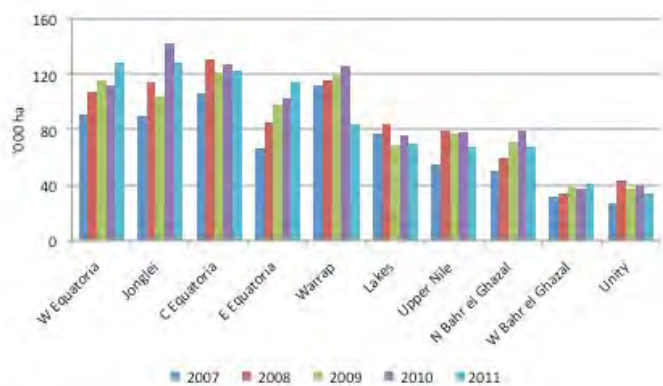
Yields (and thus production) are determined by quantities derived from area harvested rather than area cultivated. Comparing 2008 with 2011, and as reflected in figure 8:

- Harvested areas increased in Western Equatoria (by 21 percent), Jonglei (by 11 percent), Eastern Equatoria (by 35 percent), Northern Bahr el Ghazal (by 15 percent), and Western Bahr el Ghazal (by 21 percent).
- The harvested area for cereal decreased in Central Equatoria, Warrap, Lakes, Upper Nile, and Unity. The two main factors contributing to this decrease were:
  - Poor rainfall, which caused complete loss of harvest in some bimodal production areas.
  - Growing insecurity due to tribal conflicts and incursions into South Sudan by the Lord's Resistance Army.<sup>34</sup>

33 FAO/WFP, February 2012, Crop and Food Security Assessment Mission to South Sudan (CFSAM).

34 FAO/WFP, February 2010, Crop and Food Security Assessment Mission to South Sudan.

**Figure 8. Cereal Harvested Area by State, 2007–2011**



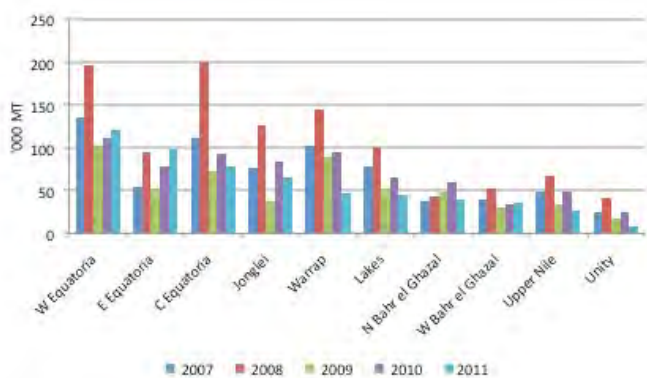
\*Forecast  
Source: CFSAM, 2012.

Figure 9 shows cereal production by state for 2007–2011. From 2007 to 2008, cereal production increased in all states. However, comparing 2008 with 2011:

Production declined in all states (except for Eastern Equatoria), and did not recover to 2008 levels.

- Particularly dramatic production declines occurred in Central Equatoria (by 61 percent), Warrap (by 68 percent), Upper Nile (by 61 percent), and Unity (81 percent).
- In Eastern Equatoria, production increased by 5 percent.<sup>35</sup>

**Figure 9. Cereal Production (MT), by State, 2007–2011**



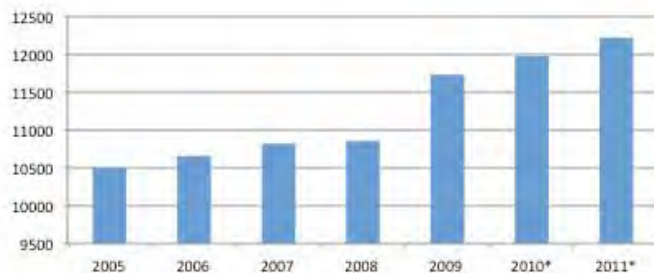
\*Forecast  
Source: CFSAM, 2012.

35 FAO/WFP, February 2012, Crop and Food Security Assessment Mission to South Sudan.

### II.iii. Cattle Production and Trends

Figure 10 shows the arc of cattle quantities in South Sudan. The number of cattle remained at about 1 million heads from 2005 to 2008, increasing to about 12 million in 2011.<sup>36</sup>

**Figure 10. Total Number of Cattle ('000), 2005–2011**



\*2010 and 2011 Estimates.  
Source: CFSAM, 2012.

Table 7 presents cattle quantities by state. As reflected in that table, the number of cattle increased by about 3 to 5 percent in all states from 2005 to 2008. The GoSS estimated about 4 percent increase 2008 to 2011.<sup>37</sup>

**Table 7. Number of Cattle, by State ('000), 2005–2011**

State	2005	2006	2007	2008	2009	2010*	2011*
Upper Nile	990	1005	1021	1024	983	1003	1024
Unity	1189	1207	1226	1230	1180	1204	1229
Jonglei	1475	1497	1521	1526	1465	1495	1526
N Bahr el Ghazal	1590	1615	1640	1646	1579	1611	1644
W Bahr el Ghazal	1256	1275	1295	1300	1248	1274	1300
Lakes	n.a.	n.a.	n.a.	n.a.	1311	1338	1365
Warrap	1539	1562	1586	1592	1528	1559	1591
Central Equatoria	895	908	922	926	878	896	914
Eastern Equatoria	883	896	910	913	888	906	925
Western Equatoria	680	690	701	703	675	689	703

\*2010 and 2011 Estimates  
Source: CFSAM, 2012.

36 FAO/WFP, February 2012, Crop and Food Security Assessment Mission to South Sudan.

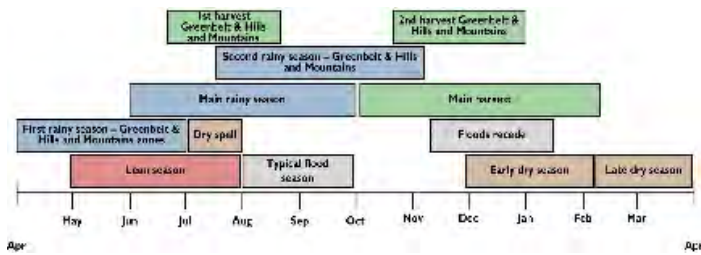
37 FAO/WFP, February 2012, Crop and Food Security Assessment Mission to South Sudan.



## II.iv. Seasonality

Figure 11 summarizes the most important agricultural activities for the 2012–2013 season.

**Figure 11. 2012–2013 Seasonal Calendar**



Source: FEWSNET.

No cultivation occurred along the Kiir River (Bahr el Arab), the main conflict area with Sudan, because of population displacements during the primary planting season of 2011. This is pressuring food supplies in 2012.<sup>38</sup>

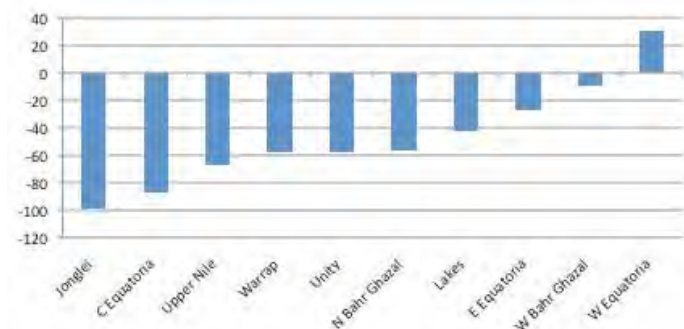
## II.v. Food imports

South Sudan imports food mostly from Sudan, Uganda, Kenya, and Ethiopia.<sup>39</sup> Prices for imported food have dramatically increased because of high transportation costs, multiple taxation and levies, and high inflation. In addition, integration of intra- and inter-regional markets has been severely limited by poor road networks, limited storage facilities, and lack of market information.<sup>40</sup>

CFSAM 2012 anticipates cereal deficits in 2012 for all South Sudan states but Western Equatoria. Figure 12 illustrates cereal deficits by state.<sup>41</sup>

Import substitution and targeted food aid are likely to reduce food deficits (and consequently food insecurity), and to help increase productivity.<sup>42</sup>

**Figure 12. Estimated Cereal Surplus/Deficit in 2012, by State ('000 MT)**



Source: CFSAM, 2012.

38 Brady/Oxfam GB, 2012, *An Emergency Market Mapping and Analysis Study: Market Support in South Sudan*.

39 FAO, March 2012, GIEWS Country Brief South Sudan.

40 Based on USAID-BEST field visit key informant interview, July 2012.

41 A table with cereal deficits/surplus by counties is available in Annex III.

42 Based on USAID-BEST field visit key informant interview, July 2012.

## II.vi. Key Policies and Initiatives Affecting Agriculture

**Sudan-South Sudan Conflict:** Sudan is a key trade partner for South Sudan. However, conflicts over oil supply and the border closing in early 2012 have severely constrained all trade, including food. In the short run, food insecurity, particularly in the northern states, is expected to worsen as a result of this conflict.<sup>43</sup>

**Land ownership:** The Southern Sudan Land Commission (SSLC) oversees issues relating to land tenure and property rights. In January 2009, the SSLC-developed Southern Sudan Land Bill was passed into an Act (the 2009 Land Act) by the Southern Sudan Legislative Assembly.<sup>44</sup> Despite the 2009 Land Act and other existing land regulations, land ownership remains a key impediment to agricultural investment and growth: the process to obtain, restore, or confirm ownership of land is costly and takes time.<sup>45</sup>

**Infrastructure:** In August 2012, the GoSS announced its plan to invest US\$4 billion to build 7,000 km of road networks over the next 10 years.<sup>46</sup> Currently, the road network consists of approximately 177,800 km, but less than 300 km is paved. South Sudan has no railways, except for a single rail extension from Sudan that reaches Wau — but there is no capacity for cargo. Energy sources include renewables, waste matter, and petroleum. Currently, electrical power is produced by government plants and some small privately owned generators. However, electricity is only available in urban centers.<sup>47</sup>

**Rural development:** South Sudan does not have a coordinated policy for rural development. Non-government organizations (NGOs) are conducting most of the extension work in rural areas. Although agricultural development requires more fertilizers and improved seed adoption, a strategic rural development approach must include other aspects such as education, health, and environmental protection. The main strategy of GoSS has been to achieve food self-sufficiency; however, promoting commercial agriculture will also benefit the country.<sup>48</sup>

43 FAO, March 2012, GIEWS Country Brief South Sudan.

44 USAID, December 2012, *Land Tenure Issues in Southern Sudan: Key Findings and Recommendations for Southern Sudan Land Policy*.

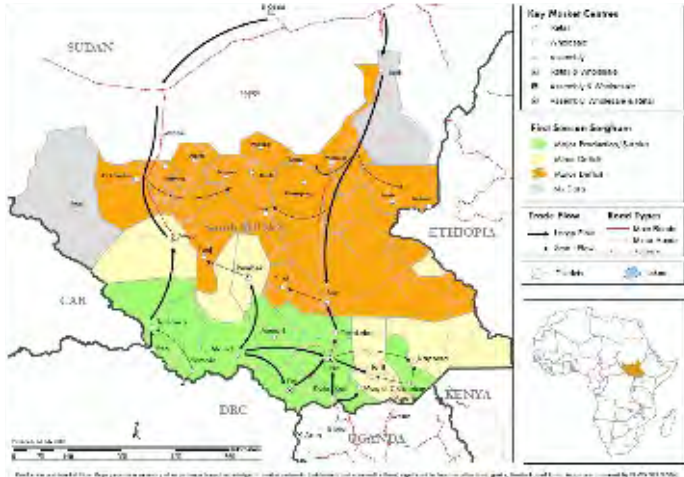
45 As reported in USAID's 2010 Land Tenure Report, the 2009 Land Act calls for restitution of rights to, and compensation for, land and property lost as a result of displacement from the civil war. Other problems include (1) land and property rights usurped by government institutions for public use without compensation, (2) land grabbing by government officials, and by oil and mining companies, bypassing local authorities and communities, (3) investors using others' land for commercial farming, (4) eviction of local people for expansion of town and road construction, and (5) lack of clear land boundaries. The Act states that claims for restitution and compensation should be made to the Land Commission, traditional authority or any other recognized community representative within three years from its enactment (that is, by January 2012).

46 Nohr/Chicago Tribune, August 2012, *Road-starved South Sudan Eyes \$4 billion Road Network*.

47 WFP, January 2012, *Logistic Capacity Assessment-Republic of South Sudan*.

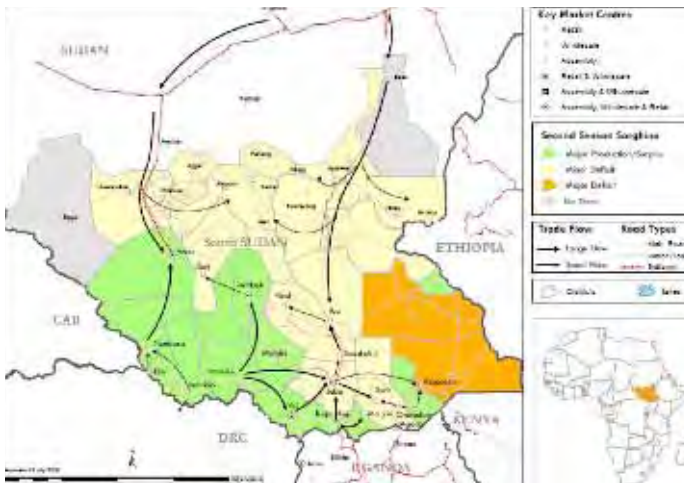
48 *Denu/Sudan Economy Discussion Group*, April 2011, *An Agenda for Institutional Reforms in Sudan/South Sudan*, Discussion Paper No 39.

Figure 13. First Season Sorghum



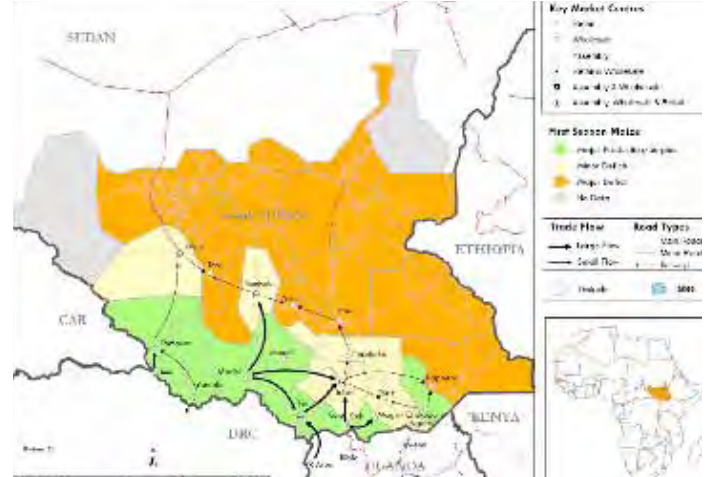
Source: FEWS NET.

Figure 14. Second Season Sorghum



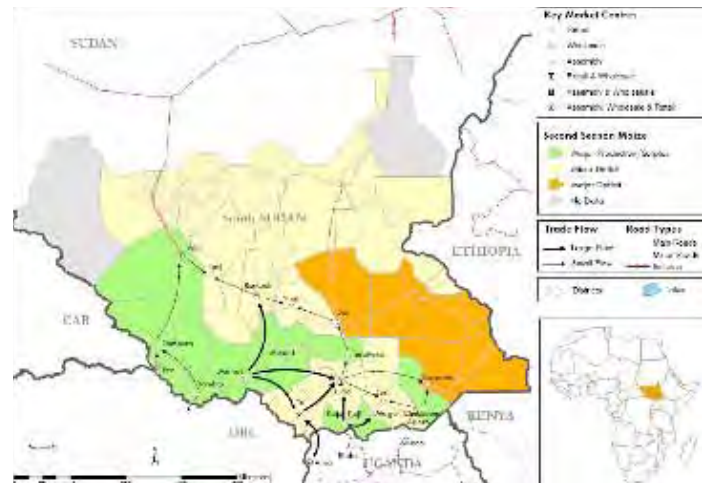
Source: FEWS NET.

Figure 15. First Season Maize



Source: FEWS NET.

Figure 16. Second Season Maize



Source: FEWS NET.

# ANNEX III: HOUSEHOLD CONSUMPTION AND EXPENDITURE

## III.i. Introduction

This annex summarizes South Sudan household consumption and expenditures based on information derived from various sources, including the Government of South Sudan (GoSS), the United Nations (UN) Food and Agriculture Organization (FAO), World Food Programme (WFP), and other donors. The topics covered are:

1. Food sources.
2. Local diets.
3. Sources of income.
4. Expenditure patterns.
5. Poverty indicators.

## III.ii. Food Sources

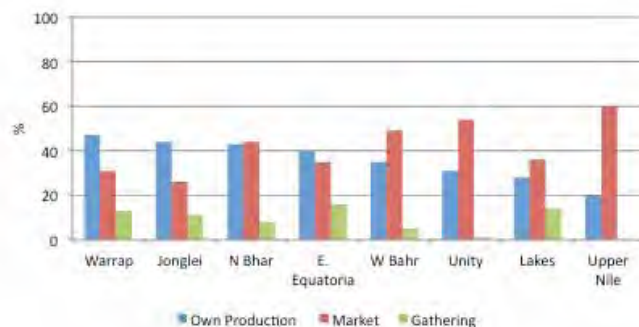
According to the 2011/2012 South Sudan Annual Needs and Livelihoods Assessment (ANLA),<sup>49</sup> the two main sources of food are markets and own production. In some areas, people also gather fruits and vegetables. Other, less prevalent, food sources are fishing, hunting, borrowing, gifts, “food-for-work distribution”, and food aid.

The data in the 2009/2010 ANLA,<sup>50</sup> presented in state-by-state reports, indicate the following:

- Markets are the primary food source in South Sudan.
- Own production exceeds markets sourcing only in Warrap, Jonglei, and Eastern Equatoria.
- Markets are particularly important in Unity and Upper Nile, where 54 and 60 percent of households, respectively, used them as main source of food.

Figure 17 depicts this information graphically.

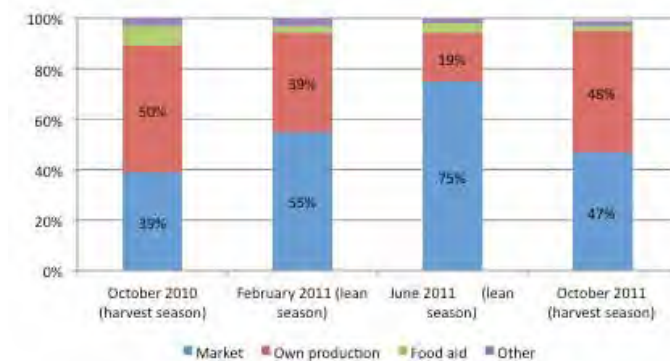
**Figure 17. 2009–2010 Household Sources of Food, by State**



Source: USAID-BEST based on 2009/2010 ANLA reports (state-by-state).

Sorghum is the main staple food in South Sudan. To obtain it, households increasingly rely on markets, regardless of the season.<sup>51</sup> During the lean season (May to August), up to 75 percent of households rely on markets to purchase sorghum. The percentage generally decreases during harvest time (September to December) — but even then, markets are an important source. Figure 18 bears this out: it presents the percentage of sorghum sourced from market and own production for one full year, during the period from October 2010 to October 2011.

**Figure 18. Sources of Sorghum for Households, October 2010–October 2011**



Source: CFSAM, 2012.

In 2012, only ten counties in the whole country are expected to produce cereal surpluses, seven of which are located in the Western Equatoria State.<sup>52</sup> The table below presents an estimated production requirement and surplus/deficit by county in 2012.

49 WFP, February 2012, Annual Needs and Livelihoods Analysis 2011/2012 South Sudan.

50 WFP, February 2010, Annual Needs and Livelihoods Analysis 2009/2010 South Sudan [state-by-state].

51 FAO/WFP, February 2012, Crop and Food Security Assessment Mission to South Sudan (CFSAM).

52 The other three counties with cereal surpluses in the 2012 CFSAM include Ikotos and Torit in Eastern Equatoria state, and Raga in Western Bahr el Ghazal state.

**Table 8. Estimated Cereal Production, Population, Requirement and Surplus/Deficit by County**

	2011 Gross Production (MT)	2011 Net Production (MT)	2012 Population	2012 Requirement (MT)	2012 Surplus/Deficit (MT)
<b>Central Equatoria</b>					
Returnees (year 2010)	1,209	967	47,432	6,404	-5,437
Juba	17,465	13,972	418,439	58,582	-44,610
Kajo Keji	21,890	17,512	215,517	25,862	-8,351
Lainya	6,359	5,087	102,713	12,326	-7,239
Morobo	9,054	7,243	124,421	14,931	-7,687
Terekeka	22,902	18,321	156,321	18,759	-438
Yei	18,336	14,669	222,151	27,769	-13,100
<b>Eastern Equatoria</b>					
Returnees (year 2010)	1,244	995	18,840	2,355	-1,360
Budi	12,326	9,861	108,069	12,968	-3,107
Ikotos	17,458	13,966	95,443	11,930	2,036
Kapoeta East	18,855	15,084	178,638	22,330	-7,246
Kapoeta North	10,230	8,184	112,287	14,036	-5,852
Kapoeta South	7,588	6,071	86,690	11,270	-5,199
Lafon	12,638	10,111	116,289	13,955	-3,844
Magwi	22,716	18,172	185,585	22,270	-4,098
Torit	21,041	16,833	114,327	14,863	1,970
<b>Jonglei</b>					
Returnees (year 2010)	811	649	28,305	3,114	-2,465
Akobo	7,941	6,352	150,108	16,512	-10,160
Ayod	7,908	6,326	151,736	15,932	-9,606
Bor South	10,040	8,032	245,248	28,203	-20,171
Duk	3,690	2,952	71,514	7,509	-4,558
Fangak	6,299	5,039	126,237	13,255	-8,216
Khorflus/Pigi/Canal	5,171	4,137	112,572	11,820	-7,683
Nyirrol	6,601	5,281	119,349	13,129	-7,848
Pibor	8,647	6,918	162,059	17,016	-10,098
Pochalla	6,355	5,084	72,130	7,213	-2,129
Twic East	6,214	4,972	93,686	10,306	-5,334
Uror	11,612	9,290	195,093	19,510	-10,220
<b>Lakes</b>					
Returnees (year 2010)	1,986	1,589	65,924	6,593	-5,003
Awerial	3,667	2,934	51,249	5,125	-2,191
Cueibet	6,316	5,053	129,890	12,989	-7,936
Rumbek Centre	8,142	6,514	169,752	18,673	-12,160
Rumbek East	12,399	9,919	137,719	13,772	-3,853
Rumbek North	2,055	1,644	47,289	4,728	-3,084
Wulu	4,520	3,616	44,661	4,466	-850
Yirol East	6,702	5,362	78,317	8,615	-3,254
Yirol West	11,045	8,836	116,297	12,793	-3,957
<b>N Bahr el Ghazal</b>					
Returnees (year 2010)	1,520	1,216	80,210	8,823	-7,608
Aweil Centre	1,163	931	76,790	8,447	-7,516
Aweil East	21,627	17,302	353,351	38,868	-21,566
Aweil North	6,815	5,452	153,787	14,610	-9,158
Aweil South	8,399	6,719	80,766	7,673	-953
Aweil West	10,172	8,137	186,722	17,739	-9,602

	2011 Gross Production (MT)	2011 Net Production (MT)	2012 Population	2012 Requirement (MT)	2012 Surplus/Deficit (MT)
<b>Unity</b>					
Returnees (year 2010)	284	227	39,594	3,564	-3,337
Abiemnhom	243	194	27,436	2,331	-2,137
Guit	522	417	38,525	3,274	-2,857
Koch	1,238	990	89,472	7,605	-6,615
Leer	632	505	72,390	6,154	-5,649
Mayendit	905	724	73,761	6,270	-5,547
Mayom	1,965	1,572	143,349	12,185	-10,613
Panyijar	788	630	58,183	4,946	-4,316
Pariang	2,364	1,891	92,848	7,892	-6,001
Rubkona	1,306	1,045	127,736	12,135	-11,090
<b>Upper Nile</b>					
Returnees (year 2010)	98	78	7,043	599	-521
Baliet	1,171	937	54,809	4,385	-3,448
Fashoda	2,558	2,046	44,404	3,552	-1,506
Longochuk	1,696	1,357	75,587	6,047	-4,690
Luakpiny/Nasir	5,354	4,284	233,960	18,717	-14,433
Maban	2,014	1,611	49,515	3,961	-2,350
Maiwut	2,885	2,308	86,667	6,933	-4,625
Malakal	1,278	1,022	157,763	14,987	-13,965
Manyo	1,353	1,083	44,549	3,564	-2,482
Melut	3,161	2,529	54,339	4,347	-1,818
Panyikang	611	489	51,776	4,142	-3,653
Renk	7,444	5,955	157,794	14,202	-8,246
Ulang	2,833	2,267	96,270	7,702	-5,435
<b>Upper Nile</b>					
Returnees (year 2010)	98	78	7,043	599	-521
Baliet	1,171	937	54,809	4,385	-3,448
Fashoda	2,558	2,046	44,404	3,552	-1,506
Longochuk	1,696	1,357	75,587	6,047	-4,690
Luakpiny/Nasir	5,354	4,284	233,960	18,717	-14,433
Maban	2,014	1,611	49,515	3,961	-2,350
Maiwut	2,885	2,308	86,667	6,933	-4,625
Malakal	1,278	1,022	157,763	14,987	-13,965
Manyo	1,353	1,083	44,549	3,564	-2,482
Melut	3,161	2,529	54,339	4,347	-1,818
Panyikang	611	489	51,776	4,142	-3,653
Renk	7,444	5,955	157,794	14,202	-8,246
Ulang	2,833	2,267	96,270	7,702	-5,435
<b>Western Equatoria</b>					
Returnees (year 2010)	670	536	14,262	1,854	-1,319
Ezo	27,299	21,839	88,170	11,462	10,377
Ibba	14,506	11,605	45,663	5,937	5,668
Maridi	14,504	11,604	90,045	11,706	-102
Mundri East	6,995	5,596	52,741	6,593	-996
Mundri West	4,129	3,304	37,200	4,650	-1,347
Mvolo	8,408	6,727	52,569	6,572	155
Nagero	2,720	2,176	10,986	1,428	749
Nzara	18,985	15,188	71,644	9,314	5,874
Tambura	14,083	11,266	60,524	7,868	3,398
Yambio	38,027	30,422	166,663	22,499	7,922

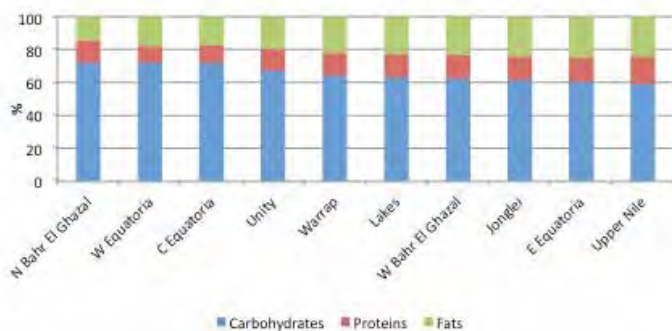
Source: Adapted by USAID-BEST using data published in 2012 CFSAM.

### III.iii. Local Diets

As indicated in Figure 19 carbohydrates represent more than 50 percent of dietary energy consumption in all states. Protein and fats are consumed in much lower percentages.<sup>53,54</sup> The main sources of carbohydrates are sorghum and maize, and in some locales, rice and millet.

A typical South Sudanese meal consists of a thick porridge, prepared with a preferred cereal. Milk and honey are added when available. Meat is the main protein source. Beef is consumed across the country, but particularly in the northern states. South Sudanese also consume goat, camel, sheep, and chicken. Fish is consumed in some areas. Other important sources of dietary energy are: cassava, yams, sweet potatoes, taro, onion, tomatoes, okra, groundnut, and pulses. Widely consumed fruits include mango, watermelons and guava.<sup>55</sup>

**Figure 19. Nutritional Source of Dietary Energy Consumption, by State**



Note: Carbohydrates include fiber and alcohol.

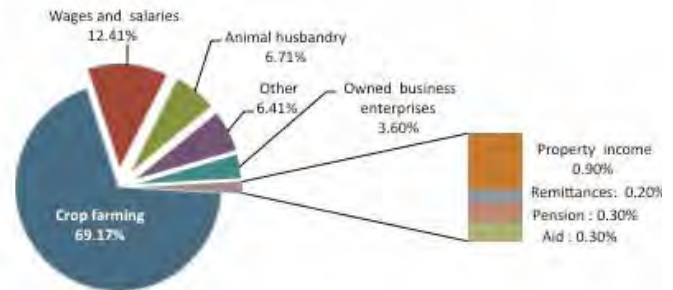
Source: South Sudan National Bureau of Statistics. Statistical Yearbook for Southern Sudan 2010.

### III.iv. Sources of Income

The main activity for household members in South Sudan is crop farming (69.17 percent).<sup>56</sup> Other important sources of income are wages and salaries (12.41 percent), and animal husbandry (6.71 percent) (see figure 20).<sup>57</sup>

In general, livestock represents an important resource for obtaining cereal, either by sale or barter. Another important source of income is charcoal and firewood sales, particularly when crop production is limited.<sup>58</sup>

**Figure 20. Main Livelihood of Individuals in South Sudan**



Source: Adapted by USAID-BEST using data published in World Bank 2011.

As shown in Table 9:

- In all states except Upper Nile, more than 50 percent of people derive their income from crop farming.
- Among all states, Western Bahr el Ghazal, Central Equatoria, and Upper Nile have the highest percentages of individuals relying on wages and salaries as a main income source, at about 22 percent each.<sup>59</sup>

**Table 9. Main Livelihoods of Individuals, by State (%)**

State	Crop farming	Animal husbandry	Wages and salaries	Owned business enterprises	Property income	Remittances	Pension	Aid	Other
Western Equatoria	88.1	1.4	6.2	2.1	0.5	0.5	0.0	0.1	1.2
Lakes	84.0	2.5	8.9	1.9	0.7	0.0	0.0	0.0	2.0
Warrap	80.9	5.3	4.5	2.1	0.0	0.1	0.5	1.3	5.4
Northern Bahr el Ghazal	78.9	0.7	7.1	5.7	0.0	0.4	0.0	0.4	6.8
Eastern Equatoria	75.0	11.2	7.0	2.5	2.2	0.3	0.0	0.0	1.9
Jonglei	72.7	11.3	9.2	0.9	0.4	0.0	0.0	0.1	5.5
Western Bahr el Ghazal	61.5	1.5	22.9	8.2	1.0	0.1	0.6	0.6	3.7
Unity	56.3	9.7	18.3	4.3	0.3	0.0	0.0	0.3	10.8
Central Equatoria	54.8	1.1	22.6	4.2	1.5	0.5	1.2	0.4	13.5
Upper Nile	42.4	16.3	22.4	7.5	1.9	0.1	0.3	0.1	8.9

Source: World Bank 2011.

53 South Sudan National Bureau of Statistics [formerly Southern Sudan Centre for Census, Statistics and Evaluation], 2010, Statistical Yearbook for Southern Sudan 2010, (accessed September 6, 2012).

54 WFP, February 2012, Annual Needs and Livelihoods Analysis 2011/2012 South Sudan.

55 Based on USAID-BEST field visit/key informant interview, July 2012.

56 The World Bank and the South Sudan National Bureau of Statistics report figures from the 2009 National Household Survey. However, the World Bank figures are preferred in this section because they are not rounded.

57 World Bank, March 2011, A Poverty Profile for the Southern States of Sudan. [Also cited in this annex as World Bank, 2011.]

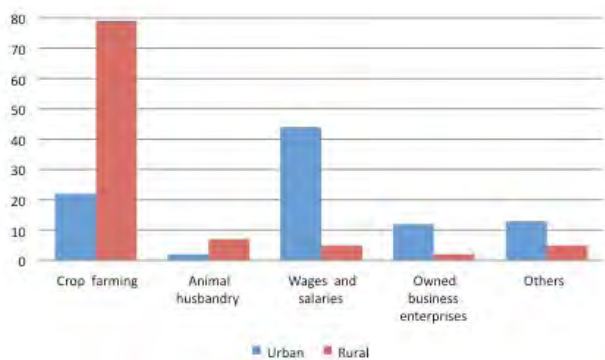
58 FAO/WFP, February 2012, Crop and Food Security Assessment Mission to South Sudan (CFSAM).

59 World Bank, March 2011, A Poverty Profile for the Southern States of Sudan. Also referred to in this annex as "World Bank 2011."

- “Owned business enterprise” is an important livelihood in Northern and Western Bahr el Ghazal (5.7 and 8.2 percent of individuals, respectively).
- Other income sources such as remittances, pensions, and aid are not as prevalent.

Income varies significantly between urban and rural areas (see figure 21). In urban areas, the main income sources are wages and salaries, and revenues from owned business enterprises. In rural areas, more than 80 percent of household incomes are derived from crop farming.<sup>60</sup>

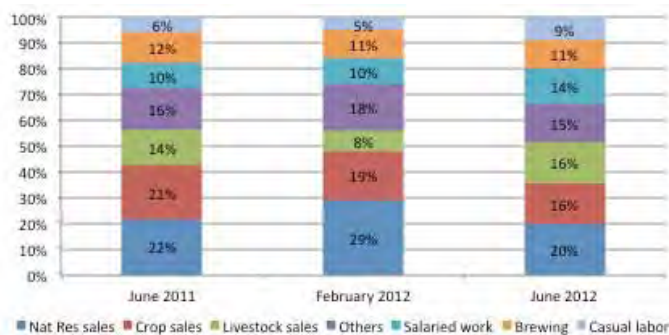
**Figure 21. Source of Household Income, by Area (%)**



Source: South Sudan National Bureau of Statistics. Statistical Yearbook for Southern Sudan, 2010.

Income sources also vary depending on the season. According to the most recent WFP Food Security Monitoring, for households surveyed in June 2011, and again in June 2012 the most important income sources were sales of natural resources, followed by crop sales, and livestock sales. In February 2012, these households cited increasing sales of natural resources, and decreasing livestock sales (figure 22). WFP reports that the selling of natural resources (e.g., grass, charcoal, and firewood) is an inconsistent and unreliable source of income.<sup>61</sup>

**Figure 22. Main Income Source, June 2011–June 2012**



Source: Adapted by USAID-BEST using data published in WFP 2012.

60 South Sudan National Bureau of Statistics [formerly Southern Sudan Centre for Census, Statistics and Evaluation], 2010, Statistical Yearbook for Southern Sudan 2010. Key informants in South Sudan have confirmed these figures are up to date.

61 WFP, July 2012, South Sudan Food Security Monitoring.

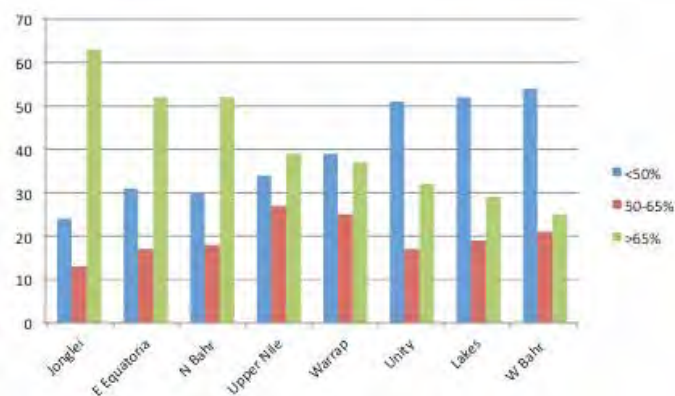
### III.v. Expenditure Patterns

On average, current total per capita expenditure is approximately SSP100<sup>62</sup> per month (approximately US\$30 per month). In urban areas, total expenditure reached SSP168 per month; in rural areas, about SSP88 per month. Food represented the largest per month expense in both urban and rural areas, averaging SSP79 (SSP109 in urban areas and SSP73 in rural areas).<sup>63</sup>

The percentage of expenditure spent on food is a key indicator of a household’s ability to meet its food and non-food needs. If, out of the total household expenditure, food expenditure exceeds 65 percent, a household must generally choose between meeting food and non-food needs, and reduce consumption of one or both.<sup>64</sup>

In South Sudan, the percentage spent on food varies from state to state, but it is relatively high in all of them. For example, in Jonglei, Eastern Equatoria, and Northern Bahr el Ghazal, more than half of all households spend over 65 percent of their incomes on food. In Unity, Lakes, and Western Bahr el Ghazal, more than half of all households spend less than 50 percent of their income on food (see figure 23). But even though most households in Unity, Lakes, and Western Bahr el Ghazal spent less on food in percentage terms, in reality, a significant proportion of households in each state (ranging from 21 percent in Western Bahr el Ghazal to 40 percent in Lakes) lack the purchasing power to buy more than one-half of a minimum food basket.<sup>65</sup>

**Figure 23. Food as Percentage of Household Expenditure, by State (%)**



Source: South Sudan National Bureau of Statistics. Statistical Yearbook for Southern Sudan 2010.

62 “SSP” means the South Sudanese pound, the official currency of South Sudan.

63 South Sudan National Bureau of Statistics, 2010, Statistical Yearbook for Southern Sudan 2010.

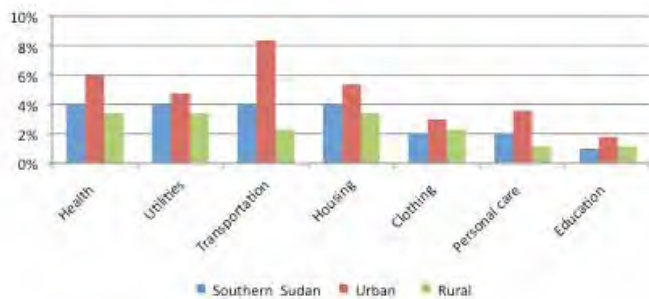
64 WFP, February 2010, Annual Needs and Livelihoods Analysis 2009/2010: South Sudan [state-by-state].

65 WFP, February 2012, Annual Needs and Livelihoods Analysis 2009/2010: South Sudan [state-by-state].

After food expenditures, monthly per capita expenditures vary between urban and rural areas. As reflected in figure 24:

- In urban areas:
  - Transportation costs represent approximately 8 percent of all expenditures.
  - Other significant expenses are health and housing.
- In rural areas health, utilities, and housing represent approximately 5 percent of all expenditures.

**Figure 24. Monthly Per Capita Expenditure, by Area (%)**



Source: USAID-BEST calculations based on South Sudan National Bureau of Statistics, Statistical Yearbook for Southern Sudan 2010.

Notes: Chart indicates “Southern Sudan” because this assessment pre-dated independence. “Utilities” include water, waste fees and any energy source for lighting and cooking, such as electricity, gas, kerosene, charcoal, and firewood. “Transportation” includes expenses on communication. “Housing” includes (1) materials for maintaining the dwelling and repairing household appliances, (2) household utensils, and (3) cleaning articles.

### III.vi. Poverty Indicators

South Sudan is among the poorest countries in the world. According to the 2009 National Baseline Household Survey (NBHS), 50.6 percent of South Sudanese lived below the poverty line.<sup>66,67</sup> In that survey, the poverty line was set at SDG72.9 per month, representing US\$32 per person per month.<sup>68</sup> The poverty gap (that is, the average consumption shortfall of the population below the poverty line, expressed as a percentage),<sup>69</sup> was 23.7 percent. The poor consumed on average SDG39 per

66 South Sudan National Bureau of Statistics. January 2012, National Baseline Household Survey 2009: Report for South Sudan. Note also that this information was collected in 2009 when Sudan was still one country, and changes would be expected in data collected after independence in July 2011.

67 According to the World Bank: The “[i]ncidence of poverty... is the share of the population whose income or consumption is below the poverty line, that is, the share of the population that cannot afford to buy a basic basket of goods.”

68 The World Bank. March 2011, A Poverty Profile for the Southern States of Sudan.

69 According to the World Bank: “[P]overty gap... provides information regarding how far off households are from the poverty line. This measure captures the mean aggregate income or consumption shortfall relative to the poverty line across the whole population. It is obtained by adding up all the shortfalls of the poor (considering the non-poor as having a shortfall of zero) and dividing the total by the population. Put differently, it gives the total resources needed to bring all the poor to the level of the poverty line (divided by the number of individuals in the population).”

month, representing about US\$17.10 per month at the time of the survey. The severity of poverty (that is, the measured degree of inequality among the poor)<sup>70</sup> was 14.3 percent.<sup>71</sup>

As reflected in Table 10, as of 2010:<sup>72</sup>

- Most people in South Sudan (84.4 percent) lived in rural areas, and rural areas accounted for most of the country’s poor (92.5 percent).
- All three poverty indicators — incidence, gap, and severity — were much higher in rural than in urban areas.
- Although urban population represented only 7.5 percent, the poverty incidence was relatively high (24.4 percent).

**Table 10. Population and Main Poverty Indicators, Percentage by Area**

	Population	Poor	Incidence	Poverty Gap	Severity
Urban	15.6	7.5	24.4	8.8	4.6
Rural	84.4	92.5	55.4	26.5	16.1

Source: South Sudan National Bureau of Statistics. Statistical Yearbook for Southern Sudan 2010.

Poverty levels vary from state to state. In 2009, Northern Bahr al Ghazal had the highest poverty incidence and gap; Upper Nile had the lowest. Poverty severity was highest in Warrap, followed by Northern Bahr al Ghazal and Unity. (See Table 11.)

**Table 11. 2009 Poverty Indicators, by State**

	Incidence	Poverty gap	Severity
Northern Bahr Al Ghazal	75.6	36.8	21.9
Unity	68.4	34.6	21.7
Warrap	64.2	34.1	22.2
Eastern Equatoria	49.8	19.8	10.5
Lakes	48.9	22.6	13.6
Jonglei	48.3	22.2	13.1
Central Equatoria	43.5	22.5	15.4
Western Bahr Al Ghazal	43.2	17.6	9.5
Western Equatoria	42.1	15.5	7.9
Upper Nile	25.7	9.8	5

Source: South Sudan National Bureau of Statistics. Statistical Yearbook for Southern Sudan 2010.

70 According to the World Bank: “Poverty severity... takes into account not only the distance separating the poor from the poverty line (the poverty gap), but also the inequality among the poor. That is, a higher weight is placed on those households who are further away from the poverty line.”

71 South Sudan National Bureau of Statistics, 2010, Statistical Yearbook for Southern Sudan 2010.

72 South Sudan National Bureau of Statistics, 2010, Statistical Yearbook for Southern Sudan 2010.



# ANNEX IV: FOOD SECURITY

## IV.i. Introduction

This Annex provides information on factors affecting food security in South Sudan. It is organized into the following sections:

- A description of livelihood zones, including:
  - Dominant livelihood strategies.
  - Underlying causes of food insecurity.
  - Typical hazards/external shocks.
  - Key food insecure/vulnerable populations.
- A summary of most recent food security assessments.
- Seasonality of activities and prices.
- An overview of malnutrition rates.
- An overview of access to water, sanitation, and hygiene.

## IV.ii. Livelihood Zones

Livelihood zones (referred to below as Livelihood Zones or LZs) are homogenous areas in which people share food, income, expenditures, trade, and other livelihood strategies.<sup>73</sup> This section focuses on South Sudan's Livelihood Zones and their importance for food security, drawing extensively from the "Southern Sudan Livelihoods Profiles: A Guide for Humanitarian and Development Planning"<sup>74</sup> (referred to below as the "Livelihood Guide") — the most recent, and most detailed, document currently available on the subject.

Southern Sudan (now the Republic of South Sudan) is divided into seven distinct Livelihood Zones (also depicted in figure 25):

1. Greenbelt
2. Ironstone Plateau
3. Hills and Mountains
4. Nile – Sobat Rivers
5. Western Flood Plains
6. Eastern Flood Plains
7. Pastoral (Arid)

73 USAID- FEWS NET, n.d., Livelihood Products. <http://www.fews.net>

74 Southern Sudan Centre for Census, Statistics and Evaluation (SSCCSE)/ Muchomba and Sharp [now the National Bureau of Statistics (NBS)], 2006, Southern Sudan Livelihood Profiles: A Guide for Humanitarian and Development Planning.

Traditionally, South Sudan livelihoods have depended on a mix of agriculture, wild food gathering, hunting, fishing, livestock keeping, and barter/exchange. However, more than two decades of conflict has diminished the capacity of the South Sudanese to improve their livelihood opportunities.<sup>75</sup>

**Figure 25. South Sudan Livelihood Zones**



Source: Recreated by USAID-BEST using FEWS NET Southern Sudan Livelihood Profile GIS data, 2009.

### IV.ii.i. Dominant livelihood strategies, by Livelihood Zone (LZ)<sup>76</sup>

**Greenbelt Zone:** This zone is commonly referred to as the "food basket," because surplus production is more common there. Households rely mostly on agriculture to satisfy their food needs. During dry years, households usually increase their dependence on root crops and exchange. Opportunities for exchange with neighboring zones and Uganda provide an important income source for households.

75 Southern Sudan Centre for Census, Statistics and Evaluation (SSCCSE)/ Muchomba and Sharp [now the National Bureau of Statistics (NBS)], 2006, Southern Sudan Livelihood Profiles: A Guide for Humanitarian and Development Planning.

76 Southern Sudan Centre for Census, Statistics and Evaluation (SSCCSE)/ Muchomba and Sharp [now the National Bureau of Statistics (NBS)], 2006, Southern Sudan Livelihood Profiles: A Guide for Humanitarian and Development Planning.

**Ironstone Plateau Zone:** Households in this zone depend heavily on crop production. Other important food sources are wild plants, honey, and game. The tsetse fly limits livestock production. In the past, sales of shea butter oil, fruit, and honey were important income sources. Despite limited crop production, this zone's proximity to the Greenbelt Zone offers access to food during the dry season.

**Hills and Mountains Zone:** This zone depends on agriculture and pastoralism; crops can be cultivated twice a year (bi-modal production). During lean years, households rely on cattle, trade, and root crops. Cassava is an important crop for most households, particularly during dry season. Some areas such as Torit and Budi rely on livestock production.

**Nile and Sobat Rivers Zone:** The main livelihood strategies in this zone are producing crops and livestock, collecting wild food, and fishing. Wild foods and fish contribute in varying quantities depending on the season and location; yields increase during the annual flooding season, which extends from July to December. In the past, tobacco sales were an important income source. Remittances to households in Shilluk and Bor Counties also represented important income sources: money often comes from relatives living in northern Sudan. However, it is unclear if relatives living abroad are still able to support these households. Unity state, which is located in this zone, has potential for increased oil production income, and may therefore offer another livelihood option in the future.

**Western Flood Plains Zone:** Households in this zone generally depend on livestock, crops, wild foods, and fish as their main food sources. The northwestern counties of Aweil, Gogrial, and Twic are mostly conflict areas, and therefore differentiated from Rumbek, Tonj, and Yirol located in the south of this zone, where livestock production and exchange are an important income source. Seasonal migration to Sudan for work and petty trade has been significant in the past.

**Eastern Flood Plains Zone:** Unlike households in the Western Flood Plains Zone, households in this zone tend to migrate longer distances to find water and grass for their livestock, to fish, or to sell products for currency. Wild game hunting is an important food source. Some households have access to markets in Ethiopia.

**Pastoral (Arid) Zone:** In this zone, the dominant food source is livestock and the dominant livelihood is livestock trade. Households migrate seasonally, searching for water and pasture. These migrations bring them into contact with other communities, creating opportunities for substantial trade and exchange.

#### IV.ii.ii. Underlying causes of food insecurity, by Livelihood Zone

Each Livelihood Zone has its own specific causes of food insecurity. The following paragraphs summarize those factors, as presented in the Livelihood Guide.<sup>77</sup>

**Greenbelt Zone:** Extremely poor road networks restrict food surplus movement within this zone and to neighboring zones. Poor infrastructure discourages food production and trade, which are extremely important to increase food security around the country.<sup>78</sup> In addition, the constant presence (since 2005) of the Lord's Resistance Army (LRA) rebel group has exacerbated civil insecurity.<sup>79</sup>

**Ironstone Plateau Zone:** Drought generally decreases crop yields. The soils in this zone have very low water retention, causing water shortages during dry season. Therefore, during dry season, trade relations are crucial for obtaining food. However, lack of infrastructure and limited market links persistently constrict access to food from more productive zones.<sup>80</sup>

**Hills and Mountains Zone:** Similar to the Greenbelt Zone, certain areas in Torit, Juba, and Magwi suffer LRA-induced conflicts. This issue needs rapid attention in order to promote more food production and trade.<sup>81</sup>

**Nile and Sobat Rivers Zone:** The causes of food insecurity in this zone include (1) limited access to markets, (2) underutilization of transport options in the Nile River Basin, and (3) unused water production potential. In the past, the region utilized its capacity to engage in commercial fishing and trade with other countries.<sup>82</sup>

77 Southern Sudan Centre for Census, Statistics and Evaluation (SSCCSE) / Muchomba and Sharp [now the National Bureau of Statistics (NBS)], 2006, Southern Sudan Livelihood Profiles: A Guide for Humanitarian and Development Planning.

78 Southern Sudan Centre for Census, Statistics and Evaluation (SSCCSE) / Muchomba and Sharp [now the National Bureau of Statistics (NBS)], 2006, Southern Sudan Livelihood Profiles: A Guide for Humanitarian and Development Planning.

79 U.S. Department of State, 2012, The Lord's Resistance Army Fact Sheet. <http://www.state.gov/r/pa/prs/ps/2012/03/186734.htm>

80 Southern Sudan Centre for Census, Statistics and Evaluation (SSCCSE) / Muchomba and Sharp [now the National Bureau of Statistics (NBS)], 2006, Southern Sudan Livelihood Profiles: A Guide for Humanitarian and Development Planning.

81 Southern Sudan Centre for Census, Statistics and Evaluation (SSCCSE) / Muchomba and Sharp [now the National Bureau of Statistics (NBS)], 2006, Southern Sudan Livelihood Profiles: A Guide for Humanitarian and Development Planning.

82 Southern Sudan Centre for Census, Statistics and Evaluation (SSCCSE) / Muchomba and Sharp [now the National Bureau of Statistics (NBS)], 2006, Southern Sudan Livelihood Profiles: A Guide for Humanitarian and Development Planning.

**Western Flood Plains Zone:** In this zone, prolonged conflict is the primary driver of current food insecurity. Decades of war have constricted market development and expansion, curtailed infrastructure development, drained cash, and fragmented households.<sup>83</sup>

Food insecurity in this zone has rapidly increased, and has particularly impacted areas of Warrap state (Twic, Gogrial West and East Counties), Unity state (Abiemnhom and Mayom Counties), and most areas of Northern Bahr el Ghazal state. In addition, as of July 2012, about 20,000 displaced people are living in this zone, and they depend largely on food assistance.

For the impacted areas mentioned, the following prevailing conditions have intensified food insecurity:

- In Warrap state, food security has been exacerbated by population displacement, high food prices, and low 2011 yields.
- In areas of Unity State (Abiemnhom and Mayom Counties) militia activities and border tensions have interrupted trade and livelihood activities. In addition, limited movement of people and livestock have constrained opportunities to increase income and access food.<sup>84</sup>
- In Northern Bahr el Ghazal — which depends on imports from Sudan<sup>85</sup> — food security has been especially stressed by the border closing, coupled with increased food demand from the influx of displaced persons.

**Eastern Flood Plains Zones:** Various tribes occupy this zone. Since 1999, widespread cattle raiding has fueled inter-ethnic hostilities.<sup>86</sup> Access to basic services such as drinking water and sanitation is extremely difficult; the most disadvantaged areas are Jamman, Doro, and Yusuf Batil. In June 2012, water shortages in Jamman caused approximately 35,000 refugees to be relocated to Yusuf Batil.<sup>87</sup>

In Jonglei state, food security has significantly deteriorated and will likely be aggravated by the beginning of the lean season. In some areas of Akobo, Pibor, and Uror Counties, disarmament has helped stabilize some pastoral areas.<sup>88</sup> However, recent news reports confirm that rampant cattle raiding persists.<sup>89</sup>

83 Southern Sudan Centre for Census, Statistics and Evaluation (SSCCSE)/ Muchomba and Sharp [now the National Bureau of Statistics (NBS)], 2006, Southern Sudan Livelihood Profiles: A Guide for Humanitarian and Development Planning.

84 FEWS NET, October 2011 to March 2012, South Sudan Food Security Outlook.

85 FEWS NET, October 2011 to March 2012, South Sudan Food Security Outlook.

86 Southern Sudan Centre for Census, Statistics and Evaluation (SSCCSE)/ Muchomba and Sharp [now the National Bureau of Statistics (NBS)], 2006, Southern Sudan Livelihood Profiles: A Guide for Humanitarian and Development Planning.

87 FEWS NET, October 2011 to March 2012, South Sudan Food Security Outlook.

88 USAID-FEWS NET, 2012, South Sudan Food Security Outlook.

89 Brunett, J., 2012, In South Sudan, Cows are Cash and a Source of Friction. <http://www.npr.org/2012/08/16/158776225/in-south-sudan-cows-are-cash-and-source-of-friction>.

This zone's food security outlook — which is fundamentally dire — has been made even worse by the influx of refugees. For example, refugees from Blue Nile who settled in Maban County have endured continuously deteriorating food security.

Therefore, food assistance is expected to become a key food source. Some aid agencies have estimated that country-wide, more than 50,000 MT of food assistance will be needed in the short term. In addition, as more people from Sudan move into South Sudan, more food will be needed to assist people, particularly refugees.<sup>90</sup>

**Abyei area:** Abyei is a highly disputed area between Sudan and South Sudan not included in South Sudan's livelihood zone described above. The situation in Abyei is relevant for the whole country, given the significant number of internally displaced persons (IDPs) currently living in South Sudan and their great need for food assistance.

According to the Famine Early Warning System Network (FEWS NET), as of May 2011 more than 100,000 people were displaced from Abyei. In 2012, most people remain displaced in Agok area and Twic county (Warrap state). Although by June 2012, the security situation had slightly improved, only an estimated 9,700 people returned to Abyei. Moreover, the roads back to Abyei are obstructed because of rains and/or landmines.<sup>91</sup>

Currently, IDPs are able to meet their food needs only by humanitarian food assistance. Lack of security has prevented access to wild foods and other income sources to purchase food. Most IDP households are currently classified at “crisis levels,” and the situation is getting worse: they generally lack access to tools and seeds. Although some IDPs with access to assets have started to prepare land for planting, overall food insecurity is likely to persist through December 2012.<sup>92</sup>

#### IV.ii.iii. Typical hazards/external shocks

In South Sudan, households experience recurrent hazards and shocks that, in combination, compromise food security. These include climatic changes (for example, drought or flood), crop production issues, and shocks related to market conditions and conflicts. The most important hazards and external shocks affecting South Sudan's food security in 2012 include:<sup>93</sup>

- Poor rainfall in 2011.
- A ban on trade from Sudan.
- Inter-communal conflicts.
- A large influx of returnees from Sudan.
- Displaced residents from Abyei.

90 FEWS NET, October 2011 to March 2012, South Sudan Food Security Outlook.

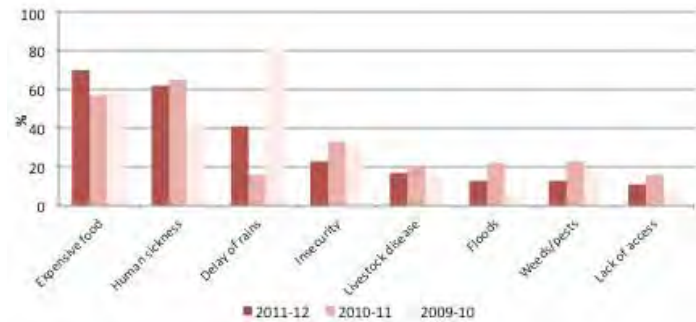
91 FEWS NET, October 2011 to March 2012, South Sudan Food Security Outlook.

92 FEWS NET, October 2011 to March 2012, South Sudan Food Security Outlook.

93 FAO/WFP, 2012, Crop and Food Security Mission South Sudan (CFSAM).

The Annual Needs and Livelihood Assessment (ANLA) 2011/2012 reports that during 2011–2012, the four primary shocks experienced by South Sudanese households were high food prices, human sickness, delay of rains, and insecurity/conflicts. Figure 26 presents various ANLA-reported shocks during 2009–2012.<sup>94</sup>

**Figure 26. Households Reporting Shocks, 2009–2012**



Source: WFP 2012.

As reflected in Figure 26, expensive foods have been a persistent problem in South Sudan. Generally, spiraling prices intensify the need for humanitarian assistance.<sup>95</sup> For example, current prices in Juba for staples (that is, sorghum and maize) are about 180 to 220 percent higher than at the same time in 2011. Moreover, prices are likely to remain high for the rest of the season — even after the harvest begins, which is typically when retail prices for staples decline.<sup>96</sup>

Lack of food contributes to increased human sickness. According to the Food and Agriculture Organization (FAO) Global Information and Early Warning System (GIEWS), approximately 2.4 million people in South Sudan lack food and need some humanitarian assistance. The most food insecure states are Northern Bahr el Gazal, Warrap, Unity, Upper Nile, and Jonglei.<sup>97</sup> FEWS NET has forecasted that the remaining South Sudan states will experience “stressed” or “minimal” food insecurity once harvest begins in October.<sup>98</sup>

A 2012 WFP analysis<sup>99</sup> echoes the “slight worsening” of food security forecasted by FAO/GIEWS and FEWS NET. The WFP report also indicates the following:<sup>100</sup>

- The negative food security outlook is likely to increase children’s acute malnutrition, which already hit its highest peak in 2012. Specifically, about 20 percent of South Sudan’s children between 6 and 59 months of age are acutely malnourished.

94 WFP, February 2012, Annual Needs and Livelihood Analysis 2011/2012 South Sudan.

95 FAO, 2012, GIEWS Country Brief South Sudan.

96 FEWS NET, October 2011 to March 2012, South Sudan Food Security Outlook.

97 FAO, 2012, GIEWS Country Brief South Sudan.

98 FEWS NET, October 2011 to March 2012, South Sudan Food Security Outlook.

99 WFP, 2012, South Sudan Food Security Monitoring.

100 WFP, 2012, South Sudan Food Security Monitoring.

- Among different groups, returnees are more likely to be severely food insecure (approximately 27 percent of returnees’ households) compared with IDPs (12 percent of households) and residents (15 percent of households). Of the surveyed households, 20 percent cited sale of natural resources as their main income source in 2012.

Climatic conditions largely determine agriculture and livestock outputs. Although 2011 rains were erratic, by the beginning of the 2012 season, rainfall had become average to above average except in Central Equatoria and Lake states. According to the FAO, however, it is highly likely that by the end of the 2012 season, flooding and livestock disease outbreaks will occur in many regions.<sup>101</sup>

Other factors aggravating food insecurity are:<sup>102</sup>

- Civil insecurity.
- Inter-communal clashes over assets (for example, cattle raiding).
- The ban on cross-border trade with the Sudan.
- The growing numbers of IDPs, returnees, and refugees.
- Fuel shortages.

Even though climatic conditions in 2012 have been amenable for production, the overall area planted will likely be below average due to increasing displacement of people both in Sudan and South Sudan. Most people in Unity, Northern Bahr el Ghazal, and Warrap states will likely remained displaced, and will have limited access to productive assets. The most critical area, Abyei, is expected to receive more than 30,000 returnees, which will intensify the demand for food. Informal trade with Sudan is expected to continue even after the crisis has been partially solved. Imports from Uganda and Ethiopia are expected to increase to meet increasing food demand.<sup>103</sup>

South Sudanese households use various coping strategies to deal with limited food availability. Figure 27 shows common coping strategies as of October 2010 and October 2011. Compared with October 2010, during the 2010–11 season a higher percentage of households adjusted their dietary habits (for example, eating fewer times per day, eating less preferred foods), and limited their food consumption and portion size.<sup>104</sup>

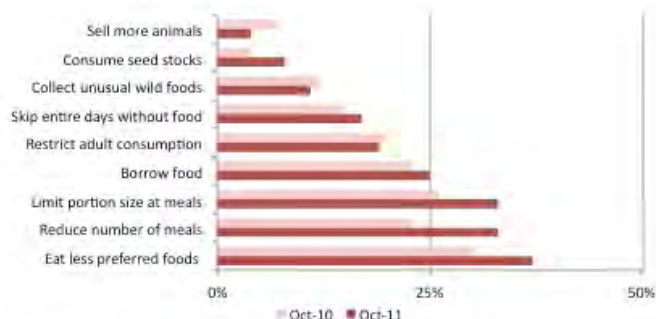
101 FAO, 2012, GIEWS Country Brief South Sudan.

102 FAO, 2012, GIEWS Country Brief South Sudan.

103 FEWS NET, October 2011 to March 2012, South Sudan Food Security Outlook.

104 WFP, 2012, South Sudan Food Security Monitoring.

**Figure 27. Households Coping Strategies, October 2010–October 2011**



Source: WFP 2012.

In 2012, the lean season started earlier because of a poor 2011 harvest.<sup>105</sup> This and other factors will likely force more households to make dietary adjustments. It is expected that these adjustments, and high food prices, will increase malnutrition, and reduce household expenditures on health and hygiene, because more money must be allocated to buy food.<sup>106</sup>

#### IV.ii.iv. Key food insecure/vulnerable populations

As shown in Table 12, South Sudan’s projected 2012 population is about 9.6 million people, with about 8 million living in rural areas. The WFP has projected that the number of severely food insecure people will pass 1 million in 2012, and that about 3.7 million will be moderately food insecure.<sup>107</sup> As mentioned previously, FAO/GIEWS has projected that about 2.4 million people will need some form of humanitarian assistance in 2012.<sup>108</sup>

**Table 12. Population and Food Security Projections, 2012**

State	Population	Poor	Incidence	Poverty Gap	Severity
Jonglei	1,528,037	1,382,463	213,925	641,776	672,336
CES	1,286,994	841,074	38,610	527,668	707,847
UNS	1,114,474	835,856	156,026	635,250	323,197
Warrap	1,067,883	974,711	53,394	277,650	736,839
EES	1,016,166	925,983	243,880	416,628	355,658
NBS	931,625	860,034	83,846	577,608	260,855
Lakes	841,099	762,478	126,165	233,214	479,426
Unity	763,294	605,906	30,532	160,292	572,471
WES	690,466	578,888	20,714	82,856	586,896
WBS	394,360	225,294	59,154	149,857	181,406
<b>Total</b>	<b>9,634,398</b>	<b>7,992,687</b>	<b>1,026,246</b>	<b>3,702,797</b>	<b>4,876,931</b>

Source: USAID-BEST based on WFP 2012.

105 FEWS NET, October 2011 to March 2012, South Sudan Food Security Outlook.

106 WFP, February 2012, Annual Needs and Livelihood Analysis 2011/2012 South Sudan.

107 WFP, February 2012, Annual Needs and Livelihood Analysis 2011/2012 South Sudan.

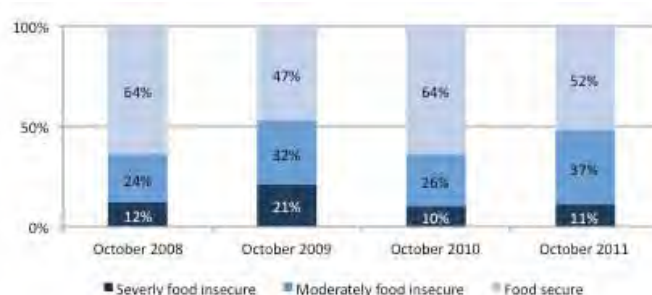
108 FAO, 2012, GIEWS Country Brief South Sudan.

As shown in Figure 28, during the four year period ending in October of 2008–2011:

- The proportion of the South Sudan population that was severely food insecure remained at around 11 percent, except for the year ending in October 2009, when the percentage nearly doubled to 21 percent.
- The proportion of the population that was moderately food insecure varied, but was estimated at 37 percent in 2011.<sup>109</sup>

According to results from “The Republic of South Sudan: The Sudan Household Health Survey 2010,” the proportion of severely food insecure households reached 16 percent in 2012, while 21 percent of all households were moderately food insecure.<sup>110</sup>

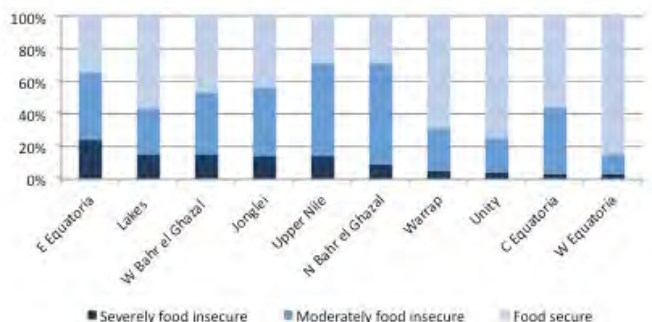
**Figure 28. South Sudan Food Security, 2008–2011**



Source: WFP 2012.

Figure 29 shows food security state by state. In 2011, the highest percentages of severely food insecure population were reported in Eastern Equatoria (24 percent), Lakes (15 percent), Western Bahr el Ghazal (15 percent), Jonglei (14 percent), and Upper Nile (14 percent). The highest percentages of moderately food insecure population were reported in Northern Bahr el Ghazal (62 percent), Upper Nile (57 percent), and Jonglei (42 percent). Approximately 85 percent of Western Equatoria’s population was considered “food secure” in 2011.<sup>111</sup>

**Figure 29. Food Security Status by State, 2011**



Source: WFP 2012.

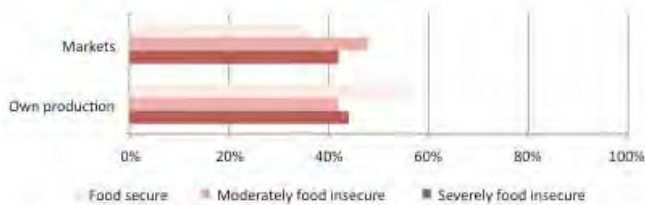
109 WFP, February 2012, Annual Needs and Livelihood Analysis 2011/2012 South Sudan.

110 NBS, 2010, The Republic of South Sudan: The Sudan Household Health Survey 2010.

111 WFP, February 2012, Annual Needs and Livelihood Analysis 2011/2012 South Sudan.

Severely and moderately food insecure households heavily rely on markets as their main food source (42 percent and 48 percent, respectively). Most food secure households (56 percent) depend on own production as their main food source.<sup>112</sup> (See Figure 30.)

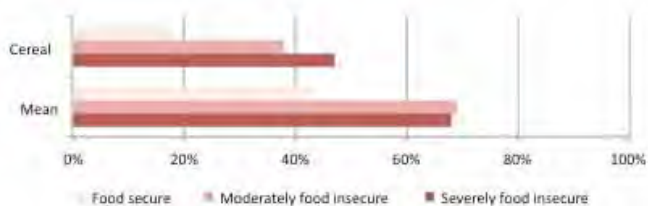
**Figure 30. Household Food Source by Food Security Status**



Source: WFP 2012.

As reflected in Figure 31, severely and moderately food insecure households spend more than 65 percent of their incomes on food — an extremely high proportion by WFP standards. Expenditure on cereals (a staple food for most households) is also relatively high for both groups: 47 percent for severely food insecure and 38 percent for moderately food insecure. These households also rely heavily on natural resources as main income source, and in general have poor food access.<sup>113</sup>

**Figure 31. Household Expenditure on Food by Food Security Status**



Source: WFP 2012.

### IV.iii. Summary of most recent food security assessments

This section summarizes the findings and recommendations of various food security assessments conducted between 2009 and 2012. Those findings and recommendations noted below belong to the assessments' authors, and do not reflect USAID-BEST findings or recommendations.

#### IV.iii.i. FAO/GIEWS Country Brief South Sudan

**Findings:** Rainfall has been average to above average in most regions except Central Equatoria and Lake states. A July 2012 vegetative index indicates that crop and pasture conditions are

<sup>112</sup> WFP, February 2012, Annual Needs and Livelihood Analysis 2011/2012 South Sudan.

<sup>113</sup> WFP, February 2012, Annual Needs and Livelihood Analysis 2011/2012 South Sudan.

better than the long-term average. More rains are expected for the duration of the season, with potential flooding. Livestock disease outbreaks may be triggered by the wet conditions.<sup>114</sup>

Sorghum and maize prices have reached all-time highs throughout South Sudan. Year-on-year, sorghum and maize prices have increased 180 to 220 percent in Juba markets. Northern market prices are highest countrywide.

Because of the poor 2011 harvest, the lean season began earlier than usual, increasing the need for humanitarian assistance. States bordering Sudan are of greatest concern. Contributing to the rise in food insecurity are civil insecurity; inter-communal clashes; reduced trade with Sudan; returnees and IDPs dependent on community aid; increased fuel and food prices; and impaired logistics and access to rural areas during the rainy season.

#### IV.iii.ii. OCHA South Sudan Humanitarian Update May–June 2012

**Findings:** Northern border states and parts of Jonglei state were declared Phase 4 emergency areas on the Integrated Food Security Phase Classification (IPC) scale. The number of people requiring food aid has doubled, as has the aid goal of food security partners, from 1.2 million to 2.4 million people reached.

OCHA states that approximately 12 percent of South Sudan's population is severely food insecure, while 36 percent is moderately food insecure. From January to June, 1.6 million people received food aid that included deliveries of food, agricultural tools, and livestock and fisheries production assistance.

The spike in food insecurity can be attributed to erratic rains; insecurity; border closures; macro-economic shocks; and inflation due to loss of oil revenues. Furthermore, nearly 50,000 refugees entered South Sudan in May and June, increasing the in-country total to 170,000.

#### IV.iii.iii. FAO/WFP Crop and Food Security Assessment Mission to South Sudan (CFSAM)

**Objectives and methodology:** To assess food security dynamics and trends. The study covered all states and Livelihood Zones. The report includes data from five rounds of Food Security Monitoring Systems (FSMS) and 2,424 household surveys.

**Main findings:** In 2011, 48 percent of South Sudan's population was classified as moderately to severely food insecure, a drastic increase from 2010. This signaled a downward trend in South Sudan food security. In 2012, two important causes of increasing food insecurity are (1) inconsistent rainfall patterns during planting season and (2) Sudan's trade embargo with South Sudan. In addition, lower acreage under cultivation and lower yields will likely result in lower than average crop production at the end of the year.

<sup>114</sup> FAO, 2012, GIEWS Country Brief South Sudan.

Uganda will continue to supply food to South Sudan. However, the combined cost of transportation, unfavorable exchange rates, and high taxes make Ugandan imports expensive, especially for the northern states. Returnees and IDPs will exacerbate food demand. The outlook is bleak for households, which will be forced to increase their dependency on markets. Prices will continue to increase. Market dependency during the 2012 lean season will lead to a decline in food access. The northern-most states, and Eastern Equatoria, will be most affected due to their proximity to Sudan and conflict areas. Poor rainfall was also prevalent in this region. To counter tight household food stocks and high market prices, people are using the following coping strategies: consuming wild food, skipping meals, and relying on others for food.<sup>115</sup>

#### IV.iii.iv. WFP Annual Needs and Livelihood Analysis Report (ANLA) 2011–2012

**Objectives and Methodology:** The ANLA, issued annually, is conducted by the following collaborating institutions: the Government of the Republic of South Sudan, the Food Security Technical Secretariat (FSTS), the Ministry of Agriculture and Forestry (MoAF), the Ministry of Animal Resources and Fisheries (MARF), WFP, FAO, and UNICEF, and partners through the Food Security Livelihoods Cluster (FSL).

The ANLA aims to enhance targeting for aid by generating more specific geographical information that better identifies needs and underlying causes. To that end, a cross-sectional approach was used: the ANLA identifies county-specific needs and tracks changes and improvements in food security and livelihoods. For the 2011–12 ANLA, food security and livelihood indicators were monitored in 25 households from 10 sentinel sites, selected based on household and community-level data from the WFP's Food Security Monitoring System (FSMS). Household visits were made 3 times per year, in February, June and October.<sup>116</sup>

**Findings:** Approximately 11 percent of South Sudan's population is severely food insecure, and 37 percent is moderately food insecure. The year-on-year rise in moderate food insecurity foreshadows a potentially dire food situation for the 2012 lean season. Several factors contribute to this alarming scenario, including poor cereal production; increasing numbers of returnees; civil conflicts with Sudan; and high inflation (a direct result of high food prices, the Sudan-South Sudan trade blockade, and increasing fuel prices).<sup>117</sup>

An analysis of food security indicators reveals that households have increased their reliance on local markets. Food purchases account for over 50 percent of household's income, largely generated by firewood and charcoal sales. Spiraling food prices have impelled increased use of coping strategies (for example, eating less preferred foods, reducing the number of meals,

115 FAO, 2012, GIEWS Country Brief South Sudan.

116 WFP, February 2012, Annual Needs and Livelihood Analysis 2011/2012 South Sudan.

117 WFP, February 2012, Annual Needs and Livelihood Analysis 2011/2012 South Sudan.

limiting portion sizes, borrowing food). Although cereal consumption is comparable across severely and moderately food insecure households, moderately food insecure households consume more protein. The ANLA report calls for an effort to increase household productivity and develop markets to self-reinforce the main sources for food.<sup>118</sup>

The report suggests that structural factors, combined with external shocks, lead to the country's current food insecurity. Structurally, rapid attention is particularly needed in the following areas: agricultural productivity (such as improved farming diversification) and income; human capital; access to social facilities and markets; and human and livestock disease control. External shocks, including high food prices, human disease, and erratic precipitation, have also contributed to increasing food insecurity. The 2012–2013 South Sudan Development Plan emphasizes minimizing these shocks, along with increasing resilience.<sup>119</sup>

Initiatives for future development programs should address the reduced purchasing power of households caused by high food prices, which adversely affects dietary consumption. Income and livelihood diversification efforts would help reduce the dependency on natural resources as a sole source of income. Improved farm diversification implies planting various vegetable and protein pulses. Furthermore, an expansion in livestock and milk productivity would increase available amounts of protein as well as food consumption.<sup>120</sup>

#### IV.iii.v. 2011 First Quarter Livelihoods Analysis Forum (LAF)

**Objectives and methodology:** To analyze and classify the food security of South Sudan's seven Livelihood Zones, focusing on the most food insecure regions. LAF employed Food Security Phase Classification (IPC) techniques to construct a food security outlook map.

**Main findings:** The majority of regions in South Sudan were classified as acute food and livelihood crises areas, but eight states in central South Sudan were classified as humanitarian emergency zones. States along the west and southwest borders were deemed generally food insecure. Drought, floods, and civil insecurity were contributing factors to the varying degrees of food insecurity.

118 WFP, February 2012, Annual Needs and Livelihood Analysis 2011/2012 South Sudan.

119 WFP, February 2012, Annual Needs and Livelihood Analysis 2011/2012 South Sudan.

120 WFP, February 2012, Annual Needs and Livelihood Analysis 2011/2012 South Sudan.

#### IV.iii.vi. Statistical Yearbook for South Sudan 2010

**Objectives and methodology:** To compile main results from various government and international donor's assessments.

**Findings:** The statistical yearbook presented food security tables and figures to help inform programming around South Sudan. Some of the most important data include estimated cereal surplus and deficit in 2010; nutritional source of dietary energy consumption; source of dietary energy; and the proportion of animal protein in total protein consumption.

#### IV.iii.vii. The Republic of South Sudan: The Sudan Household Health Survey 2010

**Methodology:** The survey's sampling structure is derived from the 2008 Sudan Population and Housing Census and Multiple Indicator Cluster Survey (MICS). A total of 10,000 households, equally distributed across all states, were sampled.

Based on a food consumption score, this survey estimated the percentage of households that occupy three categories: acceptable food consumption, borderline food consumption, and poor food consumption.<sup>121</sup> These categories were used as markers to classify households as food secure, moderately food insecure, or extremely food insecure.

**Findings:** Of the households surveyed, over half — 63 percent — were considered generally food secure. Twenty one percent were moderately food insecure and consumed a slightly more diverse diet infused with small quantities of proteins, vegetables, sugar, and oils. Sixteen percent were extremely food insecure and relied on cereals for survival. Rural areas tended to be more food insecure than urban areas, with 19 percent and 4 percent food insecurity, respectively. Agriculture and livestock farming were the main sources of income for 36.5 percent of households. Natural resources provided a source of income for many households; however, that income was unstable, especially in lean seasons. Markets were a main source of food for 58 percent of households. The average amount of household income spent on food was 49 percent; however, the expenditure exceeded 50 percent in six out of ten states. Own production was the second most common source of food.

#### IV.iii.viii. World Bank Poverty Profile for the Southern States of Sudan

**Objectives and methodology:** To inform Sudanese policymakers on the subjects of poverty, demographics, livelihood, education, and health. The World Bank prepared two poverty profiles, one for Sudan's northern states and the other for the southern states. A poverty line was determined based on detailed household consumption data.<sup>122</sup>

<sup>121</sup> One of the UN's Millennium Development Goals is to halve the number of hungry people by 2015, using the prevalence of malnourishment as measurement. FAO estimates undernourishment in South Sudan to be 47 percent.

<sup>122</sup> World Bank, 2011, A Poverty Profile for the Southern States of Sudan.

**Findings:** Based on purchasing power parity (PPP), the World Bank determined the poverty line to be US\$1.25/day. As of 2011, in southern states, the poverty rate was 50.6 percent, and was even higher for households headed by women.

This study also reflects that low education levels are highly correlated with poverty. Urban areas have a significantly lower poverty rate than rural areas. These last two points are notable because the overall population of South Sudan is young and the majority of young people live in rural areas.

In 2011, farming and raising livestock were the main sources of livelihoods for most households.<sup>123</sup>

#### IV.iii.ix. Food and Nutrition Security in Sudan, 2010

**Objectives and methodology:** This report analyzed the 2009 National Baseline Household Survey (before Sudan and South Sudan separated) and covered, among other things, food deprivation and food security issues in South Sudan.<sup>124</sup>

**Findings:** As of 2009, food deprivation affected nearly 5 million people in South Sudan. Of the total urban and rural populations, 31 and 34 percent were food-deprived, respectively. Southern Sudan states showed a higher prevalence of undernourishment than northern states. Income was the factor most correlated with undernourishment: among the poorest 20 percent of the population, the undernourishment rate was 91 percent. Various ongoing agriculture and food security policies contribute to variations in the depth of hunger in states throughout Sudan and South Sudan.<sup>125</sup>

Daily dietary energy consumption (DEC) for Sudan and South Sudan was estimated to average 2,180 Kcal. Increasing DEC levels correlated with higher income levels. The highest income group consumed twice that of the lowest income group. Southern states had a lower DEC than northern states. The highest energy source for DEC was carbohydrates such as sorghum, millet, wheat, bread, and cassava flour. These commodities accounted for approximately 65.7 percent of average DEC. Fat represented 21.9 percent of average DEC, protein 12.4 percent. Northern states consumed less protein than southern states. The higher share of protein in southern states' diets was attributed to the prevalence of cattle in the region.<sup>126</sup>

<sup>123</sup> World Bank, 2011, A Poverty Profile for the Southern States of Sudan.

<sup>124</sup> Sudan Integrated Food Security Information for Action (SIFISA), 2010, Food and Nutrition Security Assessment in Sudan: Analysis of 2009 National Baseline Household Survey.

<sup>125</sup> SIFISA, 2010, Food and Nutrition Security Assessment in Sudan: Analysis of 2009 National Baseline Household Survey.

<sup>126</sup> SIFISA, 2010, Food and Nutrition Security Assessment in Sudan: Analysis of 2009 National Baseline Household Survey.



On average, food purchases accounted for three-fifths of total household expenditures. In northern states, the food expenditure ratio (59.6 percent) was significantly lower than in southern states (73.4 percent). A total of 80.9 percent of Sudan households purchased most of their food; own production accounted for only 7.6 percent of consumption sources. Although food eaten outside the home was a very low source of overall consumption (1.8 percent), this practice was more prevalent among lower income groups — most likely because lower income groups may rely on friends or relatives as food sources.<sup>127</sup>

#### IV.iii.x. 2009 Nutrition Health Policy Convention for Southern Sudan

**Overview:** Sponsored by the GoSS, this convention aimed to enact a framework for developing a national nutrition health policy and a national nutrition program that would justify and support nutrition investments over and above the discrete emergency programs operated by international NGOs.<sup>128</sup> Causes and impacts of severe malnutrition were reviewed. Attendees included state ministries of health; state and central teaching hospitals; USAID; UN agencies; and several NGOs.

**Findings:** High rates of global acute malnutrition will be lowered by planning and implementing programs located closer to communities. Families will be educated on appropriate feeding of children, by using local foods and disease prevention resources. The GoSS Food Security Council will increase involvement in spreading awareness of nutrition-related topics. Other challenges to be resolved include:<sup>129</sup>

- The distance of clinics from needy populations.
- Reliance on NGOs to provide nutrition services.
- Transitioning from a nutrition emergency model to a development model.
- Lack of human capacity to implement nutrition services.
- Developing clear nutrition guidelines at national and state levels
- The dearth of coordination between GoSS and state ministries of health.

#### IV.iii.xi. 2009 National Baseline Household Survey – Southern Sudan (NBHS)

**Objectives and methodology:** To generate poverty estimates and additional baseline data. The 2009 NHBS selected samples of 12 households from each of 44 specific areas within South Sudan's 10 states. The total sample size was 5,280 households.<sup>130</sup>

<sup>127</sup> SIFSIA, 2010, Food and Nutrition Security Assessment in Sudan: Analysis of 2009 National Baseline Household Survey.

<sup>128</sup> GoSS, 2009, Nutrition Health Policy Convention for Southern Sudan.

<sup>129</sup> GoSS, 2009, Nutrition Health Policy Convention for Southern Sudan.

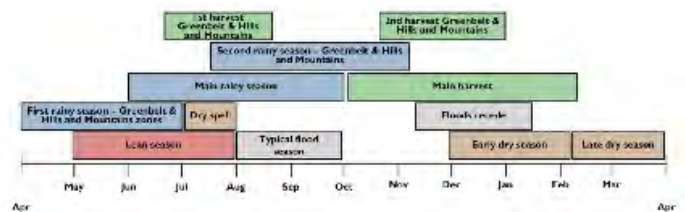
<sup>130</sup> NBS, 2012, National Baseline Household Survey 2009: Report for South Sudan.

**Findings:** The survey estimated 47 percent of the population to be undernourished. Undernourishment was most prevalent in the states of Western Bahr Al Ghazal (74 percent), Unity (72 percent), Upper Nile (69 percent), and Warrap (63 percent). Most states relied primarily on markets as a source of food for consumption. Eastern Equatoria and Western Equatoria depended substantially on their own production.<sup>131</sup>

#### IV.iv. Seasonality of activities and prices

Figure 32 presents a summarized timeline of seasonal activities and critical events developed by FEWS NET.<sup>132</sup> This timeline corresponds to the 2011–2012 season.

**Figure 32. Seasonal Calendar and Critical Events, 2011–2012 Status**

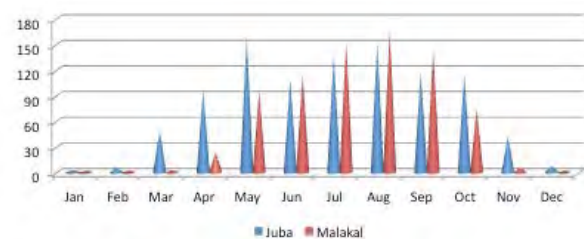


Source: FEWS NET 2012

As indicated in the above timeline:

- The lean season usually coincides with the rainy season (May to September).<sup>133</sup>
- The main harvest begins around October, when rainfall decreases, and continues until February or March.<sup>134</sup>
- The Greenbelt Zone and the Mountain and Hills Zone are bimodal: that is, they have two harvest periods during the season.<sup>135</sup>

**Figure 33. Average rainfall (mm)**



Source: USAID-BEST based on WFP, 2012, Logistic Capacity Assessment Republic of South Sudan.

<sup>131</sup> NBS, 2012, National Baseline Household Survey 2009: Report for South Sudan.

<sup>132</sup> FEWS NET, October 2011 to March 2012, South Sudan Food Security Outlook.

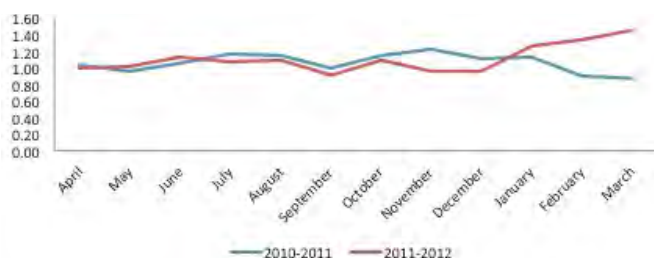
<sup>133</sup> WFP, January 2012, Logistics Capacity Assessment Republic of South Sudan.

<sup>134</sup> WFP, January 2012, Logistics Capacity Assessment Republic of South Sudan.

<sup>135</sup> FEWS NET, October 2011 to March 2012, South Sudan Food Security Outlook.

In general, seasonality of production and main activities influence crop prices. Figure 34 presents sorghum retail price variations in Juba for two consecutive seasons. As reflected in the figure, after independence in 2011, sorghum prices changed according to seasonal variations. However, as previously described, several events influenced a considerable increase in 2012 prices. Sorghum prices are expected to remain high in the coming months. However, prices should slightly decrease when harvest begins.<sup>136</sup>

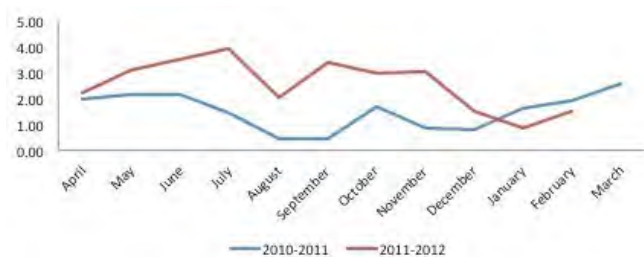
**Figure 34. Sorghum Retail Prices, Juba (USD/Kg)**



Source: USAID-BEST based on FEWS NET data.

White maize retail prices in Juba also vary seasonally (see figure 35). Compared with 2010–11, 2011–12 prices were considerably higher during most of the season. Although imports from neighboring countries increase supply and help reduce prices, the trend in high prices is expected to continue in the short term.

**Figure 35. White Maize Retail Prices, Juba (USD/Kg)**



Source: USAID-BEST based on FEWS NET data.

#### IV.v. Malnutrition rates

In South Sudan, severely food insecure households survive mostly on cereals; they consume very limited amounts of proteins, vegetables, and dairy products. Some moderately food insecure households consume small, infrequent quantities of proteins, vegetables, sugar, and oils.<sup>137</sup>

Children are among the most food insecure in South Sudan. A third of all child mortality is associated with undernourishment. Malnourished children are also more likely to die from illnesses, and when they survive, usually suffer poor health and stunting. The South Sudan National Bureau of Statistics (NBS) reported that as of 2010, the probability of dying before age one was 75 per 1,000 live births. The probability of dying before age five was

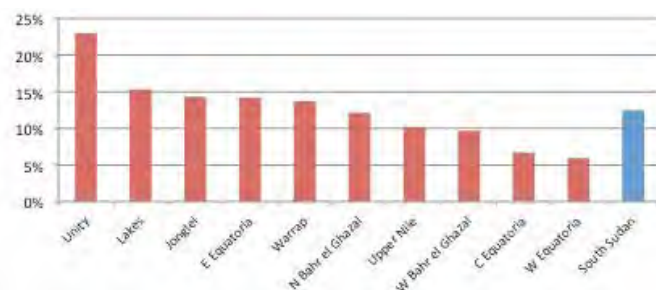
<sup>136</sup> FEWS NET, October 2011 to March 2012, South Sudan Food Security Outlook.

<sup>137</sup> NBS, 2010, The Republic of South Sudan: The Sudan Household Health Survey 2010.

105 per 1,000 live births. However, mortality rates vary considerably according to gender, place of residence, mother's education, and wealth index.<sup>138</sup>

NBS 2010 also reported that approximately 12.5 percent of South Sudan's children under the age of five were severely undernourished.<sup>139</sup> Among states, the highest percentages of severely undernourished children were found in Unity (23 percent), Lakes (15.3 percent), Jonglei (14.3 percent), Eastern Equatoria (14.2 percent), and Warrap (13.7 percent).<sup>140</sup> (See figure 36.)

**Figure 36. Severely Undernourished Children, by State, 2010\***

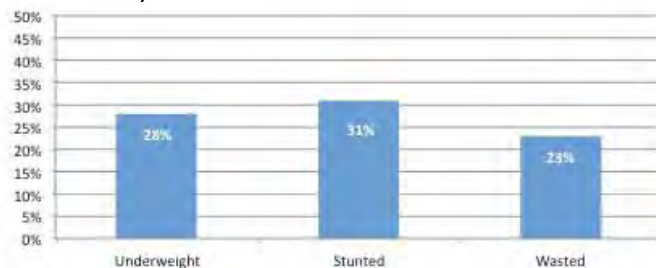


\*Children aged 0 to 5 years old.

Source: NBS 2010.

As of 2010, approximately 28 percent of South Sudan's children under the age of five were underweight, 31 percent were moderately stunted, 17 percent were severely stunted, and 23 percent were moderately wasted.<sup>141</sup> (See Figure 37.)

**Figure 37. Underweight, Stunted, and Wasted Children in South Sudan, 2010\***



\*Children aged 0 to 5 years old.

Source: NBS 2010.

<sup>138</sup> NBS, 2010, The Republic of South Sudan: The Sudan Household Health Survey 2010.

<sup>139</sup> According to NBS 2010: "Malnourishment in children is assessed using relational framework transcending both their heights and weights. More generally, a child's weight is a measure of both acute and chronic malnutrition. The protocol is that children whose weight for certain age is more than two standard deviations below the median of the reference population are considered moderately or severely underweight, while those whose weight is more than three standard deviations below the median are classified as severely underweight."

<sup>140</sup> NBS, 2010, The Republic of South Sudan: The Sudan Household Health Survey 2010.

<sup>141</sup> NBS, 2010, The Republic of South Sudan: The Sudan Household Health Survey 2010.

#### IV.vi. Access to water, sanitation, and hygiene

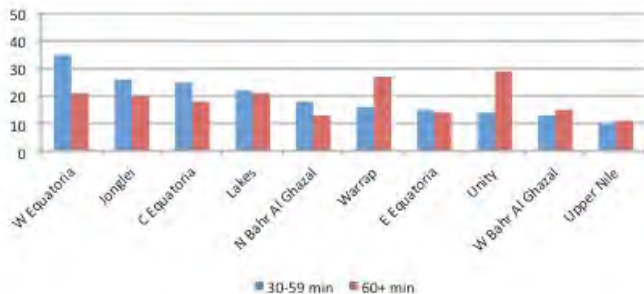
Access to potable drinking water, and to waste disposal systems, are indicators of a household's health outcomes. Generally, sources of safe drinking water include piped water, public tap, borehole (or tube) well, protected well, and protected spring or rain water.

As of 2010, more than 60 percent of households in South Sudan had access to safe drinking water. However, only about 2 percent of all households had safe water connections at home; most people had to travel long distances for safe drinking water. Of those, 33 percent walked, on average, 30 minutes. More than 33 percent traveled more than 30 minutes to get safe drinking water.<sup>142</sup>

As reflected in Figure 14, travel time to the nearest safe drinking water varies significantly by state, and often within each state. For example, as of 2009:<sup>143</sup>

- Approximately 35 percent of household members in West Equatoria traveled between 30 to 60 minutes each way.
- Household members in Unity (29 percent) and Warrap (27 percent) traveled more than 60 minutes each way.

**Figure 38. Travel Time to Nearest Source of Drinking Water, 2009\***



\*This figure represents the distribution of population in percentage by minutes used to walk one way to the main source of drinking water.

Source: NBS 2012

Poor sanitation facilities are associated with several deadly diseases (for example, diarrhea). Generally, improved sanitation facilities include flush toilets connected to sewage systems; septic tanks or pit latrines; ventilated improved pit latrines and pit latrines with slabs; and composting toilets. In South Sudan as of 2010, only about 7 percent of all households used improved sanitary facilities, and 64 percent used open air spaces to dispose of human waste. These percentages varied significantly according to area of residence, education, and wealth.<sup>144</sup>

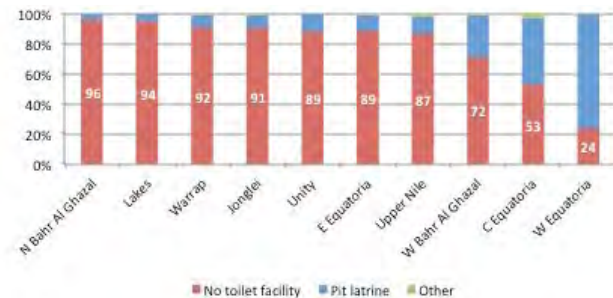
142 NBS, 2010, The Republic of South Sudan: The Sudan Household Health Survey 2010.

143 NBS, 2012, National Baseline Household Survey 2009: Report for South Sudan.

144 NBS, 2010, The Republic of South Sudan: The Sudan Household Health Survey 2010.

At the state level, and as indicated in figure 39, fewer than 10 percent of households in Northern Bahr Al Ghazal, Lakes, Warrap, and Jonglei had at-home toilet facilities as of 2009. In Western Equatoria, about 76 percent of households had pit latrines.<sup>145</sup> Overall, very few households in the country had lush toilets.

**Figure 39. Sanitation Facilities, by State, 2009**



Source: NBS 2012.

145 NBS, 2012, National Baseline Household Survey 2009: Report for South Sudan.

# ANNEX V: METHODOLOGY FOR DETERMINING IMPACT OF DISTRIBUTED FOOD AID<sup>146</sup>

## V.i. Introduction

The Bellmon Amendment requires assurance that a proposed food aid distribution program would not result in a substantial disincentive to or interference with domestic production or marketing. The extent to which distributed<sup>147</sup> food aid has the potential to introduce a disincentive to production or disruption of markets rests fundamentally on whether proposed food aid will represent “additional consumption” for beneficiary households, i.e., food consumption which would not have occurred in the absence of the food aid distribution program.

The objective of a BEST report is to provide sufficient information to relevant USAID policy decision makers and program managers to allow a determination of whether a proposed distributed food aid program would have a substantial impact on local market and production incentives. If it is determined in the negative, then the proposed Title II food aid program would be compliant with the Bellmon Amendment.

### **Why might distributed food aid introduce a substantial disincentive to local production and markets?**

Beneficiaries of food aid receive an exogenous positive income shock: they are given free food (a good with non-negative monetary value).<sup>148</sup> The provision of in-kind food aid effectively increases the beneficiary’s purchasing power. The changes in demand for food and non-food goods resulting from that increase in purchasing power will determine the ultimate impact of the food aid on prices and therefore supply.

Although food aid beneficiaries are expected to consume the food provided, households may respond to the receipt of food aid in a number of ways depending on prices, local diet preferences, perceived needs for non-food goods, and access to local markets. A beneficiary household may:

- Consume the food aid without reducing its regular market

<sup>146</sup> This methodology was developed to provide guidance prior to the initiation of a new MYAP cycle; however, the methodology is essentially the same where the BEST team undertakes special studies mid-MYAP, for example, to inform future programming.

<sup>147</sup> Please note that this methodology covers only the potential impact of distributed food aid. While some of the data and analysis of market dynamics, such as substitutability of staples and level of market integration, is relevant for both analyses, a separate methodology has been developed to assess the potential impact of monetized food aid. The monetization analysis focuses primarily on commercial markets rather than the behavior of beneficiary households.

<sup>148</sup> Occasionally, food aid rations are provided to beneficiaries in exchange for their labor or time, in which case the ration is not provided entirely free. For example, some Maternal Child Health/Nutrition interventions require attendance at a clinic; Food for Work beneficiaries are provided food in exchange for work, in which case the food acts as an in-kind wage.

purchases or small-scale production to compensate for a food deficit in the normal diet caused by insufficient purchasing power, in which case the food aid represents additional consumption;

- Use a portion or all of the food aid to displace market purchases that otherwise would have been made;
- Use a portion or all of the food aid to substitute for the home consumption of a household’s own production and sell the released production in the market; or
- Consume some portion (or none of) the food aid and sell the other portion (or all) on the market, and use the income generated from that sale to purchase other food and/or non-food goods.

Distributed food aid also has the potential to change household labor supply decisions, particularly when food is distributed under a Food for Work program.

If enough beneficiaries (intended and/or unintended beneficiaries) within a given geographic area react to food aid by altering their decisions about market purchases, small-scale production, or own labor supply, distributed food aid has the potential to cause a number of negative impacts. The most frequently alleged problems include:

- Depressed producer prices (production disincentive).
- Dependency.
- Labor supply disincentives.
- Disruption of markets (especially traders).

**Targeting.** The BEST methodology begins with the assumption that a well-designed and executed food aid program, whose transfers correspond to the needs of the household, will have minimal to no impact on the market or local production incentives.<sup>149</sup> Effective application of criteria which accurately identifies those households in need of food assistance is the first, and arguably the most important, condition to ensure Title II resources are used effectively and efficiently and yield the maximum food security impact. Once households are well-identified, maximum food security impact and minimum leakages are ensured when the size, frequency, and commodity composition of rations correspond most closely to household food needs. Similarly, distribution modalities and any associated conditionality of participation (such as Food for Education, Food

<sup>149</sup> For a review of the economic rationale, see Christopher Barrett, 2002, “Food Aid Effectiveness: It’s the Targeting, Stupid!”

for Work/Assets, or Maternal Child Health activities), play an important role in maximizing food security impact through effective targeting.

Two concepts are fundamental to targeting. Exclusion errors occur when food aid fails to reach the needy. Errors of exclusion are a humanitarian concern. Inclusion errors occur when food aid is provided to the non-needy. Errors of inclusion (“leakage”) are a Bellmon concern. Errors of inclusion are also a humanitarian concern because, by definition, leakage involves the inefficient use of scarce resources. Improvements in targeting (reductions in inclusion errors) achieves three simultaneous objectives: 1) increases efficiency of food of food aid in accomplishing humanitarian and development goals; 2) maximizes efficiency of Title II resources; 3) ensures compliance with the Bellmon Amendment.

While the BEST approach to assessing the potential impact of food aid starts with this assumption, it also recognizes that effective targeting is both expensive in terms of human and financial capital and extremely difficult to implement and sustain. Even the most effectively targeted programs can never prevent all leakage.<sup>150</sup> Even where targeting reaches the most food insecure households, precisely because poor people are both food-poor and cash-poor, beneficiary households will always face an incentive to sell some of the food aid to meet cash needs. In the absence of food aid, many food insecure households may suffer by not getting enough food (quantity and quality) or may use coping strategies that adversely affect their health, productive capacities, etc. Therefore, decision makers inevitably have to strike a balance between exclusion and inclusion errors. Inclusion errors are particularly important for Bellmon considerations because they impact markets.

### **How can we determine whether a specific proposed food aid distribution program would introduce a substantial disincentive?**

The goal of the BEST study is to present USAID decision makers with sufficient information to allow determination of whether or not inclusion errors will substantially impact markets.<sup>151</sup> As noted above, the extent to which distributed food aid has the potential to disrupt private markets or introduce production disincentives rests fundamentally on whether food aid will represent “additional consumption” for beneficiary households, i.e., food consumption which would not have occurred in the absence of the food aid distribution program. Unfortunately, the only certain method to determine whether food aid represents (or would represent) additional consumption is to conduct household surveys to determine whether a household would consume the food aid rations

<sup>150</sup> For more background on targeting, see Hoddinott (1999), Barrett (2002), and EU/FAO (2008).

<sup>151</sup> Importantly, whether the effect is substantial is quite subjective and will likely vary quite widely across contexts. While the BEST study will strive to provide adequate information about the type and proportion of market players that may be affected by distributed food aid, ultimately the determination of whether the impact might be “substantial” will rest with the informed judgment of the relevant USG decision-maker (typically the USAID Mission Director).

without changing its household production and market purchasing behavior. However, because household surveys are expensive and time-consuming, proxy indicators of “additionality” must be used to assess the potential for leakage. Further details about each of these possible proxy indicators are discussed in I.II.<sup>152</sup> This makes assessing the impact of food aid on markets and producer incentives an inherently problematic undertaking, even in relatively stable economies.

With that caveat in mind, combined with basic information about the current state of a country’s agricultural markets—how strong consumer preferences are for various foodstuffs, how responsive producers are to price changes, how well-integrated local markets are with one another, and how sensitive traders are to changes in market conditions, among other indicators—well-selected indicators of additionality typically provide sufficient information to allow some generalizations to be made about the type, form, timing, and geographic targeting of food assistance that would unlikely harm markets and production incentives.

The BEST analysis will, therefore, combine the highest quality of quantitative and qualitative information available about demand and supply characteristics that are likely to influence the production and market responses to food aid. The analysis focuses on three inter-related subject matters: needs assessments, effectiveness of targeting, and analysis of markets that are critical for food security. An overview of a standard analytical process follows.

## **IV.ii. Analytical Process**

The sub-national distribution analysis will be based primarily on secondary data from all available food security and vulnerability assessments, livelihoods baselines or profiles, relevant country situation reports, and any direct FFP guidance regarding geographic or beneficiary- characteristic targeting (including FANTA’s Food Security Programming Framework). The amount of reliable, available data will vary somewhat from country to country; under these conditions, BEST will analyze the highest quality and most relevant data available. BEST field visits and discussions with stakeholders will provide key information as well as validate findings from secondary data analysis.

An initial desktop study will focus on review and analysis of secondary data and reports, and discussions with Food for Peace and FANTA in Washington, DC. This portion of the study will involve the following steps.

<sup>152</sup> Additional qualitative indicators provide critical context to a discussion of potential household responses to the receipt of food aid. These include descriptive analyses of the ways in which households secure their livelihoods (main sources of food and income), particularly among the most food insecure households, and varying degrees of vulnerability to external shocks.

### Step 1: Review Relevant Background Materials

Research and review all background materials relevant for a potential distributed food aid program including food security assessments (e.g., CFSAM, CSFVA, VAC reports, and FANTA's Food Security Country Framework, if available), previous Bellmon Analyses or Updates, reports of Awardees' previous and ongoing food aid programs, livelihoods reports, and reports of production, trade, and food aid flow.

### Step 2: Determine Most Likely Modalities for Distributed Food Aid for Upcoming MYAP Cycle

Review the country Food Security Country Framework along with any other official USAID/FFP guidance relevant for future Title II programming. Based on this review, as well as discussions with stakeholders in Washington and the field, determine most likely distribution modalities (Food for Work/Assets, Food for Education, Maternal Child Health Nutrition, etc).

### Step 3: For Each Modality, Provide Bellmon-Relevant Guidance

For each of the most likely distribution modalities, provide Bellmon-relevant guidance and scenarios of possible coverage, where appropriate, that will help ensure potential impact on production and markets of such food aid distributions are minimized, and therefore Bellmon-compliant. Given that potential Awardees' MYAP proposals will not yet be final (and are therefore unavailable to inform the analysis), this Bellmon-relevant guidance will be necessarily general but should discuss each of the following:

- Ration size
- Ration composition
- Timing of delivery with an emphasis on the months of lowest food availability (lean season)
- Any special targeting considerations
- Balance between cash and food resources to ensure effective program implementation and thereby avoid potential leakages

Regarding ration composition, BEST will provide general guidance as to which Food for Peace commodities might be appropriate for distribution to potentially targeted beneficiary groups. This requires both secondary and primary research of local diets, including preferences and substitutes, among different

socioeconomic groups and in rural versus urban areas.<sup>153</sup> The main staples consumed by poorest households in each potential target area will be outlined, with any seasonal differences noted.

Where current Awardee Mid-term or Final Evaluations are available, BEST will review evaluations to summarize any "lessons learned" for each modality.

### Step 4: Review All Food Security Assessments to Identify an Appropriate Proxy Indicator of Additionality

USAID/Food for Peace development programs focus on chronically food insecure regions within Title II recipient countries. By definition (or default), program activities will be geographically targeted within a subset of sub-national units (e.g., districts/countries/provinces). Because of the localized nature of the impact of distributed food aid, the vulnerability of small markets to disruptions, and the sensitivity of small farmers to production disincentives, quantities that may appear insignificant compared to a country's total food staple consumption can nonetheless have a major impact on markets and production at the local level. Therefore, while previous Bellmon analysis has often used an estimated national food deficit to determine the appropriate level of distributed commodities, the BEST analysis explicitly recognizes that distributed food aid will be concentrated in only select areas within a country, and therefore must assess the volume of commodities suitable for distribution at a more localized level in order to provide Bellmon guidance.

Through review and application of appropriate indicators of additionality, an assessment of the relatively absorptive capacity of sub-national administrative units (typically at the first administrative unit such as province or district), based on proxy indicators of additionality, can further refine geographic targeting guidance and provide estimates of the populations that may be targeted for future food aid programs. While geographic targeting may not always be the most preferred or appropriate

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<sup>153</sup> If commodities considered for distribution are highly substitutable for other commodities in the local diet, the analyst must assess market conditions to reveal the distributed commodity's likely cross-price effects on those substitute commodities. As an example, suppose consumers typically consume black beans, but view pinto beans as a very close substitute. If pinto beans are monetized, resulting in an increase in the supply of pinto beans and therefore a drop in the price of pinto beans relative to black beans, consumers may substitute pinto beans for black beans. Depending on how easily consumers substitute the two goods (as reflected in the cross-price elasticity between black beans and pinto beans), monetization of pinto beans could result in a decrease in demand for black beans, which could affect production incentives and markets for black beans. The willingness to substitute commodities in the local diet often follows a socioeconomic gradient and differs in urban versus rural areas. Understanding these dynamics is important to strengthen the market intelligence, and provide appropriate guidance regarding the likely effects of food aid (both monetized and distributed) on local markets. As an example, there may be very strong preferences for rice in an urban area which makes consumers relatively nonresponsive to price changes (i.e., the own price elasticity of demand for rice is inelastic), whereas rural consumers may have a preference for sorghum but remain willing to substitute sorghum with millet as the price of sorghum increases relative to millet.

targeting criteria, in most cases it will be the easiest and least costly to administer and, of course, can be followed by application of other administrative or self-targeting criteria.<sup>154</sup>

In the case of a distribution modality such as PM2A, which targets households with pregnant and lactating women and children under two years old for preventive nutritional supplementation, regardless of household wealth or food deficit, initial geographic targeting is critical as it represents the key program parameter to avoid potential Bellmon concerns. Effective targeting of a PM2A program, from a Bellmon perspective, therefore involves further refinement of initial geographic targeting based on estimated household food deficits on a relative basis, followed by targeting households based on PM2A program eligibility (i.e. all children 6-23 months and all pregnant/lactating women).

See I.II for a description of possible proxy indicators of additionality.

### **Step 5: If Possible, Assess Potential Beneficiary Coverage Using Country Budgetary Guidance**

If applicable, when likely program dimensions are available (such as program budget and proposed ration), the analysis will assess the absorptive capacity of potential target districts. This assessment will be based on comparing the number of potentially eligible food insecure households with the estimated number of rations available for distribution under the given program.

For modalities with fairly standard rations in terms of both size and composition (e.g., Food for Work/Assets or Food for Education), BEST will provide basic cost comparisons of ration by modality, which will provide some guidance as to total beneficiary coverage possible, and therefore total volume of distributed commodities possible given budget constraints.

For modalities with (at present) less-standard rations in terms of both size and composition (e.g., PM2A), BEST will base ration scenarios on guidance from FFP/FANTA and review of current Awardee MCHN experience, if applicable. Likely parameters of a PM2A program (including ration size and composition) will be used to estimate the number of household rations available under various levels of funding.

For PM2A, BEST will use the most current and reliable demographic data to estimate the number of households with either a pregnant or lactating mother or a child under two. Based on these figures, BEST will estimate the number of households who are both PM2A-eligible and for whom PM2A rations would most represent additional consumption (using the proxy indicator(s) of additionality), to estimate the number of households that could be targeted for year-round individual and household rations within each district without introducing Bellmon concerns.

BEST will then rank sub-national administrative units according to those in which PM2A rations would:

- Most likely represent additional consumption, and therefore be unlikely to pose any negative Bellmon impact;
- Address the highest rates of malnutrition at the district level; and
- Target the largest total number of PM2A-eligible households, an important efficiency consideration when implementing an integrated development program.

### **Step 6: Review Food Security Assessments and Livelihoods Reports to Inform Sub-National Analysis**

Descriptive analyses of the ways in which households secure their livelihoods, and their varying degrees of vulnerability to external shocks, provide critical context to a discussion of potential household responses to the receipt of food aid.

**Assessed food insecurity.** Whenever possible, BEST will list the relative ranking of administrative units' levels of food insecurity (e.g., high, medium, low) for each target area. The ranking may be based on measures of poverty (for example, from available Demographic Health Survey (DHS), poverty mapping, and/or census data) and the prevalence of stunting in children under five. Such a ranking would provide a measure of both food access and utilization. This assessment will be derived from the Food Security Country Framework whenever available.

The data available to assess food insecurity levels will vary from country to country, depending on the types of surveys and assessments conducted within a relevant time period. The BEST team, including all consultants, will undertake careful review of all alternative sources of food security assessments to determine the best available data for the distribution analysis.

**Livelihoods.** Based on a review of all available livelihood assessments and consultation with relevant experts in the field, BEST will provide an overview of livelihoods including key characteristics of food insecure households within each target area such as sources of food, sources of income, and possible impediments to utilization (for example, a high prevalence of diarrheal disease within the district which prevents proper absorption of nutrients).

**Key vulnerable populations.** Whenever possible, key vulnerable populations will be identified and latest available population figures will be provided.

<sup>154</sup> Hodinott, John. 1999. "Targeting: Principles and Practice," IFPRI Technical Guidance No 9, Washington, DC: International Food Policy Research Institute, accessible via <http://www.ifpri.org/sites/default/files/publications/tg09.pdf>.

### **Step 7: Report On-Going Food Aid and Cash Transfer Programs**

To properly assess the expected level of “additionality” with the introduction of a new food aid program, BEST must first account for all pre-existing programs that affect households’ cash and food receipts including in-kind and/or cash transfers households receive through a variety of government and non-governmental sources, which contribute to households’ current level of food insecurity. Both the amount of in-kind aid and the timing of distribution must be considered to properly account for the volume of food deficits throughout the year. Whenever possible, BEST will report:

- NGO or government agency
- Location
- Modality
- Expected duration of activity
- Ration (size, composition, kcals)
- Planned and actual beneficiary coverage

Combined with food insecurity measures and estimated district-specific nutrition gap (or other proxy indicators of additionality), this overview of existing food aid and cash transfer programs will provide relevant USAID decision makers a more accurate measure of the “food gap” a proposed food aid distribution program should fill. This overview will allow both a spatial and temporal assessment of a potential food aid disincentive effect.

### **Step 8: Review All Available Baseline Market Analyses**

Whether a donor provides food aid rations to food insecure households across the breadth of a country or only in a localized area, the donor must have an understanding of the current functioning of agricultural markets critical for food security, as those are the markets most likely to be impacted by the introduction of food aid.

When attempting to assess the potential impact of food aid in a localized area (whether distributed in kind, in cash, or through subsidized food sales), it is especially important to understand 1) the functioning of local markets and 2) how well-integrated local markets are with markets outside of the food aid intervention area, and therefore how any changes in food prices might be transmitted to other markets.

A unique challenge in attempting to assess the impact of food aid on markets and incentives in many LIFDC countries arises due to the lack of available high-quality and disaggregated baseline market information. Markets and market players have often been impacted by a series of complex changes; these changes reduce the utility of any but the most recent thorough market assessments. Production and market data is often scarce and of very poor quality, and/or is tainted by concerns about politicization of the data. That said, while market analysis is often thought of as a highly quantitative exercise, much can be gained from a descriptive analysis of the structure, conduct, and

performance of markets. Analysis using a SCP framework can be well-suited to low-cost rapid appraisal techniques, such as those used in BEST market analyses.

### **Step 9: Determine Key Commodities Markets and Set of Physical Markets for Field Visit**

Without an understanding of how markets are currently functioning, it is not possible to provide guidance on the type, form, timing, or geographic targeting of food aid that is not likely to negatively impact markets or producer incentives. To address this initial gap in knowledge, the study team may be required to undertake a baseline Market Analysis, using a Rapid Assessment Tool (see I.I), to assess the current state of agricultural markets as of the study date. The baseline will be accomplished through a combination of desk study, key informant interviews, and intensive field work.

The choice of commodity markets for assessment will be determined by the food aid commodities typically distributed in-country, commodity markets likely impacted by such distribution, and any commodities critical for food security whose prices may be impacted by a sudden increase in the supply of food in food insecure areas. These commodity markets will generally involve the major cereal markets (e.g., wheat, maize, small grains), major pulses, edible oils, and livestock markets.

The choice of physical markets to include in the field visit will likely include those major markets currently monitored by, for example, FEWS NET, WFP, and/or recipient country Ministries or Central Statistics Office, along with a host of other markets throughout the country that are critical for food security. The BEST team will consult with the USAID and FFP missions to develop the field visit itinerary, and incorporate any specific Mission objectives. For example, the Mission and/or the BEST team may deem local markets in remote food insecure areas not covered by regular monitoring appropriate to cover during the field visit.

To maximize coverage of the broadest cross-section of markets possible, the study team will typically split into separate teams. Teams will employ a Rapid Assessment Tool (see I.I) and use a Structure-Conduct-Performance (S-C-P) Framework as a lens through which to investigate the state of markets across the country. Team members will conduct interviews with subsistence farmers, small-scale and large-scale producers, traders, small and large processors and millers, wholesalers, and retailers. In geographic areas where food aid interventions are currently taking place, team members will also interview a sample of beneficiaries and non-beneficiaries of food aid. Commodity markets and physical markets will be assessed using Structure-Conduct-Performance (S-C-P) model, as adapted by FEWS NET from Industrial Organization Theory<sup>155</sup> to the realities of markets in developing countries.<sup>156</sup>

<sup>155</sup> See Bain (1959).

<sup>156</sup> Readers interested in more details about a Structure-Conduct-Performance framework for analysis in the context of food security in developing countries, please see FEWS NET (2008b).



According to traditional neo-classical economic theory, a market is “performing” if an increase in demand or a decrease in supply results in a new equilibrium characterized by a higher price, which clears the market by equating quantity supplied and quantity demanded. This definition of market performance is insufficient from a food security perspective because a price increase that substantially diminishes the purchasing power of households, though an equilibrium, has undesirable social outcomes that threaten food security. For this reason, we turn to the S-C-P concept of market performance.

Within the S-C-P framework, markets are said to perform well if they achieve socially desirable goals such as availability of a sufficient quantity, diversity, and quality of goods to satisfy demand at prices that are “fair” to traders, producers, and consumers. Fair prices ensure reasonable margins to traders, enabling them to continue engagement in that market. Fair prices to consumers assure that a cross-section of the population is able to access goods via the market. Short and long-term price stability, as well as market efficiency, are indicators of market performance. Market performance is derived from basic conditions, market structure, and market conduct.

Basic conditions broadly describe basic traits of the country and economy, including seasons and seasonality, infrastructure, consumption characteristics such as elasticities<sup>157</sup> and income distribution, stability, government policies, and incentives for producers and traders.

Basic conditions set the parameters for market structure, which is composed of the relatively stable features that influence the behavior of market participants. Features of market structure include the number and concentration of buyers and sellers, barriers to entry and exit, vertical and horizontal coordination, and licensing requirements.

In conjunction, basic conditions and market structure influence market conduct, or the behavior of market actors. Price setting behavior, buying and selling practices, informal norms of trade, and information use are all aspects of market conduct.

As part of the market analysis, BEST will perform an assessment of the level of market integration. Where markets are well-integrated, price changes due to supply and demand shocks in one market are more easily transmitted to other markets. By dissipating the price effects, such shocks will have less of an impact on any one local market. Any effect of temporarily

<sup>157</sup> Elasticities are a common way to describe the responsiveness of demand or supply to changes in prices or income. For example, the price elasticity of demand describes the percentage change in quantity demanded resulting from a percentage change in the price of a good, while the price elasticity of supply describes the percentage change in quantity supplied resulting from a percentage change in the price of a good. The income elasticity of demand describes the percentage change in quantity demanded in response to a percentage change in income. Importantly, price and income elasticities are very rarely available, and extremely difficult to collect. Elasticities are mentioned here solely for the purpose of tying these important concepts of supply and demand price responsiveness from economic theory to the qualitative indicators often relied upon in practice. For more details, please see the BEST Monetized Food Aid Methodology and FEWS NET (2008b).

increasing the local food supply through localized food aid distribution will therefore be dampened wherever markets are well-integrated. Conversely, where markets are poorly integrated, prices are likely to decrease more significantly when food supply is increased with the addition of distributed food aid. Where time-series of market prices for key commodities relevant for food security are available or obtainable, BEST will assess the level of market integration through analysis of covariance of prices over time and across markets. These data are generally, though not always, available by request to WFP and/or FEWS NET within the study country.

### **Step 10: Field Visit**

The BEST field visit will involve filling in data gaps, triangulation of secondary data, and discussions with all key stakeholders to ensure an accurate and thorough analysis. Upon arrival, the BEST team shall first meet with USAID/FFP Mission personnel to come to a common understanding of the purpose of the assignment and outline the activity timetable.

Following the meeting with the mission, the BEST team will seek insights, data, studies, and reports through meetings with key government ministries, aid and development project offices, assessment committees and networks such as FEWS NET, United Nations offices (WFP/VAM and FAO), universities, and others. Insights into future initiatives that may impact food security in potential Title II intervention areas (e.g., a World Bank, Millennium Challenge Corporation, or other donor’s planned program affecting agriculture) are more likely to be gained through these meetings than through desk review prior to the field visit.

In-depth meetings with the private sector—producer/farmer groups and associations, traders and other middlemen, processors, importers and exporters, and shippers—will be critical. Formal and informal intelligence gathered through these meetings will be key to understanding the latest market dynamics and future trends. Discussion with producers, processors, and traders<sup>158</sup> will provide an understanding of the factors affecting demand and supply of commodities with which a distributed commodity would likely compete. The overarching goal of such meetings in regards to the BEST analysis is to gain an understanding of the price responsiveness of supply and demand of select commodities, constraints to expansion, and inter-temporal arbitrage practices of traders that may be impacted by a supply increase via distributed food aid.

Travel to current and/or potential sites for Title II program implementation is an integral part of assessing potential impact of distributed food aid. Assessing conditions “on the ground” allows a detailed contextual knowledge of demand and supply dynamics affecting local markets. It is generally not possible to gain such knowledge through desk review and, therefore, travel to the specific sites in the study country will be an essential component of every BEST study. In addition to meeting with

<sup>158</sup> When combined with a monetization analysis, discussions with traders and potential buyers will also involve assessing their interest and ability to purchase commodities in various quantities.

current and potential Title II Awardees, informal discussions with current or potential beneficiaries can offer insights into the appropriateness of specific Title II commodities for distribution, including palatability, ease of preparation, and price and quality factors relevant to demand responsiveness.

The BEST study is not intended to evaluate current food aid programming, but may nonetheless make observations during field visits which can be instructive for future food aid programming. BEST will report general observations about current food aid distributions and any challenges to improving targeting effectiveness reported by current Awardees.

Inspection of a sample of storage facilities in current use is required to assess the adequacy and cleanliness of storage facilities for distributed food aid. During inspections, the average storage time and frequency of fumigation will be noted.

In all cases, the visit should be completed with a private and candid briefing to relevant Mission personnel.

### **Step 11: Report Production**

BEST will report results according to the agreed-upon report outline as detailed in the country study SOW. BEST team members should anticipate submission of an initial draft within approximately four to six weeks after conclusion of the field visit. FFP/W and the Mission will generally reply with comments, questions, and requests for clarification within two to three weeks of receipt of the initial draft. A final 508-compliant report must be submitted to FFP/W generally within two to three weeks of receipt of all FFP/W and Mission comments.

## **Annex V.I BEST Rapid Assessment Tool**

### **Producers**

- (If possible, speak with both small-scale and larger-scale producers.)

### **Agricultural**

- When did you settle?
- How many acres (ha) do you have access to?
- How many acres (ha) do you cultivate?
- How many acres of maize? Wheat? Other grains (if appropriate)?
- What other crops do you grow?
- Which crops are you increasing? Which are you decreasing? Why?
- How do you decide how many acres (ha) to devote to maize/wheat/small grains?
- Are seeds and fertilizers available? Are they accessible? How much did you use/plan to use this year and how much did/will it cost?
- What does your household need cash for?
- How do you raise this cash?

- How much maize/wheat/other grains did you produce for selling from the last harvest? How this did compare to other years?
- How many months of household stocks do you currently have?
- Who do you sell your maize/wheat/other grains/other crops to? Where do you go to sell? How do you get there, and how much does it cost?
- What price do you receive when a trader comes to your farm to buy? When you travel to the market?
- Are prices based on grades and standards? What are the prices for different grades?
- Do you contract with any companies? If YES:
- What company and for what commodity?
- What do you receive and what do you give?
- Are there problems with contract enforcement?
- Are you a member of a farmer's cooperative? If so, what are the terms of membership and benefits?
- Do you ever sell on credit? If yes, to whom do you provide credit and on what terms?
- Do you ever buy inputs on credit? If yes, where do you receive this credit from?

### **Livestock**

- What is the size of your herd?
- Have you utilized dipping services this year?
- What are the current range conditions? Water conditions?
- How many heads (large/small) did you sell last year? This year?

### **Food Aid**

- Do you receive food aid? If so, how much? Do you know why you were chosen?
- What is your household eating? How many meals a day are you taking?
- If you don't have maize/wheat/other grains, what do you eat? How do you obtain this substitute food?
- Does the community believe that the distribution reaches the people who need it most? Do you?
- Do you ever sell/exchange food aid on the market for something you need more than food aid?
- If there was no food aid, how would your farm change? More land cultivated? More staple crops?

## Traders

- (If possible, speak with small, medium, and large-scale traders.)

## Background

- What are the main agricultural commodities traded on this market?
- What are the main cereals traded in this market?
- When are grains/pulses plenty? What are the [standard unit, e.g., 1kg or 20kg] prices after harvest?
- When are grains/pulses in short supply? What are the [standard unit] prices in the lean season?
- What commodity do you trade, and how long have you been trading?

## Structure

- How many other traders are selling similar goods in this location?
- Who are the big traders in grains/pulses/oils/livestock, and how what volumes do they transact?
- Who are the market authorities, and what role do they play in the market?
- Where do you get your grains/pulses/oils/livestock from? How far away is the source?
- How many bags/liters/heads do you buy at a time? How often do you buy? Who do you buy from? How much does it cost to transport?
- What is the condition of the roads between your source and destination markets? What are your transportation options?
- Where do you store your goods? Where do big traders store their goods? What are the costs of storage?

## Conduct

- How do you know where to go to get low cost stock?
- If the cost in your source market increases, what do you do?
- What prevents more traders from entering into this market?
- Does anything prevent traders from dropping out of this market?
- How do you determine the price?
- Do you ever buy on credit? If yes, from whom and on what terms?
- Do you ever extend credit to buyers? If yes, to whom and on what terms?
- Do your buyers want high quality or low prices? Why?

## Performance

Costs: transport, loading/offloading, market fees, license fees, taxes, electricity, rent.

- How much profit can you find in [standard unit]?
- What risks do traders have in grain/pulse/oil/livestock trade?
- What prevents you from doubling the volume of your business?

## Food Aid

- If households had more purchasing power, could you increase your stocks? How long would it take to organize?
- Do households ever sell or trade food aid? If so, which commodities do they sell/trade and for how much?
- How does food aid affect your business?

## Wholesalers/Retailers

- If possible, speak with several wholesalers and retailers in each urban area.
- What percentage of this market (local or regional) does your company supply?
- How many other wholesalers/retailers are there in this market? (If known, name them.)
- Where is the major source of commodity X (local, regional, import)?
- Do you prefer to stock local or imported product? Why? Higher marketing margins? Less competition? Niche market?
- What are current barriers to expansion of business? Access to credit? Lack of effective demand? Transportation costs that restrict possible geographic coverage?
- In your opinion, has your business been affected by the food aid distribution program conducted in this area? If so, has it increased or decreased?

## Local Market Spot Checks

- Observe whether there are any food aid commodities for sale. Title II? WFP?
- If you suspect the food aid is Title II, copy down lot number from the back of can, or bottom of milled bag between the bottom seam and USAID label.<sup>159</sup>

<sup>159</sup> The lot number will tell you (1) something about market integration because you can trace back to origin and; (2) something about modality (if came from a MCJH, VGF, FFW etc) beneficiary, which can signal that you should investigate possible causes of inclusion errors associated with that specific intervention to see if it sheds light on necessary adjustments in targeting.

Ask for basic information from traders and wholesales in the local markets, including:

#### **Normal prices**

- Consumers' preferences for different commodities, and grades of commodities
- Do they notice any impact on their business from food aid distributions?

#### **NGOs distributing food aid**

- What is targeting criteria (geographic targeting, household targeting, food delivery mechanisms)?
- Do you have the capacity to implement and enforce the selection criteria?
- Do you think households understand the targeting criteria?
- Do you have any "lessons learned" from your own past programs or other NGOs' programs?
- What are the greatest constraints to improving targeting?
- If there is one thing you could change about the targeting process, what would it be?
- How appropriate is the food aid program in terms of commodity type, ration size, delivery schedule, and venue?
- Is the distributed food likely to be an "inferior good," one consumed in disproportionately greater quantities by the poor?

#### **Annex V.II Description of Proxy Indicators of Additionality**

Among the possible proxy indicators of additionality are food consumption scores (or some other measure of actual consumption), a composite indicator of food security (such as through food security and vulnerability assessments), sources and levels of income (particularly extreme poverty), malnutrition rates, an estimated nutrition gap, or some combination of these indicators. Proxy indicators are typically available at the first administrative unit (e.g., province or district) and provide a gross measure of the relative additionality across sub-national administrative units. Thus, the proxy indicators can provide guidance on initial geographic targeting and volume of commodities that might be appropriate for distribution.

#### **Nutrition or Food Gap**

A nutrition or food gap estimate provides a measure of the difference between available food (proxied by domestic food production) and the amount of food needed to support a specific per capita daily nutritional standard (generally 2100 kcal per person per day, although FAO estimates have been revised and are now country-specific). If estimated on a more localized level (i.e., at the level closer to the communities in which a cooperating sponsor would implement a distributed food aid program), a nutrition or food gap can provide a very useful measure of that volume of food which is not currently supplied by local production and/or markets, and which would represent an appropriate volume under a proposed Title II non-emergency

food aid distribution program to assure minimal to no disincentive effect. In order to estimate a sub-national food or nutrition gap, it is necessary to collect data on population, production and trade flows within relevant catchment areas. Collection of trade flow data at a sub-national level is an extremely time-consuming and expensive undertaking and outside the present BEST scope of work. For the purposes of the distribution analysis, one or more proxy indicators of "additionality" are used to characterize the relative food or nutrition gap at the sub-national level.

One source of estimated food deficits is FAO's new "depth of hunger" estimates, which provide national averages for the estimated food deficit of undernourished populations in countries across the globe. These figures provide a useful national benchmark which can be used prior to conducting formative research in proposed target communities to determine in more precise detail the average household deficits of beneficiary households. While the BEST report may make use of these figures to develop an illustrative household ration under PM2A, for example, the analysis will nevertheless maintain the use of proxy indicators of "additionality" to characterize the relative food or nutrition gap at the sub-national level in order to provide initial geographic targeting guidance.

#### **Food Consumption Scores/Composite Indicators of Food Security**

A Food Consumption Score<sup>160</sup> (FCS) is collected via household surveys, and is generally based on a 7-day recall of food consumption. The weighted score reflects both dietary diversity and frequency of consumption of food items. Depending on whether the survey is implemented during a typical harvest or typical lean season will affect the validity of the FCS as a measure of average household food consumption. If, for example, the survey that derives the FCS is conducted during a favorable harvest period, households identified as food insecure using "poor FCS" as an indicator may reasonably be considered as chronically food insecure, since these households consumed very poor diets in favorable harvest periods.

<sup>160</sup> For details on the calculation, use and validity of food consumption scores and other measures of dietary diversity in food security analysis, please see (1) WFP's "Technical Guidance Sheet - Food Consumption Analysis: Calculation and Use of the Food Consumption Score in Food Security Analysis", accessible via [http://documents.wfp.org/stellent/groups/public/documents/manual\\_guide\\_proced/wfp197216.pdf](http://documents.wfp.org/stellent/groups/public/documents/manual_guide_proced/wfp197216.pdf); (2) Wiesmann, Doris (June 2009), *Validation of the World Food Programme's Food Consumption Score and Alternative Indicators of Household Food Security*, IFPRI Discussion Paper 870, Washington DC; and (3) Hoddinott, John and Yisehac Yohannes (2002), *Dietary Diversity as a Food Security Indicator*, IFPRI Discussion Paper 136, Washington DC: IFPRI.

FCS is not a quantitative measure of a “nutrition gap,” and cannot be compared with the ration under the proposed food aid program to determine the extent to which the program fills (or potentially overfills) the nutrition gap. However, a FCS does provide a snapshot of both the frequency and diversity of household staple consumption and is therefore a reasonable proxy indicator of the availability and access dimensions of food security and, to a lesser extent, the utilization dimension.<sup>161</sup>

Composite indicators of food security, which encompass measures of both food consumption and food access, may be available instead of or in addition to a food consumption score. The food access measure provides an indicator of a household’s ability to produce or purchase food.<sup>162</sup>

### **Extreme Poverty**

Poverty is the best indicator of access-driven food insecurity. Extreme poverty is an indicator that a household is unable to meet its basic nutritional requirements. This is because households living under conditions of extreme poverty simply do not have enough money to purchase sufficient foods for meeting the energy and nutrient needs of all of their members. Such households can be described as “food poor.” Depending on intra-household distribution of food, it is typically assumed that at least one member of a “food-poor” household is always hungry, and potentially all members are hungry.<sup>163</sup> However, extreme poverty is not a quantitative measure of a nutrition gap that can be used to determine the extent to which a proposed food aid ration might fill (or potentially overfill) that gap. Nevertheless, households living in extreme poverty can reasonably be considered households for whom food aid would likely represent additional consumption.

### **Prevalence of Malnutrition in Children**

Chronic malnutrition (stunting, or low height-for-age) in children under five is an additional potential indicator of chronic food deficits. Malnutrition rates may reflect either inadequate intake, malabsorption due to infectious disease, or some combination of both. To the extent malnutrition rates reflect disease prevalence more than inadequate intake, any conclusions about food deficits drawn from malnutrition rates will be an inaccurate reflection of household food deficits. To the extent the prevalence of stunting reflects poor availability and/or poor access, such prevalence rates can appropriately inform geographic targeting from a Bellmon perspective.

Where a high percentage of households report both poor food consumption and poor food access, and surveys show high rates of chronic malnutrition in children under five, poor nutritional outcomes will likely be more responsive to food aid intended as supplemental nutrition. By geographically targeting areas where these indicators coincide, a PM2A program will help ensure that any given PM2A beneficiary household will more than likely increase overall household food consumption, and therefore represent additional consumption, relative to households in other geographic areas with lower rates of poverty and chronic malnutrition.

The most recent and reliable source of reliable district-level malnutrition rates is often available from Demographic and Health Surveys.

### **Recommended Reading**

Barrett, Christopher (2002). *Food Aid Effectiveness: It’s the Targeting, Stupid!* Cornell University Working Paper No. 2002-43.

FEWS NET (May 2008). *Structure-Conduct-Performance and Food Security*. FEWS NET Market Guidance No. 2.

Hoddinott, John (1999). *Targeting: Principles and Practice*. IFPRI Technical Guidance No. 9.

<sup>161</sup> The recent BEST analysis for Burundi’s FY2009-2014 PM2A initiative relied on Food Consumption scores as reported in the 2008 CFSVA. As reported in Wiesmann (2009) (see footnote 2 above), the FCS in Burundi was found to be well correlated with food security status.

<sup>162</sup> The recent BEST analysis for Liberia relied upon the “food insecure” and “highly vulnerable” categories of food insecurity as defined in Liberia’s 2006 Comprehensive Food Security and Nutrition Survey. This composite indicator of food consumption and food access was the best available indicator of the relative absorptive capacity of food aid on a county-level basis for Liberia.

<sup>163</sup> DeRose, Laurie, Ellen Messer and Sara Millman (1998). *Who’s hungry? And how do we know? Food Shortage, Poverty, and Deprivation*. United Nations University Press.

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