

**TRACKING FOOD SECURITY USING NATIONAL FOOD BALANCE SHEETS:  
EXPERIENCES FROM EAST AFRICA**

**BY**

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## **ABBREVIATIONS AND ACRONYMS**

ARRF	African Research and Resource Forum
CGIAR	Consultative Group on International Agricultural Research
EABL	East African Breweries Limited
EAC	East African Community
EAGC	Eastern Africa Grain Council
FAO	Food and Agriculture Organization
FBS	Food Balance Sheet
FBSs	Food Balance Sheets
FEWSNET	Food Early Warning and Safety Network
FOODNET	Food Network
FFSSU	Final Focus Secondary Sampling Unit
GoK	Government of Kenya
ICRISAT	International Crop Research Institute for the Semi Arid Tropics
IFPRI	International Food Policy Research Institute
IPAR	Institute for Policy Analysis and Research
KARI	Kenya Agricultural Research Institute
Kcal	Kilo-Calories
KEPHIS	Kenya Plant Health Inspectorate
KIPPRA	Kenya Institute for Public Policy Research and Analysis
KFSG	Kenya Food Security Group
KNBS	Kenya National Bureau of Statistics
KRA	Kenya Revenue Authority
MOA	Ministry of Agriculture
MT	Metric Tonnes
NCPB	National Cereals and Produce Board
NGO	Non-Governmental Organization
NSGRP	National Strategy for Growth and Reduction of Poverty (MKUKUTA)
PHDR	Poverty and Human Development Report
PSSU	Preliminary Survey Sampling Unit
RATIN	Regional Agricultural Trade Intelligence Network
RDA	Recommended Daily Allowance
SSR	Self Sufficiency Ratio
STS	Structured Trading System
TFNC	Tanzania Food and Nutrition Centre
UBOS	Uganda Bureau of Statistics
USAID	United States Agency for International Development
WFP	World Food Programme

## **ABSTRACT**

*Food balance sheets (FBSs) trace their origin to World War II Europe when their critical role in strategizing on the food needs of soldiers became apparent. Thereafter, the FAO provided guidelines on preparation of FBSs as critical food security instruments. An FBS depicts trends in national food supply and demand which expose food deficits that may necessitate imports or medical intervention. It discloses the types of foodstuffs taken by the various segments of a national population thus bringing out the socio-cultural dimensions of food security. It establishes the food situation in a country through estimations and projections and promotes agricultural development through policy and import-export trade analysis. FBSs facilitate food trade by enabling food traders to link supply and demand. By guiding food distribution, it becomes a critical food security policy document. This paper reports some of the findings of field surveys conducted in the three EAC member states of Kenya, Uganda and Tanzania in the period 2009-2011. The surveys collected primary data mainly through key informant interviews and secondary data from literature review. The effort was in line with the EAC Strategic Plan (2006/2010) which provided for a regional FBS to fast-track and harmonize regional food security policies. The field reports appeared to corroborate the findings of a 2010 EAGC study on Food Balance Sheets in the region. The findings indicated that none of the three governments had a serious national FBS as a national food policy document thus making it difficult to track food security. FBS preparation was difficult and circulation limited. Consequently, key stakeholders such as food traders, who are supposed to link supply and demand, were forced to rely mainly on informal networks. The existing national FBSs in the three countries contained inaccurate, unreliable and/or obsolete data due to lack of timely research by professionals. The paper argues that in some cases, food data were prone to political manipulation and cross-border trade was difficult to capture as most of it was illegal. Restrictive policies especially border closures inhibited structured food trade within the region. Absence of national FBS forums may explain the lack of a regional food security forum. The Eastern Africa Grain Council (EAGC) is one of the few regional organizations that try to capture and monitor food data and trade. The paper advises that the EAC governments officially adopt FBSs as national food security planning tools and that the EAGC and research institutes take charge of harmonizing the preparation and use of national FBSs in future.*

### **1.0 Introduction: What is a Food Balance Sheet?**

A food balance sheet (FBS) is a tool that depicts the overall trend in national food supply and demand and exposes any food deficits that may necessitate imports. It discloses the types of foodstuffs taken by the various segments and groups of the national population and brings out the socio-cultural dimensions of food security in terms of types of food, quantity and nutritional value and/or requirements. It is useful in carrying out an appraisal to establish the food situation in any country through estimations and projections. At the policy level, a FBS is a barometer for measuring national food supplies, famine and malnutrition for intervention measures and therefore facilitates decision-making at both tactical and strategic levels. It promotes data-based agricultural development through policy analysis and trade-related activities such as imports and exports by enabling planners to do projections of production and consumption. Regionally, FBSs are supposed to promote and facilitate a structured trading system (STS) by enabling food

traders to know where the food is available and who needs it, thus effectively linking supply and demand. With an up-to-date FBS, it is unlikely that a given section of the population will die of hunger when the neighbouring one has a bumper harvest. It serves as a useful instrument for informing and guiding food distribution within any given country. It is therefore a critical food security policy document.

This paper attempts to track food security using national food balance sheets from the three EAC member states of Kenya, Uganda and Tanzania. It examines FBS construction experiences from the three in the period 2009/2011. The paper relies mainly on secondary data by reviewing limited but key literature on the subject, specifically remaining focused on the practical experiences of the three EAC member states in the construction and use of what may be called national food balance sheets. The paper exposes glaring similarities in the three East African countries. For instance, to many in the region, a food balance sheet is an alien item. Through key informant interviews, it emerged that preparation of FBSs was a specialized activity done by a small clique of persons based at the ministries of Agriculture and related ministries and/or data-based government agencies. While its preparation was difficult, its circulation was limited and people in need of it did not access it in or on time. Since it has to be preceded by research, all countries reported difficulties in having an up-to-date FBS at any one time. The existing national FBSs in the three countries were characterized by inaccurate or obsolete data whose validity and reliability were minimal. In other cases, food data were collected and tailored for specific clients and uses, not necessarily for preparation of national FBSs. This rendered the data as well as the FBSs prone to political manipulation. In addition, FBS preparers were few, overwhelmed by work and under-funded. Data collection was usually not meant for FBS preparation and was mainly done by agricultural extension officers, not professional researchers. Traders mainly relied on the internet and informal networks for food data. However, the volume of cross-border trade was difficult to capture as most of it remains clandestine except where and when borders were open. The absence of accurate national FBSs therefore renders a structured trading system (STS) within the region largely impossible. Trading arrangements within the region is however curtailed by a number of restrictive policies ranging from import restrictions, through seasonal pricing to marketing controls and border closures.

### **1.1 Food Balance Sheet Construction Process and Data Uses**

The process of preparing a food balance sheet is guided by several assumptions. The first step is determining the production of gross harvest quantities for each commodity including opening stocks from public, private, and farm/household retention. It involves dividing farm yields into cereals and non-cereals. In Kenya and Tanzania, maize is taken as the predetermined base to which other food commodities are referenced. This means that when other foods are included in the FBS, they are calculated in terms of their equivalences to maize on dry weights. Other considerations in FBS preparation include determining the food available for consumption vis-à-vis food requirements; working out commodity cross-substitution; determining domestic shortfall/surplus; determining Imports and associated items; determining exports; determining current stocks and forecast closing stocks. In calculating national food needs, the national population in any given year has to be considered such that production should equal the food available for

consumption after subtracting all other uses including exports and what goes for milling or processing, and that the caloric needs per person per day is 2,100 KCal plus 79 grams protein and 59 grams fats. It is therefore possible to calculate the total national food needs at any time in metric tones. A generic component of a food balance sheet will include primary crops, livestock, and fish commodities up to the first stage of processing in the case of crops and to the second stage of processing in the case of livestock and fish products. Usually, a food balance sheet contains widely classified items such as cereals, roots, tubers, sugar and syrups, pulses, tree nuts, fruits, meat, fish and fish products, milk and cheese, alcoholic beverages, as well as oil and fats. The accuracy of a food balance sheet, which largely depends on derived statistics, is, in turn, dependent on the reliability of the underlying basic statistics of population, supply and utilization of foods and their nutritive value.

Food balance sheets are useful tools in a variety of ways. First, FBSs are used in analyzing national production, availability and consumption of various food items in any country at individual, household and national levels (Balanza, et al, 2007; Serra-Majem et al, 2001; Gutu, Lambert and Maxwell, 1990). Second, they are used to determine staple foods and their price trends over a given period of time (Muyanga, Jayne, Argwings-Kodhek and Ariga, 2006; Eele, 1994). In particular, food consumption data is useful in assessing dietary requirements and deficiencies or exposure to chemicals (Lambe, 2002). Third, FBSs are useful in determining food import needs and levels and food aid targeting (Sharp, 1999) and analyzing distortions in agricultural incentives (Anderson and Masters, 2009). Besides giving indications of food insecurity (Nyariki and Wiggins, 1997), FBSs are critical tools for food traders (Ziegler, 2010). For nutritionists and medical practitioners, FBSs are used to estimate mineral content in various food items (Wuehler and Peerson, 2005) and food economists use them to estimate food losses and waste (Gustavsson, Cederberg and Sonesson, 2011). In a nutshell, national food balance sheets are indispensable food security and food policy instruments which every country should strive to have all the time.

## **1.2 The EAC Framework**

The EAC Strategic Plan (2006/2010) provides for a regional FBS to fast-track and harmonize regional food security policies. However, this is rendered largely unworkable due to the absence of both national and regional FBS stakeholder forums. This is compounded by lack of inter-ministerial coordination of the relevant government departments notably agriculture, livestock and fisheries, and research/statistics institutions in the three East African countries. These errors of omission and commission make it difficult for researchers to access official data in the hands of government custodians. Traders on the other hand, especially food traders who are supposed to link supply and demand, are forced to rely mainly on the Internet and informal networks. The absence of accurate national FBSs hampers a structured trading system (STS) within the region. Within the EAC, STS is also largely inhibited by restrictive policies e.g. import restrictions, seasonal price fluctuations, and marketing controls. As observed above, FBSs, however accurate, may be unable to capture the actual volume of cross-border trade because most of it is clandestine. Border closures complicate the matter but the Eastern Africa Grain Council (EAGC) tries to keep track.

### **1.3 Brief History of Food Balance Sheets**

A key source of the origins and history of food balance sheets is the Food and Agriculture Organization (FAO) of the United Nations (FAO, 1998). Food Balance Sheets have been a major source of food data since 1936, when, at the request of the League of Nations Mixed Committee on the problem of nutrition and its sub-Committee on Nutritional Statistics, a systematic international comparison of food consumption data was prepared. The need for food balance sheets became more pronounced during World War II. During the period 1942/43, European countries, through a joint committee of experts from Canada, United States and the United Kingdom developed detailed techniques for preparation of FBSs. Subsequently, FBSs were developed in Germany, for itself as well as for the occupied countries (Jacobs and Sumner, 2002). Food Balance Sheets played a major role as they dealt with issues of food allocation and distribution in the period of worldwide food shortages after the war. In the next three sections, we look at specific country performances in FBS preparation, use, current limitations and give recommendations for Kenya, Uganda and Tanzania, in that order.

## **2.0 KENYA**

### **2.1 The Food Security Situation in Kenya**

According to EAGC (2010), food insecurity is usually most acute in the pastoral areas of Northern, Eastern and Northeastern Kenya. The main culprits have been recurrent rain failure, flash floods, livestock diseases and theft, rises in food prices and conflict, among others. In Kenya, availability of maize defines food security but maize production has been declining nationally since 2006 (EAGC, 2009). The key obstacles in the realization of food security in Kenya have been echoed by USAID (2008) and the Ministry of Special Programmes (2009). Special attention is paid to the 2007 post-election violence. The general trend in food production in the last 10 years or so is characterized by deficits especially in maize, the item most consumed and one that literally defines food security in Kenya.

### **2.2 The Kenya National FBS: The General Practice**

In the past, what may pass for a national food balance sheet included data on domestic supply and utilization with statistics on production, stocks available, imports and exports. On the domestic utilization side, data have been availed on among others, animal feeds, seed, processed, consumed foods, and waste with indications of food losses at all levels. In simple terms, an ideal national food balance sheet template is a table with vertical and horizontal axes. On the left hand column could be grains, fruits, stimulants, spices, alcoholic beverages, meat, animal fats, milk, eggs, fish and sea food, and miscellaneous, with totals. The top row could have two main columns with one indicating domestic supply (production, imports, stocks, exports, and their totals) and the other column with domestic utilization (feed, seed, processed, food, waste, other and their totals). The units are metric tones which are then used to compute the per caput food consumption (in KgCal per person per year).

In table 1 below, we present what may go for a Kenya national food balance sheet for the year 2009/2010 for cereal crops only.

Table 1: Kenya Food Balance Sheet, 2009/2010

	Maize	Wheat	Rice	Beans	Millet	Sorghum
<b>(1) From Stocks</b>	<b>545,000</b>	-	-	<b>35,000</b>	-	-
(2) Imports (projections for 2010) <sup>1</sup>						
• From Regional sources (EAC&COMESA)	<b>377,800</b>	-	-	-	<b>4,703</b>	<b>16,500</b>
• From Extra-regional sources	-	<b>647,375</b>	200,000	<b>12,000</b>	-	-
<b>Total Imports</b>	<b>377,800</b>	<b>647,375</b>	<b>200,000</b>	<b>12,000</b>	<b>4,703</b>	<b>16,500</b>
<b>(3) Production (projections for 2010)</b>						
• Long rains	2,298,000	350,000	31,659	294,582	35,020	58,842
• Short Rains	574,000	-	-	73,645	32,074	52,180
<b>Total Production per year</b>	<b>2,872,000</b>	<b>350,000</b>	<b>31,659</b>	<b>368,227</b>	<b>67,094</b>	<b>111,022</b>
<b>(4) Post harvest loss<sup>b</sup></b>	<b>143,600</b>	<b>18,500</b>	<b>6,000</b>	<b>36,823</b>	<b>6,710</b>	<b>11,102</b>
<b>(5) National Availability (MT) = (1+2+3) – (4)</b>	<b>3,651,200</b>	<b>978,875</b>	<b>225,659</b>	<b>378,404</b>	<b>65,087</b>	<b>116,420</b>
<b>(6) Exports (projected exports for 2010)<sup>2</sup></b>						
Exports to EAC/COMESA	<b>26,500</b>	<b>5,000</b>	-	<b>2,000</b>	-	<b>1,250</b>
Extra regional exports	-	-	-	-	-	-
<b>Total Exports</b>	<b>26,500</b>	<b>5,000</b>	-	<b>2,000</b>	-	<b>1,250</b>
<b>(7) National Consumption (MT)</b>	<b>3,861,200</b>	<b>971,000</b>	<b>226,000</b>	<b>376,000</b>	<b>69,750</b>	<b>125,875</b>
<b>(8) Available stock by end of As at 1<sup>st</sup> April 2011 (MT) = 5 – (6 + 7)</b>	<b>(236,500)</b>	<b>2,875</b>	<b>(341)</b>	<b>404</b>	<b>(4,663)</b>	<b>(10,705)</b>

Sources: GoK Economic Survey, 2010; Economic Review of Agriculture, 2009; EAGC, 2010; Ministry of Agriculture, (Food Security Situation as of 30<sup>th</sup> June 2009).

### 2.3 Institutions in Construction of Kenya NFBS

In Kenya, the terminology of food balance sheet is familiar only to a few actors namely the FAO, Tegemeo Institute of Egerton University, ministry of Agriculture and the Kenya National Bureau of Statistics (KNBS). These are the actors involved in the construction of a Kenya national food balance sheet, if it exists. Recently, the formation of the Food Security Committee within the Ministry of State for Planning, National Development and Vision 2030 of the Prime Minister's Office may be welcome news but its mandate is yet to be clarified, more so, its role in the construction or dissemination of a national food balance sheet (EAGC 2010). The role of the National Cereals and Produce Board (NCPB) in this respect is also unclear. This is exacerbated by the lack of a coordinating mechanism among the stakeholders who also include the Ministry of Special Programmes. In a word, Kenya lacks the appropriate forums and mechanisms for preparation and dissemination of a national food balance sheet which could double up as

a national food security policy document. However, it would be safe to assume that the ministry of Agriculture and KNBS are the principal actors in FBS preparation and the specific users of the periodic outputs of the Tegemeo Institute are still unclear. The main sources of food data in Kenya are secondary with a few instances of primary sources where Tegemeo and ministry of Agriculture collect and compile primary field data. The KNBS also publishes some of the data in annual Economic Surveys. The Kenya Revenue Authority (KRA), the Customs Department and NGOs such as FEWSNET have undertaken initiatives that need to be harmonized in the production of a national FBS for Kenya (EAGC, 2010).

#### **2.4 Uses of National FBS Information**

It is clear Kenya does not have what can strictly be referred to as a national food balance sheet. The Tegemeo Institute and ministry of Agriculture outputs seem to have certain users who are neither explicitly stated nor clear. Food data users especially traders rely on other sources to obtain the information they need. Except for Tegemeo, the role of university-based research institutions is clearly lacking. At another level, absence of data means absence of users.

#### **2.5 Gaps in Current Kenya NFBS**

For both FBS preparers and users, there are challenges in accessing adequate, accurate and timely data. Some of the challenges include among others: existence of different data-sets on the same item(s) and same data-set for different items; different prices for the same commodity; lack of data on non-cereal crops; data validity and reliability; actual extent of certified seed use, where and when used; and inadequate funding and/or incentives especially for FBS preparers. The absence of FBS-targeted national surveys remains a major challenge. Other key gaps are discussed in the following subsections.

##### ***2.5.1 Absence of a Standing Committee or National Food Balance Sheet Forum***

Despite the importance of agriculture and food-related information to traders and end-consumers, the country is yet to form a strong and sustainable forum or committee to be in charge of the nation's food balance sheet. The absence of such a committee or forum limits the country's capacity to compile and disseminate the food balance related information to stakeholders in a regular and timely manner. The Ministry of Agriculture, KNBS and Tegemeo Institute, the entities currently associated with FBSs, do not appear to have a common consultative forum. Except for the imperative of providing food aid in times of need, the country appears to have abdicated its responsibility to the NCPB and the WFP. The Food Security Committee in the Prime Minister's Office does not appear to have the necessary stamina and direction to oversee the construction and use of national FBSs.

##### ***2.5.2 Lack of Adequate Stakeholder Participation in FBS Preparation***

Although the preparers may be few, the list of stakeholders is much larger. Of particular importance are researchers, academics, policy makers and analysts, food traders, nutritionists, etc. There is no forum to bring these together to ensure adequate stakeholder participation in FBS preparation and/or dissemination. These need to be involved at

different stages in data collection, validation and dissemination and continuous consultation will enable efficient linkage of supply and demand sides.

### ***2.5.3 Narrow Range of Food Items Covered***

The range of food items covered by a national FBS usually depends on how that country defines food security. Whereas Uganda, Tanzania, Rwanda and Burundi define food security in terms of availability of bananas and cassava, and cereals such as millet and sorghum, food security in Kenya is synonymous with the availability of maize. Being a country of small-scale agricultural communities, bumper harvests of maize are seen as ensuring food security. This is despite the drifting feeding habits especially among the youth and urban populations, who have moved into wheat, rice and Irish potatoes as staple foods. However, due to a steady rise in obesity, blood pressure, diabetes and cancer among the two population groups, the country is witnessing a slow but sure reversal into the traditional food items such as cassava, arrow-roots, sweet potatoes, millets and sorghums as witness the mushrooming of *African Dishes* eating joints in Nairobi.

### ***2.5.4 Inadequate and Doctored Data***

Political interference was reported to be a major factor that militates against the existence and dissemination of accurate food data in Kenya. Maize has become a political crop in Kenya and is frequently used by politicians to gain political mileage by deliberately creating false alarms on impending food (read maize) shortages and purporting to provide solutions to them through imports. The National Cereals and Produce Board has become a major victim of politics to the extent that any statistics emanating from there are rarely accurate.

### ***2.5.5 Unclear FBS Clientele***

The preparers as well as users of a Kenya NFBS data are not clear so far.

## **2.6 Some Suggested Measures to Address the Identified Gaps**

### ***2.6.1 Absence of a Standing Committee or National Food Balance Sheet Forum***

As explained in section 2.7, there is need to establish through an Act of Parliament a National Standing Committee or National Food Balance Sheet Forum. This should include a select group from among the many relevant stakeholders. This will coordinate annual NFBS construction, commission research and convene regular stakeholder meetings.

### ***2.5.2 Lack of Adequate Stakeholder Participation in FBS Preparation***

Going by the suggested measure in 2.6.1, such a forum will ensure adequate stakeholder participation in NFBS preparation, data validation and dissemination.

### ***2.5.3 Narrow Range of Food Items Covered***

The definition of food security in Kenya must to change from maize to include non-cereal food items. Research will have to precede definition of a wider national food basket.

### ***2.5.4 Inadequate and Doctored Data***

Although it is difficult to keep the politicians away, putting the process in the hands of professionals will ensure collection and custody of adequate and clean food data.

### 2.6.5 Unclear FBS Clientele

It is recommended that a Kenya National Food Balance Sheet Standing Committee chaired and coordinated by the EAGC be formed with immediate effect. The membership of this committee should be drawn from the Ministries of Agriculture/KARI, Livestock and Fisheries; Planning and National Development; KNBS; Tegemeo Institute, the Institute for Development Studies of the University of Nairobi; the Food Security Committee in the Prime Minister's Office; and KIPPRA.

### 2.7 Proposed Composition of Kenya National FBS Forum/Committee

We have indicated the conspicuous absence of a Kenya national food balance sheet stakeholders' forum. Such a forum will need to include supply-side actors, intermediate actors and grain processing and consumer or demand-side actors. Supply-side actors or input suppliers and producers will be the ministries of Agriculture, Livestock Development and Fisheries; and Reclamation of Arid, Semi-Arid and Wastelands; Regional Development Authorities; Kenya National Bureau of Statistics (KNBS); Kenya Agricultural Research Institute (KARI); Tegemeo Institute; Institute for Development Studies (IDS), University of Nairobi; Food Security Committee in the Prime Minister's Office; Kenya Institute for Public Policy Research and Analysis (KIPPRA); Institute for Policy Analysis and Research (IPAR); and the National Cereals and Produce Board (NCPB). The second tier should include intermediate actors such as transporters, private companies, millers and NGOs such as EAGC, RATIN, FEWSNET and FOODNET. The third and final tier will comprise food consumers, food traders and middlemen, private sector actors and international food aid organizations (see table 2).

Table 2: Proposed National FBS Stakeholders Consultative Forum for Kenya

SUPPLY-SIDE ACTORS (Input Suppliers, Producers)	INTERMEDIATE ACTORS	GRAIN PROCESSING AND CONSUMER ACTORS
<p><b>1. Public Sector Operators</b>            (a) Government of Kenya through the Ministries of Agriculture, Livestock and Fisheries;            (b) Farmers and their unions            (c) Universities and research institutes            (d) Regional Development Authorities e.g. TARDA</p> <p><b>2. Private Sector Operators</b>            (a) Seed and fertilizer suppliers            (b) Traders</p> <p>3. International input suppliers e.g. FAO, ICRISAT, CGIAR</p> <p>4. Seed-supplying NGOs</p> <p>5. EAGC</p>	<p>1. Transporters            (a) Individuals            (b) Private companies</p> <p>2. National Bureaus of Statistics</p> <p>3. National Cereals and Produce Boards</p> <p>4. Agricultural Commodity Exchange Actors e.g. KRA</p> <p>5. Millers</p> <p>6. Private traders and NGOs e.g. FEWSNET; FOODNET</p> <p>7. Quality Assurance Actors e.g. Health Inspectorates</p> <p>8. EAGC</p>	<p>1. Food-deficit populations</p> <p>2. Middlemen</p> <p>3. Private individuals and companies (local <i>busaa</i> brewers; EABL; Kibo Breweries, etc)</p> <p>4. Government agencies</p> <p>5. National and international food aid organizations e.g. WFP</p> <p>6. Millers</p> <p>7. EAGC</p>

Source: Author, 2010.

A good national FBS will also need to take into account the role of chain actors in the food trade; include data on non-commercial food crops and cross-border trade. However and as mentioned above, the actual extent of cross-border trade may never be ascertained as most of it is illegal. In 2009, KEPHIS and MOA recorded that 2 million bags of maize were transacted as imports and exports through permits in cross-border trade from Uganda into Kenya, against an expected output of 3.6 million bags. This calls for estimation of carry-over stocks by importers, other traders and the NCPB.

## **2.8 Areas for Further Research**

Though the efforts of the Ministry of Agriculture and the Tegemeo Institute may be commended as of now, these efforts are largely inadequate. The absence of regular national food surveys with the express aim of collecting data for construction of national FBSs is a major omission that needs to be corrected. The EAGC has not been involved in FBS construction in the past, nor has it been informed or guided by its own research. For this reason, it needs to strengthen its research portfolio so as to open its own regional food data-base and cease to rely on other organizations for data. In this respect, the study identified key areas that need research as a matter of urgency. These are as follows:

- (i) Food consumption trends and feeding habits among the different communities;
- (ii) What constitutes food security in each country in the region;
- (iii) Magnitude of cross-border trade and its impact on NFBSs;
- (iv) Monthly national and regional price trends for every tradable commodity;
- (v) Use of local and certified seed, in which part of the country, and with what yields;
- (vi) Production per hectare per crop under optimal conditions;
- (vii) Imported seed quantities per crop season;
- (viii) Input use per crop per season;
- (ix) Harvests and post-harvest losses;
- (x) Offers and bids for supply of foodstuffs; and
- (xi) Data on non-cereal food items

## **3.0 UGANDA**

### **3.1 The Food Security Situation in Uganda**

The food situation in Uganda has remained relatively constant with minimal changes over the last decade. On average, crop harvest and household stocks have ensured relative stability with the greater proportion of the population having ample access to food in most parts of the country. However, food security in the northern and eastern parts of Uganda is uncertain for various reasons. Geography and the political architecture of the country usually dictate or determine the status of food security in the country. For instance, a majority of northern districts of Gulu, Lira, Kitgum and Pader are among the areas that continue to depend on humanitarian supplies for a major portion of their food and non-food needs. The World Food Programme (WFP) estimates that 1.3 million people still live in displaced persons' camps in northern Uganda. The interplay among several factors in food security within this section of the Ugandan population

compromises the people’s recommended daily allowance (RDA) and the WFP has been instrumental in filling the gap by about 74% of the 2,100 Kcal per person per day.

In addition, the food situation in Uganda follows the geographical suitability of the land. In areas such as Kotido, Moroto, and Nakapiripirit districts of the Karamoja region, household food stocks are low and reports by WFP indicate that stocks usually diminish rapidly. Reduced food stocks in these areas have implications for coping mechanisms. For instance, at the onset of famine, many households resort to hunting and gathering of wild fruits, honey and vegetables in order to cope. Other coping mechanisms in the dry spells include increased sharing of food between the rich and poor relatives, which effectively cushions the poor against climatically-derived food insecurity.

### 3.2 The Uganda National FBS: The General Practice

Unlike their Kenyan counterparts, most of the key institutional stakeholders such as the Uganda Bureau of Statistics, the ministries of Agriculture and Animal Industry, and Finance, Planning and Economic Development, all understand the basic components and importance of a National food balance sheet. Though most of the respondents appreciated the importance of multi-stakeholder involvement in the process of constructing a Uganda national food balance sheet, it was evident that most of the available food balance sheets were constructed mainly by the Uganda Bureau of Statistics (UBOS) and other selected institutions but there lacked central coordination, a situation resembling the one found in Kenya and even Tanzania. Given the differences in institutional information needs, each institution may choose to construct a food balance sheet at its own convenient time and focus on crops/products of its choice. It is also established that although each of the involved institutions compiled their own balance sheet, they tended to borrow data from each other as need arose.

### 3.3 Institutions in Construction of Uganda National Food Balance Sheets

The official mandate of collecting, collating and compiling data on the country’s official statistical information is vested in one agency, the UBOS. In particular, the 1998 UBOS Act mandates it (UBOS) to be the principle data collection, analysis, production and disseminating agency of official statistics in Uganda. The Act also mandates UBOS to be the coordinating agency of all producers and users of statistics. This legislative framework empowers UBOS to produce and publish any type of statistics in Uganda. From time to time, UBOS may delegate the production of specific types of statistics to any other organization or agency, under its supervision.

The available Uganda FBSs have relied on secondary types of data as indicated in table 3 for 2009/2010 for 6 grain items.

*Table 3: Uganda Food Balance Sheet for Six Grains as at 31<sup>st</sup> March 2010*

	Maize	Wheat	Rice	Beans	Millet	Sorghum
(9) Carry Over Stocks <sup>3</sup> - As at 31 <sup>st</sup> March 2010 (MT)	-	-	-	-	-	23,000
(10) Imports (projections for						

2010) <sup>4</sup>						
• From Regional sources (EAC&COMESA)	-	-	-	-	-	-
• From Extra Regional sources	105,000	150,000	30223	-	-	-
<b>Total Imports</b>	<b>105,000</b>	<b>150,000</b>	<b>30223</b>	<b>-</b>	<b>-</b>	<b>-</b>
<b>(11) Production (projections for 2010)</b>						
• Long rains	804,000	21,000	164,000	173600	833,000	508,000
• Short Rains	536,000	-	-	260,004	-	-
<b>Total Production per year</b>	<b>1,340,000</b>	<b>21,000</b>	<b>164,000</b>	<b>434,000</b>	<b>833,000</b>	<b>508,000</b>
<b>(12) Post harvest loss</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>
<b>(13) National Availability (MT) = (1+2+3) – (4)</b>	<b>1,445,000</b>	<b>171,000</b>	<b>254,223</b>	<b>434,000</b>	<b>833,000</b>	<b>531,000</b>
<b>(14) Exports (projected exports for 2010)<sup>5</sup></b>						
<b>Exports to EAC/COMESA</b>	<b>100,000</b>	<b>-</b>	<b>25,351</b>	<b>28,279</b>	<b>-</b>	<b>13,269</b>
Extra regional exports	-	-	-	-	-	-
<b>Total Exports</b>	<b>100,000</b>	<b>-</b>	<b>25,351</b>	<b>28,279</b>	<b>-</b>	<b>13,269</b>
<b>(15) National Consumption (MT)</b>	<b>600,000</b>	<b>171,000</b>	<b>224,000</b>	<b>347,200</b>	<b>690,000</b>	<b>475,000</b>
<b>(16) Available stock by end of As at 1<sup>st</sup> April 2010 (MT) = 5 – (6 + 7)</b>	<b>745,000</b>	<b>-</b>	<b>4,872</b>	<b>58,521</b>	<b>143,000</b>	<b>42,731</b>

Source: Estimations (averages and projections to 2010) made from UBOS, USAID/FEWSNET, FAO, EAGC/RATIN.

Accessing accurate and timely information is critical in enabling the preparation of a food balance sheet. In table 4, we attempt a summary of crop production statistics for 2004-2008 to demonstrate the importance of research that should always precede FBS preparation.

Table 4: Production of Selected Food Crops, 2004-2008

Crop	2004	2005	2006	2007	2008
Bananas	9,686	9,380	9,052	9,233	9,371
<b>Cereals</b>					
Finger millet	659	672	687	732	783
Maize	1,080	1,237	1,258	1,262	1,266
Sorghum	399	449	440	458	477
Rice	121	153	154	162	171
Wheat	15	15	18	19	19
<b>Root Crops</b>					
Sweet potatoes	2,650	2,604	2,627	2,654	2,707
Irish potatoes	573	585	628	650	670

Cassava	5,500	5,576	4,924	4,973	5,072
<b><u>Pulses</u></b>					
Beans	455	478	424	430	440
Field beans	15	15	16	16	16
Cow peas	69	70	71	75	79
Pigeon peas	84	85	88	89	90
<b><u>Legumes</u></b>					
Ground nuts	137	159	154	162	173
Soya beans	158	158	175	176	178
Sim sim	125	161	166	168	173

*Source: UBOS and Uganda Ministry of Agriculture, Animal Husbandry and Fisheries*

### **3.4 Uses of National Food Balance Sheet Information**

It was further established that the drawing up of food balance sheets is usually motivated by the need to advance/defend some desired status. The implication here is that most of the balance sheets are for specific uses and mostly target predetermined and fairly specific information consumers. The discussions revealed that some institutions may draw up food balance sheets with the aim of advancing the country's need for foreign aid in response to calamities such as the recent land slides in the Mount Elgon area. Some non-public institutions may also draw up food balance sheets when called upon by their external donors and/or development partners. There is, therefore, no regular (monthly/annual) construction of food balance sheets in the country. Generation and use of food data are important for both public and private sector players. This is so because any decision based on the wrong information is no better than guesswork and is more often than not likely to result in an undesired outcome. Thus, respect for a national food balance sheet will largely depend on the level of validity and reliability of the data presented.

### **3.5 Gaps in the Current Uganda National Food Balance Sheets**

After assessing the current practices of data collection and analysis for compilation of the Uganda national FBSs, five main gaps were identified. These gaps are not mutually exclusive from those identified for Kenya and Tanzania.

#### ***3.5.1 Absence of Sustainable National Food Balance Sheet Forum***

Despite the importance of agriculture and food-related information, the country is yet to form a strong and sustainable forum or committee to handle the nation's food balance sheet(s). The absence of such a forum or committee limits the country's capacity to compile and disseminate food information to stakeholders on a regular and timely manner.

#### ***3.5.2 Limited Types of Food Covered***

Even though it is difficult to accurately capture all foodstuffs in a society characterized by very different nutritional habits, it was found that most of the balance sheets constructed concentrated on cereals and legumes especially maize and beans. In Uganda, bananas and cassava form an important component of food security. For this reason, national decisions based on availability or otherwise of cereals and legumes may not give an accurate picture of the food balance. Without proper characterization of the

population's feeding habits, estimating food security status by looking at only a few foodstuffs against the whole population, as is the currently the practice, is likely to give a false impression of food deficiency when in actual fact there could be surplus.

### ***3.5.3 Lack of Wider Stakeholder Participation***

The preparation of the national food balance sheets by individual institutions without structured consultations with other stakeholders carries with it the risk of oversights and eventual misrepresentation of facts. Singular construction of such an important national document means that the views and concerns of other stakeholders are not captured. Using inaccurate or "skewed" information for policy development may not achieve the desired results. Inaccuracy of information may lead to pursuing the wrong development objectives and misallocation of resources.

### ***3.5.4 Discrepancies in Preparation of National Food Balance Sheets***

It appears that UBOS and other individual institutions came up with food balance sheets more by accident than design. This way, most food balance sheets were need-specific and such needs precluded providing all the relevant stakeholders with a working document which could help link the supply and demand sides for food. Given the various inter-institutional differences in food data needs, it is possible to have different food balance sheets for the same period or one balance sheet for different periods of time. This may confuse some stakeholders who may want to use this important document for reasons other than the objectives that motivated the construction of the balance sheet. If a stakeholder has no way of telling the correct or incorrect balance sheet, they may resort to guesswork which inevitably dents the credibility of the decision-making process. Such guesswork increases the possibility of making the wrong decisions thereby putting the country's food security and development policies at risk.

### ***3.5.5 Data Sources and Orientation***

Interactions with the key stakeholders revealed that the country does not conduct surveys aimed at the construction of a national food balance sheet. It further emerged that given the irregular nature of constructing national food balance sheets, the objective of constructing the balance sheet is rarely incorporated in the design of the surveys. It is therefore likely that some of the important data required for construction of an accurate and reliable food balance sheet may not be covered. This in turn calls for estimations and approximations thus diluting the reliability of the balance sheet.

## **3.6 Some Suggested Measures to Address the Identified Gaps**

In order to address the identified gaps, we propose the following measures as indicated against each of the gaps:

### ***3.6.1 Absence of a Sustainable National Food Balance Sheet Forum***

To take care of this gap and avoid the related limitations, we recommend that a sustainable and independent national food balance sheet committee be formed without further delay comprising all relevant stakeholders. Of essence will be the sustainability of such a committee or forum. The committee should be as cost-effective as possible. In this regard, we recommend that committee members be drawn from existing institutions so

that the food balance sheet preparation is as much as possible, part of their duties at their respective mother institutions. This will reduce the costs associated with hiring fulltime employees of the committee. Incidental resource facilitation of the committee should however be factored in the national budget. It is further recommended that the committee, though independent and impartial in its work, should be anchored in one of the relevant public agencies to allow for easier approval and ownership of the balance sheet by the people of Uganda. The recent move by the government to task the ministry of Agriculture and Animal Industry with the duty of forming a national food balance sheet taskforce is therefore a step in the right direction. The initiative should therefore be fast-tracked and capacity building efforts enhanced in order to make the taskforce strong and up to the task. UBOS should continue as the government's custodian of official statistics. This recommendation also takes care of the gaps contained in sub-sections 3.6.3 and 3.6.4, above.

### ***3.6.2 Limited Types of Food Covered***

In order to capture a realistic food balance situation, we recommend expansion of the list of foodstuffs covered in the national food balance sheet. This should be preceded by a comprehensive characterization of the population in terms of food consumption habits, nutritional value of consumed foodstuffs and the approximate demand for the various foodstuffs. This is particularly important in the computation of per caput food situations. Regular national surveys will need to be conducted to provide the necessary data.

### ***3.6.3 Lack of Wider Stakeholder Participation***

The need for wider stakeholder participation in the production of the national food balance sheet cannot be overemphasized. Given the responsibility conferred upon the Ministry of Agriculture and Animal Industry to form a national taskforce, we recommend the strengthening of the Task Force by including the following key stakeholders:

### ***3.6.4 Data Sources and National Surveys***

To close this gap, the country needs to conduct surveys specifically aimed at the construction of a national food balance sheet. The construction of the balance sheet should be incorporated in the design of the surveys. This way, most of the important data required for construction of an accurate and reliable food balance sheet will be covered. This will in turn minimize the need for estimations and approximations and increase the reliability of the balance sheet. After such surveys, data validation must be done by the relevant stakeholders. This recommendation should be read together with recommendation 3.7.3, above. In the following section, we give suggestions as to the composition of an all-inclusive Uganda Food Balance Sheet Forum/Committee.

## **3.7 Proposed Composition of Uganda National FBS Forum/Committee**

As much as the country has a recent food balance sheet which was used to make food aid and related decisions after the landslide, the government has specifically tasked the Ministry of Agriculture, Fisheries and Animal Industry to come up with a national food balance sheet taskforce. This may imply that the existing food balance sheet committee is either headed for dissolution or is not well equipped for the task. Given that there is no task force in place, we recommend that one be formed as a matter of urgency. In order to

address the earlier identified gaps, we recommend the formation of a Uganda National Food Balance Sheet Forum or Committee which will include the following stakeholders:

(i) The Ministry of Agriculture, Fisheries and Animal industry - this should be able to capture domestic production levels for the various foodstuffs including crops and livestock.

(ii) The Uganda Bureau of Statistics (UBOS) - the UBOS is expected to bring on board both its legal mandate of producing national official statistics given to it by the UBOS Act of 1998, and the wide array of relevant data in its possession.

(iii) The Ministry of Finance, Planning and Economic Development - as a key consumer of information for policy formulation, this ministry needs to be involved in the process in order to enhance reliability and acceptance of the food balance sheets for policy purposes.

(iv) Agro-food Industry Players – these include representatives of the various food dealers including processors and distributors. In addition to being consumers of the information, they also carry a lot of valuable information regarding their needs for raw materials and the stocks held. Given their commercial orientation, they also invest in generation of information which may compliment the government’s sources.

(v) Farmers’ Representatives – these are the primary source of production and household data and are thus able to bring in vital inputs especially on the difficult-to-capture aspects such as estimated post-harvest losses. They will also serve to internally validate the production statistics. Farmer representatives should come from from different regions of the country e.g. Central, Eastern, Western and Northern Uganda;

(vi) Civil Society Representatives - both local and international NGOs should be represented as they form vital avenues for information dissemination to the public. In addition, they are important consumers of the information in the course of designing and implementing development and/or famine and other disaster relief programmes in the country. The Uganda Red Cross will need to be incorporated into the national food balance sheet forum.

(vii) Regional and International Bodies - regional agencies such as the Eastern Africa Grain Council (EAGC) should be part of the taskforce since it links the EAC region to other regions in Africa and beyond. This may come in handy in times of determining the actual or expected regional exports and imports of the important grains. Others include the Food and Agriculture Organization (FAO) of the United Nations, International Food Policy Research Institute (IFPRI), etc.

(viii) Other Relevant Government Representatives - in addition to the above stakeholders, the government of Uganda may include additional stakeholders as it deems necessary to improve the credibility of the taskforce. This should however take into account technical abilities of such representatives and resource availability.

(ix) It is further recommended that the recruited members of the National Food Balance Sheet Committee or Taskforce, as the case might be, should be trained in food balance sheet preparation and/or processing. This should cover aspects of data collection, analysis and compilation.

As a major intra-regional exporter of grains, the country needs sufficient, accurate and timely supply of information on the status of food not only in Uganda but regionally. This will go a long way in enhancing regional trade and income generation for the people of Uganda because even though the country still imports some foodstuffs, it has a high potential of supplying the region with maize, rice, wheat, millet, sorghum and beans. The current food information systems appear to be lacking in some important aspects which require attention. These include periodic inconsistencies; limited stakeholder involvement and information range; and flawed estimation techniques as influenced by the objectives of the FBS data consumers. Of particular importance regarding estimation is the timing and regularity of household surveys upon which current consumption figures are based. Given the rapid changes in consumption habits with foodstuffs traditionally regarded as “urban” such as rice now forming important nutritional components in many households, relying on household surveys done years back may be misleading. Another aspect that requires attention is crop coverage. Full production and consumption information on crops notably beans, millet and sorghum was very scanty. It also emerged that most of the publicly available food-related information was on commodity prices. Though important, daily or weekly price range is a much more fluid indicator of food availability because one day’s price may vary significantly from that of the previous or following day. The various weaknesses in the information systems have fairly eroded stakeholder confidence in the available statistical information thereby making most decision making processes a matter of trial and error.

### ***3.8.1 Data Sources***

To avoid missing vital data needed for construction of national food balance sheets, we recommend that surveys be designed and carried out with the data requirements for the national food balance sheet in mind. Given the high costs involved in carrying out surveys, the needed data should be captured during the various related surveys. Given the growing importance of regional trade, we recommend that in addition to the national structures, regional bodies such as the Eastern Africa Grain Council take a more active role in information generation and development. This will ensure that Uganda is at par with other Eastern African countries in terms of access to information on availability of food and potential trade in the region. We further strongly recommend an update of estimation models by conducting periodic household, national and regional trade surveys to capture the rapidly changing trade, production and consumption habits.

### **3.9 Additional Recommendations for Uganda**

For adequate flow of accurate and timely food-related information, it is further recommended that:

- (i) That the food crops covered by the national food balance sheet include staple foodstuffs such as bananas and cassava;

- (ii) That there be wider consultation among stakeholders in the process of drawing up the national food balance sheet;
- (iii) That national food balance sheets should be drawn up as public documents intended for all stakeholders both national and international;
- (iv) That the process of drawing up a national food balance sheet be free from any form of political interference; and
- (v) That dissemination of food availability information be enhanced especially regarding its implications for food security and trade in the region.

### **3.10 Areas for Further Research**

To improve on the preparation of the Uganda national FBS, research needs to be conducted in the following areas:

#### ***3.10.1 Grain Substitution***

It is natural for humans to substitute some foodstuffs for others either on their own will or depending on circumstances. Grains are some of the foodstuffs substituted most. In most communities, maize, sorghum and millet tend to be substituted for each other depending on circumstance. What is not clear is whether national surplus or deficit in one grain can influence consumption of the other; and if so, how much. Having an idea on how communities can substitute one grain for another may help in making decisions regarding trade in the various grains or other foodstuffs.

#### ***3.10.2 Grain Consumption Mapping***

Some of the food deficits experienced in the country are related to distribution rather than production. It is often the case that one region of the country has a surplus while the neighbouring one is having an acute shortage of food. Determining which regions consume what amounts of which grain will therefore give a clearer picture of the national food availability.

#### ***3.10.3 Post-harvest Losses***

A majority of those interviewed did not have information on how much grain is lost after harvest and which factors are responsible for what proportion of such loss. In future, research will need to address this issue.

#### ***3.10.4 Processed and Semi-processed Imports and Exports***

Some grains enter and/or leave the country as processed grains e.g. wheat flour. This is important in reporting the true food situation because for instance, a ton of processed wheat (wheat flour) is fairly different from a ton of unprocessed wheat.

## **4.0 TANZANIA**

### **4.1 The Food Security Situation in Tanzania**

The Tanzanian situation was found to be in many respects similar to Kenya's and Uganda's. Tanzania's main source of food for the majority of the population is agricultural production. The government classifies the country as both transitory and chronic in nature with respect to poverty and food security. Transitory food insecurity

arises from instability in food production, high food prices and/or low household incomes. This is common in the marginal areas of the central and northern regions of Dodoma, Singida, Shinyanga, Tabora, parts of Tanga, Arusha, Kilimanjaro and Manyara. Due to the high priority accorded subsistence needs, yields are sold almost immediately after harvest and the farmers and/or producers are subsequently unable to make adequate food savings that could be useful in times of drought or for exchange. Price fluctuations are the main shocks at this stage of production. Other factors contributing to seasonal food insecurity according to the PHDR include overselling due to competing demands for cash to meet health, education, clothing and other needs. In addition, inadequate post-harvest management contributes to food insecurity. This scenario perpetuates the cycle of food insecurity, as it causes people to change their eating patterns and habits. It is important to note that continuous or chronic food insecurity is common among the urban poor households, the rural landless and the asset-poor smallholder farmers and pastoralists. This resembles the typical situation in most of sub-Saharan Africa.

In Tanzania, food security may be analyzed in three aspects; food availability, accessibility and utilization. The major source of food supply in Tanzania is local production. On average, Tanzania produces about 95% of its food requirements. In some years, the country's food self sufficiency measured by the Self Sufficiency Ratio (SSR) was over 100. However, there are pockets of food shortage in some regions and districts even when the SSR is over 100. This is mainly due to regional input allocation and output distribution. Most food imports into the country usually comprise substantial amounts of wheat in both surplus and food shortage years. For example, over the period 1999 to 2003, the country imported an average of 300,000 tons of wheat to supplement domestic production of 71,000 tons per year. Food imports however increase during drought periods. In 2003/2004 when there was food shortage due to drought, total food imports amounted to 698,668 tons comprising 103,762 tons of maize; 157, 597 tons of rice; and 437,309 tons of wheat grain. Out of the total imports, commercial imports amounted to 607,600 tons comprising 42, 694 tons of maize; 135,597 tons of rice; and 429,309 tons of wheat. Food aid amounted to 59,068 tons comprising 29,068 tons of maize; 22,000 tons of rice; and 8,000 tons of wheat. The major factors affecting food availability are low production due to low productivity of land, labour and other production inputs; high incidences of crop and livestock pests and diseases; inadequate processing, storage and marketing infrastructures. This is mainly caused by inadequate financial resources to obtain productivity-enhancing inputs, and limited availability of support services and appropriate technologies. Other factors affecting food availability include high pre- and post-harvest losses due to pests, diseases and climatic variations. According to PHDR (2005), post-harvest losses account for over 30% of all crop losses in the country. It is estimated that post-harvest losses range from 30%-40% for cereal grains and legumes; up to 45% for roots and tubers; and 40%-80% for fresh fruits and vegetables.

In terms of accessibility to food, Tanzania's infrastructure presents a major constraint. The spatial distribution of surplus food production areas is such that food production is mainly concentrated in the southern highland regions and peripheral areas of the country, while the traditional food-deficit areas are located mostly in the central corridor and parts of the northern regions. Given the fact that the country is vast and there are long distances

between food producing and deficit areas, inadequate transportation networks imply high costs of transportation leading to high distribution costs which are in turn reflected in high prices. Decisions on food utilization are dependent on availability of timely and reliable data if captured by a national food balance sheet. Food utilization and health status of the population are closely related aspects of human development. The status of nutrition among children in Tanzania seems to be incompatible with this principle. Empirical evidence reveals that 38% of the children in Tanzania suffer from chronic protein and energy malnutrition which is indicative of chronic food insecurity (Demographic Health Survey, 2009). The report further reveals that underweight and weighting in children stand at 30% and 3% respectively, indicative of transitory food poverty.

#### **4.2 Tanzania National Food Balance Sheet: The General Trend**

Tanzania is regarded as a food secure country but an accurate national food balance sheet is generally lacking. Here, food security is defined in terms of self-sufficiency in cereal food items. Average production by crop has been stable for many years. Available statistics capture a variety of crops such as maize, wheat, rice, pulses, millet, sorghum, cassava, bananas and sweet potatoes. Generally, the responsibility for preparation of the National Food Balance Sheet rested on the Tanzania Food and Nutrition Centre (TFNC) but later transferred to the Ministry of Agriculture and Marketing where it initially was. Food Balance Sheet data are assembled after conducting surveys right from the Village level through the District, Regional and finally to the national level where they are collated and aggregated. The unit of planning and analysis of the survey is the District, which means that the data estimates from the survey results are based on districts. As for sample selection, a two-stage method is applied. This includes a Preliminary Survey Sampling Unit (PSSU) at the Village and District levels carried out in the month of May and a Final Focus Secondary Sampling Unit (FFSSU) carried out during the month November. The aim of carrying out the final focus in the month of November is to capture produce from all the seasons. The details on total sample sizes of selected villages were not available at the time of doing the research. The process of constructing Food Balance Sheets starts with a survey of the food crops. This survey consists of area yields/production by crop and by season. The crop survey is conducted during the short and long rains seasons. Every year, 4-6 surveys are carried out, i.e. two or three for planted or harvested area and two or three for yields. As indicated above, sampling procedures are used to select the survey areas for data collection. Primary data are collected by enumerators at the village level who include extension and land officers and a team of experts from the Ministry Agriculture, Food Security and Co-operatives.

#### **4.3 Institutions in Construction of Tanzania NFBS**

As the above section explains, construction of a national FBS was initially the responsibility of the ministry of Agriculture and Marketing, then the Tanzania Food and Nutrition Centre and then back to the ministry of Agriculture, Food Security and Cooperatives. As such, not many stakeholders are involved. To start with, reports on cropped areas are sent to the District level then to the Regional level where they are collated. At each level, data quality control is done. These statistics are ultimately sent to the Ministry of Agriculture, Food Security and Cooperatives to be used to construct Food

Balance Sheets. An Interagency Mission, comprising officers from the National Food Security Division (Crop Monitoring and Early Warning), District and Regional extension officers, District Agricultural Officers, land officers, National Bureau of Statistics officials are all involved in data assessment, verification and validation. Early yield forecasting is conducted by all the officers mentioned above, twice each season, at every completed planting stage and as the crop passes through various maturing stages. Currently, food balance sheet information at the national level is pooled by the government of Tanzania as part of food security programmes. Private sector input is not sought and if sought is never integrated into the national Food Balance Sheet. The preparers usually rely on guesswork and firm-level estimates (usually for well established firms) for data necessary in guiding projections and business decisions.

#### 4.4 Uses of Tanzania National FBS Information

Analysis by the National Food Security Division (Crop Monitoring and Early Warning) that carried out regular food crop production forecasts in the months of December 2009 – January, 2010, to ascertain the food crop harvest status for 2008/09 and the corresponding availability for 2009/10, indicated that 10,772,679 tons of food would be available from farm production comprising 5,218,626 tons of cereals and 5,554 053 tons of non-cereals to meet national food requirements amounting to 10,569,845 tons. This may be translated to have implied a 202,833 tons food surplus. Usually, cereal (maize) prices would be expected to increase at various times during the year: around April to June/July constituting the lean period before the main long rains and Masika harvest, and December/January before supplies from Vuli production came on to the markets. There is also price variation between regions, depending on whether there is surplus or deficit.

However, potential users of such information such as traders in markets such as Dar es Salaam, Mwanza and Mtwara, rarely get this information. There is gap in linking food-surplus and food-deficit areas. The extremely long and difficult transportation routes often translate to higher prices in the more remote deficit areas which means passing on transport and transactions costs to the consumers.

Table 5 presents a Tanzania national food balance sheet as at 31 January 2010 for cereals.

*Table 5: Tanzania Food Balance Sheet as at 31<sup>st</sup> January 2010.*

	Maize	Wheat	Rice	Beans	Millet	Sorghum
<b>(17) Carry Over Stocks<sup>6</sup> - As at 31<sup>st</sup> December 2009 (MT)</b>	<b>289,678</b>	<b>5,077</b>	<b>40,614</b>	<b>50,768</b>	<b>10,154</b>	<b>61,238</b>
(18) Imports (projections for 2010) <sup>7</sup>	0	0	0	0	0	0
• From Regional sources	0	0	0	0	0	

(EAC&COMESA)						0
• From Extra Regional sources	0	0	0	0	0	00
<b>Total Imports</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>
<b>(19) Production (projections for 2010)</b>	<b>3,326,200</b>	<b>93,685</b>	<b>875,614</b>	<b>1,116,312</b>	<b>203,577</b>	<b>767,661</b>
• Long rains	2,328,340	65,580	612,930	781,418	142,504	537,363
• Short Rains	997,860	28106	262,684	334,894	61,073	230,298
<b>Total Production per year</b>						
<b>(20) Post harvest loss</b>	<b>346,476</b>	<b>2,342</b>	<b>21,890</b>	<b>22,326</b>	<b>15,675</b>	<b>65,251</b>
<b>(21) National Availability (MT) = (1+2+3) – (4)</b>	<b>3,269,402</b>	<b>96,420</b>	<b>894,338</b>	<b>1,144,754</b>	<b>198,056</b>	<b>763,648</b>
<b>(22) Exports (projected exports for 2010<sup>8</sup>)</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>
<b>Exports to EAC/COMESA</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>
Extra regional exports	0	0	0	0	0	0
<b>Total Exports</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0(4,92)</b>
<b>(23) National Consumption (MT)</b>	<b>3,141,723</b>	<b>101,346</b>	<b>810,767</b>	<b>1,013,456</b>	<b>202,692</b>	<b>709,421</b>
<b>(24) Available stock by end of As at 31<sup>st</sup> January 2010 (MT) = 5 – (6 + 7)</b>	<b>127,679</b>	<b>(4,926)</b>	<b>83,571</b>	<b>131,295</b>	<b>(4,636)</b>	<b>54,227</b>

Source: Field Research, 2009.

Tanzania's long term National vision for its agriculture sector (Vision 2025) is operationalized within the medium term initiative under the National Strategy for Growth and Reduction of Poverty (NSGRP-MKUKUTA). The broad outcome under this strategy hinges on the performance of the said sector. Agriculture is still the predominant sector in Tanzania, accounting for about half of the national income, three quarters of exports, is the source of food, and provides employment opportunities to about 80% of Tanzanians. The sector is responsible for forward and backward linkages with the non-farm sector through agro-processing, consumption and export and providing raw materials to industries and a market for manufactured goods. It is still dominated by smallholder farmers (peasants) though, cultivating average farm sizes of between 0.9 and 3.0 hectares each. About 70% of Tanzania's crop area is cultivated by hand hoe, 20% by ox plough and 10% by tractor. It is rain-fed agriculture and therefore good or bad cereal harvest is dependent on God's Rains. Food crop production dominates the sector as 5.1 million hectares are cultivated annually, accounting for 85% of all agro-produce. Women constitute the main part of the agricultural labour force. A major constraint facing the sector is the falling labour and land productivity due to the application of poor technology and dependence on unreliable and irregular weather conditions. Crops are, as a result, adversely affected by periodic droughts. As a consequence, determining availability of food is of utmost importance to the government. The determination of food stocks by the

government is carried out continuously using Food Balance Sheets. There are a number of challenges that come into play in preparing the National Food Balance Sheet and these are discussed below.

#### **4.5 Gaps in Current Tanzania NFBS**

FBS Preparers have definite and may be infinite data needs. The study unearthed a number of areas on which the FBS preparers need information. These include the following: production per hectare per crop under extreme conditions; local vs. certified seed production and use; imported seed quantities per crop season; market size trends for farmers and consumers; price fluctuations per commodity per crop season; input use per crop per season; during-harvest and post-harvest losses; production specifications in quantity and quality; and offers and bids for supply of foodstuffs. A few challenges were reported to be facing the preparation of the Tanzania national food balance sheets. These are discussed in the sub-sections below.

##### ***4.5.1 Lack of Awareness***

Many Tanzanians, including government agencies and private institutions (importers, exporters, etc), were/are not aware of either the concept or existence of a National Food Balance Sheet though they were agreed that it was an important food policy (especially trade and marketing) tool.

##### ***4.5.2 Suspicion***

There was the usual issue of suspicion concerning the reasons why food trade and related data were required. Private trading institutions were particularly unwilling to provide the information/data sought, probably due to fear and suspicion that such information could land in the hands of competitors or the Tanzania Revenue Authority. This, in our opinion, explains the reason behind short answers such as “we don’t export/import” or “it requires several days to organize the export data you are looking for”. Despite strong assurances of confidentiality and anonymity, some respondents provided guarded responses on food statistics, even though one could clearly see that they had more to say than what appeared in their responses.

##### ***4.5.3 Export Ban***

Up till now, there is an export ban on cereals in the country, which implies that some of the stakeholders had genuinely stopped export operations yet, an important ingredient of a national FBS was primary data on exports.

##### ***4.5.4 Other Challenges***

Other challenges include inaccuracy and inconsistency of basic data; differing time reference periods especially in data collection; lack of data on catering establishments, institutions and households; lack of data on waste/losses during storage and transportation; narrowness of the food basket; data on variations between pure stand and mixed cropping plots; unavailability of cross-border trade data; amount of human food going into animal feeds, seed and industrial use; difficulties in calculating per caput needs; omission of data on Zanzibar from the Tanzania Food Balance Sheet; and failure to avail the food balance sheet to the relevant stakeholders partly due to a lack of a national food balance sheet forum.

In addition, the Tanzania national FBS is dogged by among others: narrowness of the food basket; failure to recognize dietary, socio-economic, ecological and geographical differences; poor institutional structures for the construction of a national FBS; absence of stakeholder involvement in the construction of the NFBS; absence of an all-inclusive NFBS forum; lack of a regulatory mechanism to compel data reporting; absence of effective and timely dissemination methods of the NFBS; use of forecast and estimate data; and failure to include farmer associations in the national FBS preparation..

#### **4.6 Some Suggested Measures to Address Identified Gaps**

In light of the foregoing, this paper makes the following recommendations.

##### ***4.6.1 Research and Stakeholder Involvement***

To begin with, Tanzania needs to take deliberate measures to improve on the quality of data in its NFBS through stakeholder involvement and application of more reliable scientific processes and methods of data collection.

##### ***4.6.2 Dissemination of NFBS Data***

Since many stakeholders in both the public and private sectors in the country (including government departments and agencies) are not aware of the existence of NFBS, measures should be taken to create this awareness through effective dissemination of the document to all those who should and/or ought to have it.

##### ***4.6.3 Creation of National FBS Forum***

Since the current practices of constructing the NFBS render this important tool of decision-making and policy analysis amenable to significant structural, content, and process gaps that emanate from isolated non-all inclusive efforts and initiatives of the Ministry of Agriculture, it is recommended that Tanzania should consider embarking on the formation of a national FBS Forum, which, in light of the upcoming East African Common Market, will provide a springboard and/or platform for a Regional Food Balance Sheet Forum and raise possibilities for carrying out a structured trading system within the EAC.

#### **4.7 Proposed Composition of a Tanzania National FBS**

A Tanzania national Food Balance Sheet Consultative Forum needs to be put in place with immediate effect. Its membership should be drawn from among others, relevant government ministries such as the Prime Minister's Office, (Food Security and Disaster Management Department); Ministry of Agriculture; Ministry of Health. The second tier should comprise Government Agencies such as The National Food Reserve Agency; Tanzania Food and Nutrition Centre; Board of Internal Trade; and Board of External Trade, including that of Zanzibar. The third tier should include international actors such as United Nations bodies (Food and Agriculture Organization (FAO); World Food Programme (WFP), etc. Fourthly, will be private sector business operatives (local traders; big importers and exporters; big and small producers/farmers; Chambers of Agriculture, Industry and Commerce; Associations of Grain Producers; Farmer organizations; etc. Finally, other relevant public organizations may be considered for inclusion.

#### **4.8 Areas for Further Research**

These are not mutually exclusive from those mentioned above for Kenya and Uganda.

#### **5.0 Conclusions and Recommendations for the EAC**

The paper sought to find out whether it is possible to track food security using national food balance sheets from the three EAC member states of Kenya, Uganda and Tanzania. Relying on secondary data and a few instances of primary data from key informant interviews, it found out that the experiences of the three states tend to indicate near absence of national food balance sheets as critical food security planning and policy documents. Though Uganda and Tanzania may be said to be closest to having national food balance sheets relative to Kenya, it is clear that this crucial food security tracking document has not fully been internalized into the policy frameworks of these countries. Despite the importance of this document especially in facilitating inter-country food trade, none of these countries has a clearly defined mechanism or forum for conducting research, compiling a food balance sheet and disseminating the findings among the stakeholders. Such a document would also help in defining what constitutes food security in each of the three states.

For these reasons, the paper has a few recommendations. First, each EAC member state should have a national Food Balance Sheet Forum or standing/consultative committee with clear mandates. The three forums would then be meeting regularly to harmonize their FBSs to create a regional FBS in conformity with the EAC Strategic Plan (2006/2010) which provides for a regional FBS to fast-track and harmonize regional food security policies. Second, there is need for each country to redefine food and food security and what should constitute a national food basket. This should be preceded by research on feeding habits for various communities during times of plenty and lean times. Third, continuous and regular research needs to be conducted to update data. This could be coordinated by the African Research and Resource Forum (ARRF) through its Think Tanks Initiative (TTI). Consequently, there will be need to in-build FBSs within the EAC and Horn of Africa food security matrix. Fourth, an EAC-guided harmonization of national FBSs in the region will help identify food-based trade potentials and indicate the ways in which such potentials can be tapped. Fifth, the EAC may need to affiliate and strengthen the Eastern Africa Grain Council (EAGC) as well as research institutions in the region. Further, for the EAGC to be a more relevant food security stakeholder in the region, it will need to be carrying out its own independent research by hiring professional researchers. This will also help in establishing a regional food data-base that will be updated regularly. This way, the EAGC will facilitate a regional structured trading system (STS) by linking food-needy and food-surplus areas and populations. Seventh and finally, under the auspices of the EAC-ARRF/TTN, there will be need to carry out joint food security and/or balance sheet data validation exercises in the region on a regular and continuous basis.

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