



Study Report on the Expanded Food Balance Sheets for the SADC Region

**Directorate of Food, Agriculture and Natural
Resources (FANR)**

**Agricultural Information Management System
(AIMS) of SADC-FANR**

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EXECUTIVE SUMMARY

The SADC-FANR is committed to expand the FBS analyses for each Member State to include all possible and locally available food commodities that is, all crops, livestock and fisheries products, and many other food items. The current FBS have for two decades been mostly prepared from cereal crops. Since SADC has accorded stable and sustainable food security a top priority, the aspiration is for over time, to derive from the FBS at least 75% of the desired 2,700 caloric and 68 grams of proteins intake per person per day in each Member State¹.

However, there are evidences that this desire has not been met because the contributions from cereal crops alone into the FBS have been insufficient to attain the desirable goal. Considering that Member States produce different varieties of food crops, keep different kinds of livestock and the region is endowed with large quantities of inland and marine fisheries, the SADC-FANR Directorate commissioned a study to identify the mechanisms for expanding the FBS so that they represent the correct perspective of the food supply and the food security situations in SADC Member States and the region, in addition to meeting the desired target.

The output from the study is to recommend to the SADC-FANR Directorate, procedures to be employed to implement the proposed expanded FBS so that the desired targets are achieved. In order to accomplish this, the study aimed at documenting and quantifying the major food commodities produced or available in Member States for inclusion in the expanded FBS; to assess the reliability of the datasets of these food commodities and suggest how to improve them; and to propose procedures for aggregating and incorporating different food commodities into the expanded FBS.

This study undertook detailed interviews and discussions with key professionals engaged in early warning activities and preparation of FBS as well as in the collection of data and information on crops, livestock and fisheries in the SADC-FANR, WFP/VAM-Botswana, the Food and Nutrition Unit of the Ministry of Health in Botswana and different institutions in Malawi. Additional information was obtained through questionnaires (on crops, livestock and fisheries production), mailed to designated professionals in all 14 SADC countries as well consulting various literatures available on the topic.

The study revealed that all 14 countries in the region produce FBS at least once a year. Furthermore, it was ascertained that although the SADC Member States produce a wide array of food crops, keep different kinds of livestock and carryout substantial fishing, there is paucity of reliable data particularly on the production of non-cereal crops, fisheries, and livestock products as well as on their levels of consumption. It was emphasized that while accessibility and reliability of data are paramount for the expanded FBS, the dearth of data was identified as one of the major reasons limiting including other food commodities in the FBS analysis, besides cereals. However, issues of stereotypes and preferences in food consumption, localized and seasonality of certain commodities as well as the difficulties of moving food commodities between different locations particularly in rural areas were among important reasons given for not including other food items in the FBS analysis.

¹ Although according to the Regional Indicative Strategic Development Plan and the 2004 Dar es Salaam Declaration on Food Security, the desire has been to obtain the food intake of 2,700 KCal and 68 grams of proteins per person per day, respectively in each SADC Member State, this report, has estimated as a guide, 2,100 KCal plus 79 grams of proteins and 59 grams of fats per person per day.

Specific recommendations for expanding the FBS are presented. In summary, they include adopting the proposed procedure for preparing FBS, which includes most of food commodities; enhancing the needed regional and national capacities for obtaining reliable data; calculating FBS according to the agreed and or established thresholds for requirements of dietary needs and those developed by FAO; incorporating FBS into an integrated food security analysis; and sensitizing policy makers and consumers on the importance of the expanded FBS in the food supply equation and nutritional requirements for the people.

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The study was done under the overall supervision and facilitation of the Director of FANR, Mrs. Margaret Nyirenda, through the Senior Programme Manager - AIMS, Mr. Bentry Chaura.

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ACRONYMS

AFSAR	Annual Food Security Analysis Report
AIMS	Agricultural Information and Management System
CAP	Consolidated Appeals Process
CFSAM	Crop and Food Supply Assessment Mission
CHO	Carbohydrates
CILSS	Permanent Interstate Committee for Drought Control in the Sahel
DRC	The Democratic Republic of Congo
EU	European Union
FANR	Food, Agriculture and Natural Resources
FAO	Food and Agriculture Organization
FBS	Food Balance Sheet
FEWS NET	Famine Early Warning Systems Network
FSU	Food Security Unit
GIEWS	Global Information and Early Warning Systems
HAR	Harvest Assessment Reports
MMT	Million Metric Ton
MT	Metric Ton
NDVI	Normalized Difference Vegetation Index
NEWU	National Early Warning Unit
NVAC	National Vulnerability Assessment Committee
PRINT	Promotion of Regional Integration in the SADC Livestock Sector
REWS	Regional Early Warning System
RFIS	Regional Fisheries Information Systems
RISDP	Regional Indicative Strategic Development Plan
RSA	Republic of South Africa
RVAC	Regional Vulnerability Assessment Committee
SADC	Southern African Development Community
SPSS	Statistical Package for Social Sciences
UNICEF	United Nations Children's Fund
USDA	United States Department of Agriculture
USAID	United States Agency for International Development
USGS	United States Geological Survey
VAC	Vulnerability Assessment Committee
WFP	World Food Programme
WFS	World Food Summit
WRSI	Water Requirement Satisfaction Index

1 INTRODUCTION

1.1 Organization of the Report

The report begins by describing the context and brief history of FBS globally and in the SADC Region and Member States. The conceptual challenges of FBS as well as the origin, purpose and justification and the implementation of the study are also described. These issues have been addressed in Section 1.

Section 2, presents the findings of the study and discusses the implications of those findings towards preparing sound FBS. Additionally, factors influencing the accessibility and reliability of data and information used to prepare FBS are presented and discussed.

Section 3 details procedures to be considered in the analysis of the expanded FBS focusing on the significance of incorporating all available food commodities in addition to adhering to the standard daily nutritional requirements and the established FAO food compositions. Additionally, other factors influencing the accessibility and reliability of data and information used to prepare FBS, as well as the usability of the expanded FBS are presented and discussed.

The conclusions and recommendations are provided in Section 4. They emphasize the need for the FBS analyses to go beyond the current practice, which is limited to cereal crops only, and in the process of doing so improving analyses of nutritional requirements of the people in the SADC Member States. Annexes are presented at the end of the report.

1.2 Context of Food Balance Sheets

The food balance sheets (FBS) have been used in the food security analyses for more than 70 years. The first attempts were in the 1930s when FBS were used for comparing food consumptions among nations (FAO, 2001). As interests and usefulness of FBS increased, improved methodologies were developed to satisfy those needs—the United States Department of Agriculture (USDA) and the FAO Global Information and Early Warning System (GIEWS), are particularly recognized for early innovations of FBS (Rook, 1994). Individual countries in the world have since been encouraged and assisted to produce FBS.

The SADC-FANR and Member States started preparing FBS in 1986 following the establishment of the Regional Early Warning System (REWS) and corresponding National Early Warning Units (NEWUs). All Member States produce almost identical FBS, at least once a year.

The FBS approach has facilitated SADC to assess the regional food supply and demand situations as well as aggregating and comparing levels of food availability across the countries in the region. Similarly, SADC Member States use FBS as a tool for estimating the total domestic supply and comparing them to the national demands subsequently establishing national food deficit or surplus leading to estimating exports, and commercial imports as well as potential food aid needs.

Other importance of FBS are well documented in literature, notably, the FAO Handbooks on Food Balance Sheet produced in 2001 and 1991, and the Food Balance Sheet General Guidelines produced by Rook in 1994. They include the potential for trend analyses of FBS to unveil changes that may have taken place in a country towards meeting nutritional requirements, the potential for developing projections for future food supply needs of a country or region, and basis for policy analysis and decisions to ensure food security of the people.

1.3 Conceptual Challenges of Food Balance Sheets

Conceptually, FBS are a useful tool for estimating aggregate food supply and possible food aid requirements for a country in a given period, which is very important for the government to plan food security strategies. However, FBS can only estimate the food availability and consumption from the supply side. In most countries FBS are normally prepared after harvest and because of that, they are not considered as an early warning monitoring tool, which takes place during the agricultural season. However, FBS have the potential of contributing to the understanding of impending food security problems in the coming consumption year, if integrated in a broader food security and nutritional analyses, which in addition to estimating the food supply, combine issues of food accessibility, utilization and stability.

There are several other limitations of FBS that require explaining. First, because most FBS are prepared primarily from cereals, they do not provide food consumption differences among populations of different livelihood systems, socio-economic groups or geographical areas, and the seasonality of the food supply within a country. FBS have so far not been used to disaggregate food security analysis to decentralized levels of governments, that is, region/province, district or community. They do not account for differences of vulnerability among populations and fail to take into account the various coping mechanisms employed by the people during periods of food stress. Furthermore, FBS do not address the importance of other key elements in the food security equation, which take into account aspects of income, employment, markets, remittances, and health and nutrition of the people.

Second, the problem of FBS is exacerbated by the fact that production data may not always be available and or reliable for all required commodities because collecting reliable statistics in the region and member states is often crippled by many technical and financial constraints. These limitations include the difficulties in estimating reliably, the production of crops that are continuously harvested at certain intervals over time or those to which a portion of the crop is not harvested and held back as reserve; constraints in estimating unrecorded or informal cross border imports and exports (although this is currently being addressed by FEWS NET and WFP activities on cross border assessments); inadequate mechanisms to estimate smallholder consumptions of products such as milk, eggs and fish; and the inadequate financial resources at region and national levels to sustain the rather costly national data collection systems and annual food commodity surveys. The financial constraints are currently a major drawback limiting the effective performance on food security activities in the SADC-FANR and to some extent NEWUs in Member States to collect reliable data.

Third, there is growing concern that the focus on cereals particularly in the analysis of national FBS is an inadequate indicator of food availability. Other food crops such as roots and tubers, and livestock and fisheries products represent a larger share of the per caput caloric consumption in localized areas in Member States. However, even if there is interest to expand the cereal balance sheet to include more food items, the prerequisite data are often inaccessible. For, example, the conspicuous absence or incompleteness and inaccuracy of the basic livestock and fisheries production statistics in Member States and the region make possibilities of including these items in the FBS difficult.

Fourth, the approach of preparing FBS from analyzing cereal crops only has led to the underestimating the food supply and consequently overestimating food deficits (often calculated in cereal requirements only). As a result of this, most national and regional consolidated appeals processes (CAP) are based on the cereal food balance analysis only, and tend to concentrate on offsetting the national cereal gap without considering the contributions of other significant food commodities in the supply equation. Subsequently, those resources,

which would have been allocated to other national or regional development programmes, are sometimes unnecessarily spent on food aid. Additionally, the impacts of extra food supply from either commercial imports or food aid has more often than not dampened local market prices consequently creating disincentives to future productions.

It is undisputable that the statistics of FBS play an important role in presenting a comprehensive food supply situation of a country or region. Therefore, the above challenges should derive to the improvement of methods for preparing sound FBS while considering incorporating other dimensions in the evolving and analytical early warning and food security and nutritional systems. Some of these evolving methods are discussed in Sections 2 and 3 in this report.

1.4 Justification for Expanded Food Balance Sheets

Ideally, and in order to comprehensively depict the overall food supply in a country/region using the FBS approach, all possible food commodities, available in the country, should be quantified and included in the analysis. An all inclusive analysis of food items in the FBS not only does it present the country's status of the food supply during a specific period but it also reveals the ability of that country to meet the nutritional requirements of its people.

The target in SADC is to derive from FBS at least 75% of the desired 2,700 KCal and 68 grams per person per day in each Member State. Evidently, this goal has not been achieved because the current approach for preparing FBS uses primarily cereal food commodities, which have been found insufficient. Various reports and literature such as the FAO GIEWS Food Supply Situation and Crop Prospect in Sub-Saharan Africa (*see No.2 July, 1995 and No. 2 June 2004*) indicate that the percentage of cereal caloric intake per person per day in almost all SADC countries has been below the standard requirements, and that they have either remained unchanged or have actually decreased.

The reasons for excluding other food commodities in the FBS analyses have largely been attributed to the inherent assumption that cereal crops were the most significant food commodities proving the caloric intake requirements of the majority of the population in the SADC Member States. Additionally, it was felt that the availability of data on the production statistics of non-cereal food crops and other food commodities together with the mechanisms for calculating their demand or utilization were not sufficient to warrant their inclusion in FBS. Consequently, the patterns and formats for preparing FBS have remained consistent cereal balance based across most SADC countries. Even in those countries where efforts have been made to incorporate other non-cereal crops and livestock products into the FBS, those commodities have been analyzed as substitutes to cereals.

However, recent trends in the production of food commodities, changes in diets and eating habits, and advances in methodological innovations all point to the need to move away from relying exclusively on cereal based FBS as the only most important food supply analytical tool.

The importance of non-cereal crops, in the region as a source of food cannot be over emphasized especially considering that the recurring droughts resulting from the increasingly variable and unreliable rainfall are affecting food production. The negative impacts of the reduced rainfall performance have been on declining cereal production consequently diminishing their contributions to nutritional requirements although the low productivity has also been exacerbated by inadequate investment in the production inputs as well as poor crop husbandry practices. For example, whereas the population in the SADC Region has increased by 39.4% from 152 million people in 1990 to 212 million in 2003, the overall growth rate of cereal production has been about 13.7% from 22.1 million metric tons (MMT) to 25.1 MMT

during the same period (SADC-FANR, 2005). This increase represents a disproportionate one-third of the population growth.

Similarly, because other crops particularly pulses, roots and tubers are tolerant to low moisture conditions compared to cereals, and that they provide alternative sources of food to fall-back on during times of extreme moisture stress conditions is a sufficient reason for including them in FBS. Those non-cereal crops are significantly important in the Democratic Republic of Congo (DRC), Malawi, Tanzania and Zambia. Moreover, some countries in the region have embarked on promoting crops such as cassava and sweet potatoes as “food security crops”.

The potential for the contribution of livestock products to the daily caloric intake in the region is substantial. For example, in 2004, livestock products contributed nutritional requirements approximating 4.2-4.6 MMT of cereal equivalent in the region (SADC-FANR, 2005). At sub-national levels, there are also many groups of people, such as in pastoral and agro-pastoral areas, for which cereal availability cannot on its own be a sufficient indicator of the food security situation in those zones. However, poor access and reliability of livestock production data compromise possibilities of including them in FBS analyses.

There are also, localized areas in the SADC Member States where the livelihoods of a considerable segment of the population depend on the fisheries sub-sector. For example, in 2000, it was estimated that some 200,000 people in the region were directly employed in the fisheries industries while over 1.7 million people were dependent on fisheries activities (SADC-FANR, 2002). Most of these populations stretch along the coastline and areas surrounding different inland waters of Member States. The consumption of fish per capita is comparatively higher in Angola, Malawi, Mauritius, Seychelles, Tanzania and Zambia, than in other Member States. Again, inadequate data limits including these commodities in FBS analyses.

These developments, further point to the importance of incorporating most of the available food commodities in FBS analyses in order to clearly determine the food supply and the overall food security situation in Member States. A further understanding of the dynamics of the people’s dietary changes, supported by the improved knowledge on livelihood systems; and advances made in the development of different methodologies on food security, strengthens the need to broaden the analyses of FBS. Some of these evolving methods are discussed in a Sections 2 and 3 in this report.

1.5 Purpose and Objectives of the Consultancy

The aim of the proposed expanded FBS is to identify the mechanisms for incorporating into the FBS analyses most of the available and edible food commodities; that is, all food crops, and livestock and fisheries products, and most other foods such processed products; to at least meet 75% of the desired daily per caput caloric intake in each country. Specifically, the study seeks to answer the following questions: a) what are the main food commodities commonly produced or available in Member States, which can be included in the expanded FBS? b) How reliable are the datasets of these main food commodities and how can their reliability be improved? c) How can the data on these commodities be incorporated into the expanded FBS; and what are the appropriate methods to be used in aggregating the various foods in FBS?

While it may currently not be possible to include all food commodities available to people in the FBS analyses, there is, expressed desire to expand the food items in calculating FBS in order to adequately analyze the food security situation in Member States and the SADC

region. The bottom line is to be able to determine how adequate are Member States meeting the nutritional requirements for a normal life of their people.

The empirical information collected and analyzed throughout the course of the study will be the basis for recommending mechanisms for incorporating different food commodities in the expanded FBS analysis.

1.6 Implementation of the Consultancy

This section summarizes the steps undertaken in the implementation for the expanded FBS for SADC Region and Member States. The process included detailed interviews and discussions with most of key professionals in the SADC-Food, Agriculture and Natural Resources (FANR) Secretariat; UN-World Food Programme (WFP); the Food and Nutrition Unit of the Ministry of Health in Botswana. Additional information was obtained from visiting Malawi, where the consultant held discussions with different technical persons engaged in early warning activities, preparation of FBS as well as in the collection of data and information on crops, livestock and fisheries. Annex 1 presents the people contacted. Although it was originally planned to visit at least three Member States during this assessment, this was not possible for a third country because of logistical problems including series of Ester Public Holidays in April.

The consultant in collaboration with the SADC-FANR Secretariat, developed, three sets of questionnaires—on the preparations of FBS and the production and utilization of food crops, livestock fisheries products, respectively. These questionnaires were mailed to designated NEWU professionals in all 14 SADC Member States to be returned duly filled to the Agricultural Information and Management System (AIMS) of SADC-FANR Directorate. The questionnaires were intended to solicit a wider range of information including production statistics, and mechanisms for improving the collection and reliability of data for feeding into the FBS.

Additionally, the consultant reviewed different literatures available on the topic, particularly the FAO and SADC-FANR recent publications on FBS and related disciplines.

The results of study were presented at a briefing session comprising of representatives from the SADC-FANR Directorate on May 2, 2005. The draft report has been reviewed by various staff from the SADC-FANR Directorate and their comments together with those from the briefing incorporated in the final report. This consultancy was conducted between April 4 and May 4, 2006. The final report was submitted to the SADC-FANR (AIMS). Whereas, the reviewers provided invaluable contributions to the report, the consultant for this expanded FBS work takes full responsibility for the final report.

2 RESULTS AND DISCUSSION

2.1 Responses to Questionnaires from Member States

Of the 14 Member States only four or 29% returned at least one of the three sets of questionnaires sent. This indicates a poor response rate from the Member States. However, this is not uncommon because cases of poor responses from Member States have been reported in previous studies where by deadlines, the return rates of questionnaires averaged around 29%. This is not particularly encouraging considering that the information from Member States was very important to facilitate the planned analyses. The poor responses made it difficult for the consultant to obtain primary data, thus compelling relying on

secondary information and literature for most of the analyses. Efforts are needed to improve responses from Member States.

Recommendation:

Use existing EWS in SADC to set standards, to redefine the terms of reference and to develop binding guidelines and understanding for enforcing the agreed terms of reference among FSU/NEWUs in Member States to submit the required services and data. Action by SADC-FANR Directorate.

2.2 Major Food Crops Produced and Reliability of Data

2.2.1 Food Crops Produced

Available statistics from literature and from this study show that a wide variety of food crops are grown in the region. They include cereal crops (maize, rice/paddy, sorghum, millet, and wheat). The non-cereal crops are composed of cassava, beans and pulses, sweet and round/irish potatoes, bananas, groundnuts, other nuts and oil seeds, as well as assorted fruits and vegetables. At the regional level, the analysis show that on average, cereal crops contribute over three-quarters of the total crop production and the non-cereals account for the remaining quarter (Table 1).

At the individual country levels, the composition of commodities for the food basket varies. Cereals, account for a larger share of the food supply, ranging from as high as 98% in Lesotho, to a nearly fifty-fifty in Malawi and Tanzania (Table 1). Subsequently, this composition makes cereals to occupy a larger share in the FBS analysis.

Table 1: Percent Production of Cereals and Non-Cereals in Some Member States

	Botswana	Lesotho	Malawi	Tanzania	Zambia	RSA	Region
Cereal Food Crops	83	98	57	57	90	87	79
Non-cereal Food Crops	17	2	43	43	10	13	21
Total	100	100	100	100	100	100	100

Source: Study for the Expanded Food Balance Sheets, and Various Reports on Crop Production Data

Conversely, roots and tubers, and bananas contribute a significant share of the food supply in many countries particularly in northern SADC areas. They contribute 43% of the national food supply for Malawi and Tanzania, respectively but a minimal 2% in Lesotho (Table 1). Various SADC-FANR reports show that Angola, the DRC, Malawi, Mozambique, Tanzania and Zambia together produce over 33 MMT of non-cereal food crops comprising of 30 MMT of fresh cassava, 2.3 MMT of round potatoes and 1.0 MMT of sweet potatoes, respectively. Beans including assorted pulses and oil crops are also produced in most SADC countries and are regularly consumed. They provide substantial amounts of plant proteins, fats as well as carbohydrates.

Given a wider range of food crops produced (both cereals and non-cereals) in SADC countries; there is need for first determining the contribution of each crop (cereal and non-cereal) in the overall national food basket and FBS; and second, conducting further analyses (including studies) for disaggregating the crop production data by geographical areas. For example, Table 2 shows the percent of food production contributed by each crop in Tanzania. This analysis is of significant importance because the contribution of non-cereals in FBS is often ignored. From such analysis, important crops for FBS can be determined.

Table 2: Average Percent of Food Production by Crop in Tanzania

Crop	Percent
Maize	33
Cassava	21
Bananas/Plantains	10
Sorghum	10
Rice	9
Pulses	5
Sweet and Round Potatoes	5
Millet	4
Wheat	1

Source of Data: Adapted from FEWS NET, Tanzania

Recommendation:

The FSU/NEWUs should collect data on all food crops and conduct analyses to determine the contribution of each food crop in the national food supply. From this analysis, determine those crops to be included in the FBS. Action by SADC-FANR and National FSUs/EWUs.

2.2.2 Reliability of Crop Production Data and Strategies for Improvement

Cereal Crops

Different methodological innovations for improving the validity and reliability of data on food commodities have been developed for cereal crops. For example, for more than 30 years, FAO has successfully led discussions, developed guidelines and built capacities on procedures and methodologies for area and yield estimations for different crops, and within acceptable degrees of reliability. These methodological advances are documented in various FAO publications such as the Economic and Social Development Paper No. 22 of 1982; and the 2001 FAO Handbook for the Preparation of Food Balance Sheets. If adhered to, data generated from these methodologies can be reliable.

Other new methods being developed to improve the reliability of cereal crop yield and production estimation include those using models, which dependent on the water balance and satellite-based approaches. The first model produces the water requirements satisfaction index (WRSI), which through the process, the WRSI index is related to yield, either by regressing with historical yield statistics, or through the incorporation of yield potential for a specified area. The second model uses satellite-measured vegetation indices (NDVI) to determine the vigour and health of vegetation, which are good predictors of crop production. Details of these advances can be obtained from the SADC-Remote Sensing Unit and USGS/FEWS NET. These attempts can be used to compare and test the reliability of data collected by other conventional methodologies. However, run-up studies are needed to continue the process of verifying the reliability of established methods considering that collecting reliable statistics using conventional methods is weakened by many technical and financial constraints.

Recommendation:

Carryout meta-analysis and conduct reliability tests on generated data for cereal crops using software tools such regression analyses with the support of statistical packages such SPSS and compare results with thresholds. Action by SADC-FANR and national FSU/EWUs.

Non-cereal Crops

So far, there have been less technical guidelines on how to estimate yield and production for non-cereal crops including those crops produced under mixed farming systems. The FAO Experts Consultation Workshop on Root Crops Statistics held in Harare, Zimbabwe in December 2002 is one of the recent innovations for providing guidelines and methodologies for estimating the production of root crops and tubers. Similarly, SADC Member States are on their own or with support from SADC-FANR, developing strategies to improve the collection and quality of commodity statistics. For example, in Malawi, the Food Security Unit FSU/NEWU uses the process of conducting three surveys (rounds) annually to estimate crop production on top of the methodologies developed with the FAO support in the early 1990s. These processes are conducted for both cereal and non-cereal crops. The three rounds are as follows.

- In the first round, responsible technical teams capture the intentions of farmers for the coming season, estimate input requirements, and assess weather conditions in the country and their potential impact on the coming agricultural season. These assessments are then compared with previous seasons.
- Round two is conducted during the crop growth stages and involves field verifications on the implementation of targets set, assessing the status of crops, reviewing the performance of the weather and conducting preliminary production estimates for preparing FBS.
- The third and final round is done during the harvest period. Teams make final crop estimates and proceed to develop a national FBS. This is later followed by the NVAC conducting food security and vulnerability assessments in the food insecure hot spots to determine the magnitude of stress, the results of which are used for recommending appropriate responses.

Other suggestions for estimating the production of those crops such as cassava, which are continuously planted during the year and which of part of it, is harvested and another part is kept as reserve to the next season include establishing an understanding and intelligent guess on farming practices. For example, in Malawi, the FSU/NEWU has estimated that 25% of cassava constitutes carryover to the next season. Reliability can be established from continuously collecting and testing results using this methodology.

Secondly, an assumption could be established that since most of crops like cassava and potatoes are harvested and some of them consumed on wet weight bases, they could be converted into standard units, which involve subtracting the waste and if need be converting the remaining quantity of the crops into dry weight. A possible supposition is that about 35% of the harvested cassava and potatoes is estimated to be waste and another 30% is the moisture content. Using these estimates, permit calculating the quantities harvested and potentially available food for consumption in a particular season. The following example in BOX 1 illustrates.

BOX 1:

1. Assuming a potential harvest of cassava of 1,000,000 MT and 25% of it is carried over to the next season. Therefore, the estimated harvest of cassava in the current season is 750,000 MT (1,000,000 MT times 75%).
2. If 35% of the estimated harvest is waste, then the available quantity for consumption in wet weight is 487,500 MT (750,000 MT times 65% MT).
3. If 70% of the wet weight is equivalent to dry weight, then the available quantity for consumption in dry weight is 341,000 MT (487,500 times 70%). This will be the quantity available for consumption and for the FBS calculations.

Although the reliability of the data generated from these processes has not been empirically verified, they provide a benchmark for starting procedures to test their accuracy in estimating production. When these processes are tested and refined overtime, establishing an acceptable degree of reliability of the methodology is possible.

Recommendations:

- *Introduce methodologies for estimating the non-cereal crops such as those discussed above in member states and agree on the ratios. Conduct studies and trend analysis of the harvests and refine the process for at least five consecutive production seasons to establish production trends for each crop. Test the results for consistency using software programs such as regression analyses using SPSS and continue refining the process to desired levels. Action by SADC-FANR and national FSU/EWUs.*
- *Seek technical assistance and capacity building from FAO to develop methodologies for estimating yields and production of roots and tubers as well as for those crops grown under the mixed farming systems. Action by SADC-FANR.*
- *Integrate activities with the national food consumption surveys and VACs activities to establish distributions of food supply as well as vulnerability and changes in eating habits at different times of the year. Action by SADC-FANR and national FSU/EWUs.*

2.3 Livestock Production and Reliability of Data

2.3.1 Livestock Products and Utilization

In SADC countries, livestock products contribute significantly to the dietary needs. For example, annual estimates of food products originating from livestock include more than 1.3-1.5 MMT of beef, 4.5-5.6 MMT of milk, 6.6 MMT chicken, 0.6 MMT of eggs and 0.6 MMT of pork (SADC-FANR, 2005). In 2004, the average per person annual consumption of milk and eggs was estimated at 22.5 litres and 60 eggs, respectively (Table 3).

Table 3: Livestock Products from SADC Member States in 2004 (MT)

	Beef	Mutton Lamb	Goat Meat	Chicken Meat	Pig/Pork Meat	Milk	Eggs
Angola	85,000	1,260	9,225	7,740	27,885	195,000	4,300
Botswana	30,000	2,100	6,060	9,360	375	105,350	3,000
DRC	12,623	2,775	18,471	10,604	23,810	5,000	6,000
Lesotho	8,710	3,100	1,935	1,800	2,775	23,700	1,512
Malawi	15,990	402	6,012	15,280	21000	35,000	19,500
Mauritius	500	32	200	28,720	825	4,000	5,200
Mozambique	38,100	768	1,944	39,600	12840	68,756	14,000
Namibia	60,840	9,000	4,440	3,640	577	105,000	2,465
South Africa	589,760	108,000	36,000	972,600	123460	2,552,000	339,440
Swaziland	12,500	130	2,880	5,000	1133	37,500	1,050
Tanzania	246,330	10,320	30,600	44,000	13280	935,000	35,445
Zambia	40,800	546	4,728	36,500	11000	64,200	46,400
Zimbabwe	102,375	616	12,720	35,650	26950	280,000	22,000
Total	1,243,528	139,049	135,215	1,210,494	265,910	4,410,506	500,312

Source: Adapted from the SADC-FANR, 2005 Progress Report

2.3.2 Reliability of Livestock Production Data and Strategies for Improvement

Data and information on livestock production from most countries are not readily available and some lack reliability, particularly the off-take and values. Because information is collected from different sources, reliability of the source and the information itself are critical for the FBS analyses. This study conducted a qualitative assessment of the reliability of data but a robust analysis is required to establish sound reliability coefficients. In South Africa, for example, this study ascertained that while the Ministry of Agriculture provides estimates on livestock population and products, the reliability of the process was assessed to be low.

In individual countries, various means are being used to collect data on livestock products. Large-scale sources include slaughters in public and industrial abattoirs, meat processing plants, deliveries to dairy plants and large-scale poultry farms. Source of data on small-scale operations include administrative records on butcheries, on-farm slaughters and milk vendors.

Estimating the unrecorded smallholder production and utilization of livestock products such as milk could be obtained from the status quo on the consumption patterns, experience and assumptions on the livelihood systems, for example, of pastoralists. BOX 2 illustrates a process for estimating smallholder milk production in a livestock depended livelihood system. However, national food consumption surveys will be needed to establish the distribution of food supply as well as changes in eating habits at different times of the year.

BOX 2:

1. Assuming a conservative figure that in a year and from a livestock herd size of 100 traditional cattle, 20% would be lactating another 30% would be in-calf and the remaining 50% would be composed of other animals such as calves, heifers bulls/steers and culls.
2. Assuming a yield of 0.5 litres of milk per cow per day, the 20 cows will produce 10 litres of milk per day.
3. With the population of cattle known and using these assumptions on milk production, rough estimates of milk production in a country could be obtained. Other livestock products could be estimated using similar procedures.

These procedures provide a manifesto for estimating livestock production although their reliability requires empirical verification. Through testing and refining these procedures overtime, reliability of the methodology can be established.

Therefore, livestock production and development institutions have in this respect, to play a more proactive role in researching and capturing data on livestock products from the existing administrative as well as other public administration records. The existing extension systems in the Ministries of Agriculture and Livestock are a good avenue for collecting these data and should be consulted and involved.

At the regional level, there is need for reviewing the livestock information system in the SADC-FANR Directorate for enhancing strategies (including studies) for the development of databases on livestock production and estimating the population that depend on those particular commodities, which would eventually facilitate national and sub-national analysis and contribute objectively to the preparation of national and regional FBS. The already established initiatives through the financial agreement between the European Union (EU) and SADC for the Promotion of Regional Integration in the SADC Livestock Sector (PRINT) is among other things, expected to improve access and reliability of livestock data, information and marketing as well as the utilization of livestock products in the Member States. The interventions would also enhance and strengthen the developments of the livestock production and utilization of databases subsequently providing required data for FBS.

Recommendations:

- *Through the PRINT project conduct professional seminars/workshops in Member States to introduce methodologies like those suggested above and discuss them to establish percentages or ratios to use. Conduct studies and trend analyses on the agreed processes and refine the processes for at least five consecutive years to establish a reasonable database. Build needed capacities in Member States to carryout these functions. Test the results for consistency using software programs such as SPSS. Action by SADC-FANR, PRINT and National FSU/EWUs.*
- *The PRINT project and relevant institutions in Member States should conduct research and capture data on livestock products from their respective areas of operations as well as from the existing administrative and other public administration records.*
- *Integrate these activities with the national food consumption surveys and VACs activities to establish distributions of the supply of livestock products and their utilization together with vulnerability assessments and changes in eating habits at different times of the year. Action by SADC-FANR and national FSU/EWUs.*

2.4 Fisheries Production and Reliability of Data**2.4.1 Fisheries Products and Utilization**

The requested data and information on fisheries production and utilization were not captured during this study because most Member States did not respond to the questionnaires. Those who responded, acknowledge the lack of data to be the major problem. For example, the Ministry of Fisheries in Malawi could only provide estimates on ornamental fish and aquarium trade although the analysis of the data from the survey questionnaire shows that 12.3% of the national population depend on fish for their livelihoods. The major constraint was explained to be the lack of mechanisms as well as resources for monitoring trends in fisheries production, consumption and marketing.

However, estimated statistics from the SADC-FANR report on fisheries production in 2000 indicates that 168,000 MT and 1.6 MMT of artisanal and marine fish respectively were harvested (Table 4).

Table 4: Artisanal and Industrial Catches in SADC Countries (MT)**Table 4a: Artisanal**

Country	1998	1999	2000
Angola	24,531	30,954	39,800
DR Congo			na
Mauritius	3,709	3,705	3,840
Mozambique	80,000	70,000	70,000
Namibia	0	0	na
Seychelles	3,300	4,842	4,723
South Africa			na
Tanzania	46,666	48,702	49,900
TOTAL	156,782	168,198	168,263

Table 4b: Industrial

Country	1998	1999	2000
Angola	178,397	161,064	222,591
DR Congo			6,000
Mauritius	7,501	7,226	5,483
Mozambique	36,627	29,954	30,632
Namibia	605,656	577,838	623,786
Seychelles	20,534	28,383	27,686
South Africa	610,000	594,741	680,000
Tanzania	1,533	1,297	1,868
TOTAL	1,460,248	1,400,503	1,598,046

Source: Adapted from SADC-FANR, Marine Fisheries and Resources Sector Progress Report, 2002

2.4.2 Reliability of Fisheries Production Data and Strategies for Improvement

Even with the availability of these statistics, the needed data for developing fisheries production databases are reported to be not forthcoming on regular basis from Member States to the SADC-FANR Directorate. According to the literature, the fundamental limitations to obtain reliable data include inadequate policies for effective management of the data on the fisheries outputs.

Collecting data on fisheries products is possible through collaborating with the Ministries of Fisheries in Member States. Sources of data on fisheries products include ministerial estimates, large-scale commercial and administrative records, NGOs, fisher-folks themselves and vendors. What is needed is to identify the various institutions engaged in fisheries production and to establish mechanisms to collect those data. On the consumption of fisheries products, there is need to network with relevant national institutions such as the Ministry of Health to conduct food consumption surveys to establish national distributions of food supply together with the availability of fisheries products during different times of the year.

Recommendations:

- ***In order to improve the flow of data, it is suggested to strengthen the role of the SADC-FANR Regional Fisheries Information Systems (RFIS), which is responsible for fisheries information management and integration. There is need for RFIS to devise strategies (including studies and capacity enhancements) for collecting data and producing databases on fisheries production and estimating the population in Member States that depend on them, which would facilitate analysis and contribution of information in FBS. Action by SADC-FANR, RFSI.***
- ***Integrate these activities with the national food consumption surveys and VACs activities to establish distributions of the supply of fisheries products together with vulnerability assessments as well as changes in eating habits at different times of the year. Action by SADC-FANR, RFSI and FSU/EWUs.***

3 PLANNING FOR THE EXPANDED FOOD BALANCE SHEETS

3.1 Current Procedures for Preparing Food Balance Sheets in Member States

Preparations of FBS follow the standard, format which was developed by SADC in collaboration with FAO but with some modifications. This format is presented in Table 5.

Table 5: Standard Format for SADC Food Balance Sheets

For most countries, the analyses of FBS are limited to cereal food commodities and especially maize. When other food commodities are included in the FBS, they are calculated in terms of their equivalences to maize. The maize crop has been taken as a predetermined base commodity to which other food commodities are referenced.

<p>Domestic Availability Opening Stocks - Monitored (e.g. formal-grain reserve) - Unmonitored (e.g. on farm, other) Gross Harvests</p> <p>Domestic Requirements Food Use Feed Use Other Uses and Losses</p> <p>Desired Monitored Stocks</p> <p>Domestic Shortfall/Surplus</p> <p>Net Imports Imports - Commercial - Food Aid Exports</p> <p>Import Gap</p> <p>Closing Stocks</p> <p>Current Stocks</p> <p><i>Source: Adapted from Technical Handbook for Food Balance Sheet, Vol. I (Rook, 2004)</i></p>	<p>are limited to cereal food commodities and especially maize. When other food commodities are included in the FBS, they are calculated in terms of their equivalences to maize. The maize crop has been taken as a predetermined base commodity to which other food commodities are referenced.</p> <p>For example, the FBS for Malawi also includes cassava but together with rice, sorghum and millets are calculated in terms of the extent they can substitute maize. The FBS for Tanzania incorporates cereals and non-cereals but again those beans, cassava and potatoes are regarded as cross substitutes to maize. South Africa is currently the only country in the region that attempts to include most of the grown crops in the country, that is, cereals (maize, sorghum and wheat), non-cereals (beans, groundnuts, potatoes, vegetables and fruits) and animal products (meats, milk and eggs). Therefore, South Africa provides useful important lessons on the possibilities of preparing FBS, which includes different food commodities. There is need for involving their experience in the discussions and preparations for the expanded FBS.</p>
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3.2 Procedures for Expanding Food Balance Sheets

In principle, the final product of the expanded FBS should maintain the standard format provided in Table 5. However, for the purpose of describing the processes involved in preparing the expanded FBS, there is need for including details in the calculation of FBS. The following steps are suggested.

3.2.1 Prepare Data for Food Balance Sheets

- a) Obtain the quantities in MT of each commodity available for consumption and to be used in the FBS analyses, that is, food crops, livestock and fisheries products, and other food items. These data are obtained from the standard FSUs/NEWUs processes in Member States. For example, Table 7 summarizes various food commodities harvested during the 2000/01 production year in Tanzania. Table 6 indicates calculations used to obtain

available food for consumption, which was used in the computation of the FBS in 2001/02 market year. The livestock originating products have been added in this report and certain assumptions on seed, feed and trade made especially from literature. They were not included in the FBS for the 2001/02 market for Tanzania.

Table 6: Example – Calculations used to Obtain Available Food for Consumption in the 2001/02 Market Year in Tanzania

Crop		Seed ¹ Percent	Feed ¹ Percent	Losses ¹ Percent	Trade ² Percent
Cereals	Maize ³	1.3	2	11.7	10
	Millet	2.3	0.6	7.7	1.4
	Rice ⁴	2.5	0	2.5	10
	Wheat	2.5	0	2.5	10
	Sorghum	0.5	0.6	8.5	2.4
Non-Cereals	Cassava ⁵	0	0	0	2
	Bananas ⁶	0	0	0	0
	S/Potatoes ⁶	0	0	1	1
	I/Potatoes ⁶	0.5	0	1	3
	Groundnuts	2.5	0	1	3
	Beans ⁷	2.5	0	2	8
	Peas ⁸	2.5	0	2	1
Animal Products	Beef ⁹	0	0	5	0
	Mutton/Lamb ⁹	0	0	2	0
	Goat Meat ⁹	0	0	2	0
	Chicken Meat ⁹	0	0	0.5	0
	Pork/Pig Meat ⁹	0	0	3	0
	Milk ¹⁰	0	0	10	2
	Eggs ¹¹	5	0	4	2
	Fish ¹²	0	3	4	10

BOX: 3 Key to Table 6

- 1 = Estimated percent of seeds, feeds and losses in Columns (D, E and F) from total production
 2 = Estimated percent of exports (informal and formal) from the total production
 3 = Whole grain
 4 = Paddy converted to rice at 65 percent
 5 = Based on dry weight - converted to dry weight = production less (15% waste plus 60% water content)
 6 = Kcal based on wet weight because that is what is cooked less 33% waste
 7 = Includes all varieties of beans
 8 = Peas and all other legumes produced for human consumption
 9 = Estimated from butcheries, abattoirs and on-farm slaughters excluding offals
 10 = Whole cow milk estimated from gross production in dairy farms and smallholder producers excluding milk sucked by calves
 11 = Total or gross production from commercial and smallholder/traditional producers
 12 = 100% of inland and 10% of marine fisheries products and are included (10% of inland fish is exported)

Source: Adapted from Various Sources in Tanzania

Table 7: Example – Tanzania Food Commodities Production in 2000/01

	Gross Domestic Production MT	Seed Use MT	Feed Use MT	Losses MT	Trade MT	Total Non- Food Use MT	Total Available for Consumption MT
Maize	2 802 717	36 435	56 054	327 918	280 272	700 679	2 102 037
Sorghum	342 024	1 710	2 052	29 072	8 209	41 043	300 981
Paddy/Rice	501 295	12 532	0	12 532	50 130	75 194	426 101
Millet	115 421	2 655	693	8 887	1 616	13 851	101 571
Wheat	1 656	41	0	41	166	248	1 408
Total Cereals	3,763,114						2,932,098
Cassava	1 801 253	0	0	0	36 025	36 025	1 765 228
S/Potatoes	733 608	0	0	7 336	7 336	14 672	718 936
I/Potatoes	386 989	1 935	0	3 870	11 610	17 415	369 574
Bananas	1 503 452	0	0	0	0	0	1 503 452
Groundnuts	154 464	3 862	0	1 545	4 634	10 040	144 424
Beans	236 700	5 918	0	4 734	18 936	29 588	207 113
Peas	124 658	3 116	0	2 493	1 247	6 856	117 802
Total Non-Cereals	4,941,124						4,826,529
Beef	209 381	0	0	10 469	0	10 469	198 911
Mutton/Lamb	8 772	0	0	0	0	0	8 772
Goat Meat	26 010	0	0	520	0	520	25 490
Chicken Meat	37 400	0	0	187	0	187	37 213
Pork/Pig Meat	11 288	0	0	339	0	339	10 949
Milk	794 750	0	0	79 475	15 895	95 370	699 380
Eggs	30 128	1 506	0	1 205	603	3 314	26 814
Fish	50 087	0	1 503	2 003	5 009	8 515	41 572
Total Animal Products	1,167,816						1,049,102

Source: Adapted from Various Sources in Tanzania

- b) Obtain from the FAO (2001) Handbook or any other reference the food composition of food commodities to be used in FBS. Different series of the FAO Handbooks offer practical and straightforward examples for detailed and standardized procedures and formats for calculating caloric values of different food commodities, and for preparations of FBS. Those FAO Handbooks describe the composition of most available food commodities, which are internationally recognized. This report has simply put together from the 2001 FAO Handbook, and in raw form, the food commodities, which are produced in the SADC Member States (Table 8). The amounts have been multiplied by 10 to provide the equivalent of one kilogram (1,000 grams).

Table 8: Composition of Major Food Commodities in SADC Countries in One Kilogram (1,000 Grams)

	Commodity	Calories Proteins Fat		
		Kcal	Grams	Grams
Cereals	Maize Whole Grain	3 650	95	43
	Millet	3 400	97	30
	Rice	3 600	67	7
	Sorghum	3 430	101	33
	Wheat	3 340	122	23
	Oats	3 650	130	75
	Barley	3 320	110	18
Roots and Tubers	Cassava Fresh	1 090	9	2
	Cassava Dry	2 550	26	7
	Round Potatoes	670	16	1
	Sweet Potatoes	920	7	2
	Cocoyam (Taro)	660	15	2
	Yams	1 010	13	2
	Sugars	Sugarcane	300	20
Sugar Beets		700	13	11
Honey		2 990	40	0
Pulses and Nuts	Beans Dry	3 410	221	17
	Dry Broad Beans	3 430	234	20
	Dry Peas	3 490	225	18
	Dry Chick Peas	3 580	201	45
	Dry Cow Peas	3 420	234	18
	Pigeon Peas	3 430	209	17
	Lentils	3 460	242	18
	Bambara Beans	3 650	177	63
	Cashew Nuts	2 520	77	206
	Soybeans	3 350	380	180
	Groundnuts Shelled	5 670	257	492
	Coconuts	1 840	17	174
	Cocoa	6 360	60	645
	Oil Palm Fruit	1 580	30	132
	Palm Kernels	5 140	73	434
	Olives	1 750	13	175
	Rapeseed	4 940	196	450
Sunflower Seed	3 090	123	268	
Vegetables	Cabbage	190	10	1
	Asparagus	120	16	1
	Lettuce	120	11	2
	Spinach	160	21	3
	Cassava Leaves	530	58	11
	Tomatoes	17	6	2
	Cauliflower	90	8	1
	Pumpkins	190	9	1
	Cucumber	13	5	1
	Eggplants	210	9	1
	Green Peppers/Chilies	250	11	3
	Onions	240	17	1
	Garlic	1 300	650	40
	Leeks	370	7	1
	Green Beans	500	30	4
	Green Peas	310	21	2
	Carrots	380	9	2
Okra	310	16	3	
Green Maize	560	21	8	
Sweet Corn	770	23	6	
Mushrooms	240	20	4	
White/Black Pepper				
Fruits	Bananas	600	7	3
	Plantains	750	8	3
	Oranges	340	7	1
	Tangerines	320	5	1
	Lemons and Limes	150	6	2
	Grapefruit	160	3	1
	Apples	460	1	3
	Pears	540	4	4
	Cherries	520	7	6
	Plums	530	7	6
	Strawberries	280	6	4
	Grapes	530	5	4
	Watermelons	170	3	2
	Mangoes	450	4	2
	Avocados	1 190	15	113
	Pineapples	260	2	2
	Pawpaw	260	4	1
Meats	Beef	1 500	165	79
	Liver	3 150	136	26
	Offals	1 050	164	29
	Buffalo Meat	770	113	31
	Mutton/Lamb	2 630	135	220
	Goat Meat	1 230	140	70
	Pig Meat	3 260	110	310
	Pork	2 200	134	180
	Chicken Meat	1 220	123	77
	Duck Meat	2 910	83	283
	Goose Meat	3 010	129	273
Turkey Meat	1 260	161	63	
Pigeon Meat	2 260	142	183	
Camel Meat	1 740	127	133	
Rabbit Meat	1 180	170	56	
Game Meat	1 040	180	36	
Eggs, Milk and Fish	Hen Eggs	1 390	107	98
	Fresh Water Whole Fish	690	109	29
	Fresh Water Fish Fillet	1 270	203	49
	Marine Fish Whole	640	103	28
	Marine Fish Fillet	1 150	190	38
	Cow Milk	610	33	33
	Buffalo Milk	970	38	69
Goat Milk	690	36	41	
Camel Milk	730	38	43	
Plums	520	7	6	

Source: Adapted from FAO, 2001: Food Balance Sheets

3.2.2 Use Established and Agreed Nutritional Requirements

For this study, it has been assumed that in order to maintain a normal and healthy life, a daily dietary intake of 2,100 KCal (or 525 grams of carbohydrates) as well as 79 grams of proteins and 58 grams of fats is needed per person per day. In total approximately 663 grams of food composed of (525g of carbohydrate plus 79g of proteins and 59g of fats) are needed each day to satisfy the proposed dietary needs (see BOX 4). These amounts provide possibilities for calculating the amounts required by each food item to satisfy the proposed dietary requirements.

BOX 4: Assumptions on Nutritional Requirements

1 (one) gram of Carbohydrates	= 4 KCal
1 (one) gram of Proteins	= 4 KCal
1 (one) gram of Fat	= 9 KCal

Assuming a daily requirement of 2,100 KCal plus 15% and 25% (of 2,100) of proteins and fats, respectively.

A. Therefore, 100% of Carbohydrates

$$\text{for a 2,100 KCal diet} = \frac{100 \times 2,100}{4} = 525 \text{ grams}$$

The 525 grams of carbohydrates includes fruits and vegetable.

B. Therefore, 15% of Proteins

$$\text{for a 2,100 KCal diet} = \frac{0.15 \times 2,100}{4} = 79 \text{ grams}$$

C. Therefore, 25% of Fat

$$\text{for a 2,100 KCal diet} = \frac{0.25 \times 2,100}{9} = 59 \text{ grams}$$

These amounts provide 663 grams of food for 2,947 KCal per person per day.

3.2.3 Convert Food Commodities into their Nutrient Compositions

All food commodities to be used in the FBS should be converted into their food compositions, which are carbohydrates, proteins and fats instead of converting them to the equivalent of a predetermined base commodity such as maize or cereals. The practice in Member States has been to use the so called base commodity, which in principle is a dominant food item in the FBS. In this case, maize/cereals have always been regarded as dominant food items, and therefore considered as base commodities.

Consequently, the term maize or cereal equivalence has been interpreted differently by different populations in SADC countries. First maize or cereals have been misunderstood to constitute the only source of caloric requirements subsequently used exclusively in the FBS analyses. Second, even if maize or cereals are regarded as major food, the reality is that they are not on their own able to provide the needed dietary requirements for a normal life.

Using the maize equivalent (3,560 KCal), it is possible to obtain the desired energy requirements such as 2,100 KCal per person per day. This would approximate 0.59 kilograms of maize per day. Although this amount would satisfy the energy needs, it can only provide about 47 grams of proteins (0.59 x 79 divide by 1,000) instead of the required 15% or 79 grams. The same quantity can supply only 35 grams of fats (0.59 x 59 divide by 1,000) instead of the required 25% of 59 grams. Consequently, the dietary needs are not adequately met.

Converting each food commodity into its nutritive values independent of any other commodity provides an objective verification of moving away from the myth of a dominant and base commodity. The steps include:

- a) Document the nutrient components, that is, carbohydrates, proteins and fats for the food commodities available for FBS. These are presented in Table 9. The food commodities available for consumption are the same as those presented in the last column in Table 7.

Table 9: Example – Tanzania: Food Composition of Commodities Produced in 2000/01

	Food Available for Consumption	KCal per Kg	Proteins -Grams/Kg	Fats - Grams/Kg	Total Carbohydrates Available MT	Total Proteins Available MT	Total Fats Available MT
Whole Maize	2,102,037	3,560	95	43	1,811,956	199,694	90,388
Sorghum	300,981	3,430	134	33	250,717	40,332	9,932
Paddy/Rice	426,101	3,600	67	7	394,570	28,549	2,983
Millet	101,571	3,400	97	30	88,671	9,852	3,047
Wheat	1,408	3,340	122	23	1,204	172	32
Total Cereals	2,932,098				2,547,118	278,598	106,382
Dry Cassava	1,765,228	2,550	107	7	1,563,992	188,879	12,357
S/Potatoes	718,936	920	7	7	708,871	5,033	5,033
I/Potatoes	369,574	670	16	1	363,292	5,913	370
Bananas	1,503,452	600	7	3	1,488,417	10,524	4,510
Groundnuts	144,424	5,670	257	492	36,250	37,117	71,057
Beans	207,113	3,410	123	17	178,117	25,475	3,521
Peas	117,802	2,460	225	18	89,176	26,505	2,120
Total Non-Cereals	4,826,529				4,428,115	299,446	98,967
Beef	198,911	1,500	185	79	146,399	36,799	15,714
Mutton/Lamb	8,772	2,630	135	228	5,588	1,184	2,000
Goat Meat	25,490	1,230	140	70	20,137	3,569	1,784
Chicken Meat	37,213	1,220	123	77	29,770	4,577	2,865
Pork/Pig Meat	10,949	2,200	134	180	7,511	1,467	1,971
Whole Milk	699,380	610	33	228	516,842	23,080	159,459
Eggs	26,814	1,390	107	98	21,317	2,869	2,628
Inland Fresh Fish	41,572	690	109	25	36,002	4,531	1,039
Total Animal Products	1,049,102				783,566	78,076	187,460

Source: Adapted from Various Sources in Tanzania

- b) Calculate the protein and fats components for each available food commodity. The data are obtained by multiplying the food available for consumption by corresponding compositions of proteins and fats and converting to metric tons. Finally, total carbohydrates are obtained by subtracting the total available proteins and fats from the total food available for consumption. Those amounts are illustrated in Table 9.

3.2.4 Convert Food Commodities into their Nutrient Compositions and Calculate Food Needs Met

Calculate dietary needs per person per day and for the total population of a country or location. Instead of calculating the full caloric needs or 100% of the 2,100 KCal per person per day from cereals only or any food commodity, the requirements presented in BOX 4 above, that is, 525 grams of carbohydrates, 79 grams of proteins and 58 grams of fats are used. BOX 5 provides guidelines for calculating dietary needs.

BOX 5:

1. Calculate the food available for consumption for each commodity after subtracting all other uses (see column 1 in Tables 7 and 9 in this report).
2. Determine the total carbohydrates (CHO), proteins and fats contents available for each commodity by multiplying the available food in MT by the standards developed by FAO.
3. Calculate the food needs of the population per day based on 2,100 KCal by multiplying the corresponding standard for each content (CHO = 525g, proteins=79g and fats=58g) with the population. Food needs per month and for the year are calculated by multiplying the daily needs by 30 and 365 days, respectively.
4. Divide the food available for consumption (column 1, Table 10) by food needs per day (column 2, Table 10) to determine the number of months in a year the total food can supply, and corresponding months for each commodity. Less than 12 months indicates that there is a shortage of that commodity. The shortfall can be quantified

In addition, BOX 6 provides critical assumptions, which are needed for calculating food needs from combining different food commodities. From these assumptions, calculating food needs met becomes possible as illustrated in Table 10. In 2000, the population in Tanzania was estimated at 32.6 million people.

BOX 6: Assumptions for Calculating Food Needs

Assumption 1: National Population in 2000 =32,637,206

Assumption 2: Production equals food available for consumption after subtracting all other uses including exports

Assumption 3: The caloric needs per person per day is 2,100 KCal plus 79 grams protein and 59 grams fats

Total caloric needed per person per day = (KCal 2,100/4) = 525 grams

For 32,637,206 people, the total needs per day = (32,637,206 x (525/1,000,000)) = 17,135 MT

Total proteins needed per person day = (KCal 2,100 x 15% divide by 4) = 79 grams

For 32,637,206 people, the total needs per day = (32,637,206 x (79/1,000,000)) = 2,579 MT

Total fats needed per day = (KCal 2,100 x 25% divide by 9) = 59 grams

For 32,637,206 people, the total needs per day = (32,637,206 x (59/1,000,000)) = 1,926 MT

Total Food Needed per day= 21,640 (17,135+2,579+1,926) MT

Table 10: Example – Tanzania: Food Needs Met for 2001/02 Market Year

	Food Available for Consumption MT	Food Needs/Day	Food Needs Per Month MT	Food Needs Per Year MT	Months Covered by Each Commodity	% Food Needs Met by Commodity	KCal Met
Whole Maize	2,102,037				3.2	26.6	784
Sorghum	300,981				0.5	3.8	112
Paddy/Rice	426,101				0.7	5.4	159
Millet	101,571				0.2	1.3	38
Wheat	1,408				0.0	0.0	1
Total Cereals	2,932,098				4.5	37.1	1,094
Dry Cassava	1,765,228				2.7	22.3	659
S/Potatoes	718,936				1.1	9.1	268
I/Potatoes	369,574				0.6	4.7	138
Bananas	1,503,452				2.3	19.0	561
Groundnuts	144,424				0.2	1.8	54
Beans	207,113				0.3	2.6	77
Peas	117,802				0.2	1.6	44
Total Non-Cereals	4,826,529				7.4	61.1	1,801
Beef	198,911				0.3	2.5	74
Mutton/Lamb	8,772				0.0	0.1	3
Goat Meat	25,490				0.0	0.3	10
Chicken Meat	37,213				0.1	0.5	14
Pork/Pig Meat	10,949				0.0	0.1	4
Whole Milk	699,380				1.1	8.9	261
Eggs	26,814				0.0	0.3	10
Inland Fresh Fish	41,572				0.1	0.5	16
Total Animal Products	1,049,162				1.6	13.3	391
Total	8,807,729	21,640	649,200	7,898,600	13.6	111.5	3,286

Source: Study on the Expanded Food Balance Sheets

Note:

Months covered have been obtained by dividing food available for consumption by food needs per month.
Percent of food needs met has been obtained by from dividing food available for consumption by food needs per year multiplying by 100.
KCal met has been obtained from multiplying percent of food needs met by 2,947 and dividing by 100.

These examples illustrate the possibilities for combining all food commodities in FBS analysis to determine the number of days or months in a year they contribute to the nutritional requirements. With these calculations, the FBS would be able to show the total food available and even identify those food items, which are in short supply.

Food production in Tanzania in 2000/01 agricultural season was mediocre affected by poor rainfall performance during the growing season. Consequently, none of the food items was on its own able to provide the needed quantities and the dietary requirements. Even the combination of food crops such as cereals and non-cereals did not on their own, meet the food needs. All cereals, non-cereals and animal products, could only meet about 37%, 61% and 13% of the national food needs, respectively.

However, the combination of all food commodities provided 112% covering slightly above months of the national food needs and exceeding the 2,947 KCal per person per day. With this analysis, calculating the requirements for each of the food components is also possible. In addition, Table 10 shows the annual dietary requirements met by each food commodity, a combination of food groups such as cereal crops, non-cereal crops, livestock originating products and the sum-total for all food items. However, these calculations provide a general indication of the total food supply at the national level. At sub-national levels, there exist significant variations in the availability of those food commodities. Therefore, detailed vulnerability analyses are needed to determine the actual food availability and accessibility.

During the 2001/02 market year, the country declared a national food security crisis and appealed to donors for substantial food aid mainly because there was a significant cereal

deficit. However, the expanded FBS, shows that the overall food supply was, in principal, adequate for the national requirements. What was needed was for the food security assessment teams such as NVAC and other food security networks to conduct rapid vulnerability assessments to identify the localized food insecure populations and determine required responses.

Using these parameters, preparing additional balance sheets for proteins and fats becomes possible. Finally, those calculations should then be included in a broader and an all inclusive FBS and food security analysis.

Tables 11a, 11b and 11c demonstrate possibilities of employing this approach to estimate the individual food nutrients (carbohydrates, proteins and fats) that the available different food commodities can meet in a year. From those Tables, it is evident that the available food compositions in the 2000/01 production year were heavy on carbohydrates but were in very short supply of proteins and fats. However, none of the food commodities nor a combination of food groups that is, cereals, non-cereals and animal products was able on its own to satisfy the dietary needs for carbohydrates, proteins and fats for the 2001/02 market year.

Whereas there was an abundant availability of 15 months of the sum total of carbohydrates foods and that they exceed dietary requirements of 2,100 KCal per person per day, availability of the sum total of proteins and fats were only sufficient for nine and seven months, respectively. Moreover, only 70% and 57% of the proteins and fats requirements, respectively were met. Both proteins and fats foods fell short of requirements, that is 55 grams instead of 79 grams for proteins and 34 grams instead of 59 grams for fats per person per day. Critical thoughts for mitigation should have also paid attention to proteins and fats supplements.

Table 11a: Example - Calculating Carbohydrate Food Needs Met from the 2000/01 Production Year in Tanzania

	Carbohydrates Available MT	Carbohydrates Needs/Day MT	Carbohydrates Needs/Month MT	Carbohydrates Needs/Year MT	Months Covered by Each Commodity	% Food Needs Met	KCal Met
Whole Maize	1,811,956				3.5	29.0	608
Sorghum	250,717				0.5	4.0	84
Paddy/Rice	394,570				0.8	6.3	132
Millet	88,671				0.2	1.4	30
Wheat	1,204				0.0	0.0	0
Total Cereals	2,547,118				5.0	40.7	855
Dry Cassava	1,563,992				3.0	25.0	525
S/Potatoes	708,871				1.4	11.3	238
I/Potatoes	363,292				0.7	5.8	122
Bananas	1,488,417				2.9	23.8	500
Groundnuts	36,250				0.1	0.6	12
Beans	178,117				0.3	2.8	60
Peas	89,176				0.2	1.4	30
Total Non-Cereals	4,428,115				8.6	70.8	1,487
Beef	146,399				0.3	2.3	49
Mutton/Lamb	5,588				0.0	0.1	2
Goat Meat	20,137				0.0	0.3	7
Chicken Meat	29,770				0.1	0.5	10
Pork/Pig Meat	7,511				0.0	0.1	3
Whole Milk	516,842				1.0	8.3	174
Eggs	21,317				0.0	0.3	7
Inland Fresh Fish	36,002				0.1	0.6	12
Total Animal Products	783,566				1.5	12.5	263
Total	7,758,799	17,135	514,050	6,254,275	15.1	124.1	2,605

Source: Study on the Expanded Food Balance Sheets

Table 11b: Example - Calculating Protein Food Needs Met from the 2000/01 Production Year in Tanzania

	Protein Foods Available	Protein Food Needs/Day	Food Protein Needs Per Month MT	Protein Food Needs Per Year MT	Months Covered by Each Commodity	% Food Needs Met	Grams Met
Whole Maize	199,694				2.6	21.2	16.8
Sorghum	40,332				0.5	4.3	3.4
Paddy/Rice	28,549				0.4	3.0	2.4
Millet	9,852				0.1	1.0	0.8
Wheat	172				0.0	0.0	0.0
Total Cereals	278,598				3.6	29.6	23.4
Dry Cassava	188,879				2.4	20.1	15.9
S/Potatoes	5,033				0.1	0.5	0.4
I/Potatoes	5,913				0.1	0.6	0.5
Bananas	10,524				0.1	1.1	0.9
Groundnuts	37,117				0.5	3.9	3.1
Beans	25,475				0.3	2.7	2.1
Peas	26,505				0.3	2.8	2.2
Total Non-Cereals	299,446				3.9	31.8	25.1
Beef	36,799				0.5	3.9	3.1
Mutton/Lamb	1,184				0.0	0.1	0.1
Goat Meat	3,569				0.0	0.4	0.3
Chicken Meat	4,577				0.1	0.5	0.4
Pork/Pig Meat	1,467				0.0	0.2	0.1
Whole Milk	23,080				0.3	2.5	1.9
Eggs	2,869				0.0	0.3	0.2
Inland Fresh Fish	4,531				0.1	0.5	0.4
Total Animal Products	78,076				1.0	8.3	6.6
Total	656,120	2,579	77,370	941,335	8.5	69.7	55.1

Source: Study on the Expanded Food Balance Sheets

Table 11c: Example - Calculating Fats Food Needs Met from the 2000/01 Production Year in Tanzania

	Fats Food Available	Total Food Needs/Day	Food Needs Per Month MT	Food Needs Per Year MT	Months Covered by Each Crop	% Food Needs Met By Crop	Grams Met
Whole Maize	90,388				1.6	13.1	7.7
Sorghum	9,932				0.2	1.4	0.8
Paddy/Rice	2,983				0.1	0.4	0.3
Millet	3,047				0.1	0.4	0.3
Wheat	32				0.0	0.0	0.0
Total Cereals	106,382				1.9	15.4	9.1
Dry Cassava	12,367				0.2	1.8	1.1
S/Potatoes	5,033				0.1	0.7	0.4
I/Potatoes	370				0.0	0.1	0.0
Bananas	4,510				0.1	0.7	0.4
Groundnuts	71,057				1.3	10.3	6.1
Beans	3,521				0.1	0.5	0.3
Peas	2,120				0.0	0.3	0.2
Total Non-Cereals	98,967				1.7	14.3	8.5
Beef	15,714				0.3	2.3	1.3
Mutton/Lamb	2,000				0.0	0.3	0.2
Goat Meat	1,784				0.0	0.3	0.2
Chicken Meat	2,865				0.1	0.4	0.2
Pork/Pig Meat	1,971				0.0	0.3	0.2
Whole Milk	159,459				2.8	23.1	13.6
Eggs	2,628				0.0	0.4	0.2
Inland Fresh Fish	1,039				0.0	0.2	0.1
Total Animal Products	187,460				3.3	27.1	16.0
Total	392,810	1,893	56,790	690,945	6.9	56.9	33.5

Source: Study on the Expanded Food Balance Sheets

3.2.5 Preparing the Expanded Food Balance Sheets

From the processes described in the previous sections, Table 12 illustrates the product from the expanded FBS. However, issues of imports, food aid and stocks have not been dealt with in this activity because their actual data during the 2001/02 in Tanzania were not available when this report was being written.

It is evident from Table 12 that there is a potential surplus of 0.91 MMT of the sum total of all food commodities but most of it is from carbohydrates. Therefore, whereas there is potential surplus of carbohydrates of nearly 1.5 MMT, there are structural significant shortfalls of 0.285 MMT of protein and 0.298 MMT of fats foods, respectively. Therefore, plans to import or supplement food items should have paid attention to bridging the deficit of proteins and fats foods as well.

Recommendation:

After the FBS are prepared there is need for conducting vulnerability assessments to establish distributions of the food supply at different times of the year and to identify the localized food insecure and vulnerable groups of populations and recommend appropriate responses. Action by SADC-FANR and FSU/EWUs.

Table 12: Example – Expanded Food Balance Sheet for Tanzania for 2001/02 Market Year

	Cereal Crops						Non-Cereal Crops								Livestock and Fish								Grand Total		
	Maize	Sorghum	Rice	Millet	Wheat	Total Cereals	Cassava	S/Potatoes	I/Potatoes	Bananas	Groundnuts	Beans	Peas	Total Non-Cereals	Beef	Mutton/L	Goat Meat	Chicken	Pork/Pig	Milk	Eggs	Fish		Total Animal and Fish	
Gross Production MT	2,802,717	342,024	501,295	115,421	1,656	3,763,114	1,801,253	733,608	386,989	1,503,452	154,464	236,700	124,658	4,941,124	209,381	8,772	26,010	37,400	11,288	794,750	30,128	50,087	1,167,816		
Seed Use MT	36,436	1,710	12,532	2,655	41	53,374	0	0	1,935	0	3,062	5,918	3,116	14,830	0	0	0	0	0	0	1,506	0	1,506		
Feed Use MT	56,054	2,052	0	693	0	58,799	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1,503	1,503		
Losses MT	327,918	29,072	12,532	8,887	41	378,451	0	7,336	3,870	0	1,545	4,734	2,493	19,978	10,469	0	520	187	339	79,475	1,205	2,003	94,198		
Trade MT	280,272	8,209	50,130	1,616	166	340,391	36,025	7,336	11,610	0	4,634	18,936	1,247	79,787	0	0	0	0	0	15,895	603	5,009	21,506		
Total Non-Food Use MT	700,679	41,043	75,194	13,851	248	831,015	36,025	14,672	17,415	0	10,040	29,588	6,856	114,596	10,469	0	520	187	339	95,370	3,314	8,515	118,714		
Total Food Available for Consumption MT	2,102,037	300,981	426,101	101,571	1,408	2,932,098	1,765,228	718,936	369,574	1,503,452	144,424	207,113	117,802	4,826,529	198,911	8,772	25,490	37,213	10,949	699,380	26,814	41,572	1,049,102		
Total Carbohydrate Foods Available																								7,758,799	
Total Protein Foods Available																									656,120
Total Fats Food Available																									392,810
Domestic Food Uses																									
Total Food																									7,898,600
Total Carbohydrates																									6,254,275
Total Proteins																									941,335
Total Fats																									690,945
Domestic Shortfall or Surplus																									
Total Food																									909,129
Total Carbohydrates																									1,504,524
Total Proteins																									(285,215)
Total Fats																									(298,135)
Desired Monitored Stocks																									
Net Imports																									
Imports																									
Commercial																									
Food Aid																									
Import Gap																									
Closing Stocks																									
Current Stocks																									

Source: Study on the Expanded Food Balance Sheets

While carrying out this technical task of formulating expanded FBS would not be much of a challenge to food security professionals, the major test is whether there are enough and reliable data to warrant the analyses and if the current institutional environment will be ready and willing to accept the new approach. These challenges are discussed in the following section.

3.3 Issues Influencing the Expanded Food Balance Sheets in Member States

This section focuses on the issues, which influence the accuracy of FBS and perceptions surrounding their utilization in SADC countries. This is because of the belief and reality that the validity and reliability of data are a prerequisite for preparing sound FBS. Suggestions for improvements are also provided.

A requisite for sound FBS is that they need be accurate in order to provide reliable information on the food supply situation of a country for a specified period. Therefore, the data that go into the computation of FBS should be accessible in addition to having an acceptable level of reliability. These influencing factors are discussed below.

3.3.1 Methodologies for Improved Accuracy and Reliability of Data

As discussed in previous sections of this report, strong methodological innovations to improve the accuracy and reliability of data have been developed for cereal crops compared with those for non-cereal crops. However, those advances including maintaining the reliability of the technologies developed by FAO are in danger of being eroded because they are undermined by financial, technical and managerial constraints. A solemn drawback is the high turnover of experienced technical staff for commodity estimation, exacerbated by limited opportunities to replace them. This is compounded by budgetary constraints at the regional and national levels, which hinder retention of those capacities in countries and the region. In addition, the regional and national EWUs fail to enhance capacities needed to carry out accurate commodity estimations because of lack of adequate funds. Consequently, the technically sensitive tasks are either left to be conducted by a few and/or by inexperienced staff, often resulting in incompleteness, delays and errors in the collected data, which confound their reliability. Moreover, methodologies for estimating production from roots and tubers, livestock and fisheries are still weak and require strengthening.

Positively, however, there have been renewed efforts to improve investments in agriculture in the region notably, the 2003 Maputo Declaration by the SADC Summit requiring Member States Governments to increase their annual national budgetary allocation for agriculture to at least 10%. Furthermore, Declarations of the SADC Regional Indicative Strategic Development Plan (RISDP) and the 2004 Dar-es-Salaam Extra-Ordinary Summit on Agriculture and Food Security reaffirms this commitment. It is perceived that the increase in the funding for agriculture would trickle-down to support the improvements of different food security activities including revitalizing methodologies for food commodity estimations with special attention to roots and tubers. There is need for SADC-FANR to strengthen the already developed tracking system to ensure satisfactory implementation of those Declarations.

3.3.2 Integrating Food Balance Sheets in the Broader Food Security Analyses

Food balance sheets are not an early warning monitoring tool. However, they play a primary function of indicating after current harvests, the food supply situation of a country until the next major harvests. In this context, they become a food supply early warning indicator for the coming consumption year (market year). As argued in various literatures, FBS provide the food availability component. They do not indicate how other components of food security

will be affected. To add value, there is need for integrating FBS into the broader food security and nutritional analyses models.

In 1996, the World Food Summit (WFS) adopted the basic food security model comprising of four main pillars of food security, that is, food availability, access, utilization and stability. However, the need to expand early warning activities from food availability to incorporate other food security components is not new. It first evolved from the publication by Sen (1981), which widened the scope of food security information analysis to include access issues. Subsequently, the SADC food security programme was revised in 1987 to include access issues particularly for the vulnerable groups. However, it was in 1999 when the role of the National Early Warning Units (NEWUs) in SADC formally expanded the analysis to include issues of food access. The establishment of the Regional Vulnerability Assessment Committee (RVAC) and corresponding National Vulnerability Assessment Committees (NVACs) broadened the analytical framework to strengthen food security and vulnerability analyses under the umbrella of the livelihood systems approach. The VACs constitute a conceptual model to which different levels of analyses from national to sub-national including community and households are possible.

Preparation of formal FBS is most useful at the national level because it summarizes the national food supply and demand, used by the government to develop relevant food security policies and decisions for that particular year, as well as for the future development programmes. Internally, a sub-national (mainly at the provincial/regional, district or community level) food needs analysis, if done, can facilitate objective understanding of food availability and needs for those food commodities commonly produced in those locations. However, one of the limitations in sub-national analyses is the difficult to determine imports and exports because it would not be easy to establish and distinguish movements of food from one location to another within the country from those commodities that cross the province or district borders.

Therefore, after completing the national FBS together with concurrent analysis of early warning monitoring indicators, the VACs, utilizing the livelihoods' systems framework should conduct food security and vulnerability assessments, as well as nutritional assessments to determine the magnitude of the stress in the identified food insecure hot spots. To achieve this goal, there is need for increasing investments in the livelihoods systems analysis and capacity building in order to add value to the usefulness of FBS.

3.3.3 Independence of Technical Analysis

Producing accurate and reliable data goes a long way towards assuring the value of preparing sound FBS but the process through which data are produced and vetted by governments and partners plays a critical role in influencing consensus in decision-making. Since NEWUs are legal national institutions and NVACs collaborate with networks to conduct food security and vulnerability assessments, the requirement of "official data" should principally be satisfied. Additionally, since food security and vulnerability assessments involve multi-sectoral networks, the credibility of the results is assured because they establish ownership of the process, output and recommendations. Therefore, food security data and information submitted to SADC should not be subjected to the requirement of going through the government scrutiny before release—the process, which delays early warning information delivery and is highly susceptible to data abuse.

The current RVACs and NVACs should be strengthened and expanded to conduct series of at least four national and regional meetings. Before each meeting, the NVACs would have conducted similar activities in their respective countries. A similar approach has been

successful elsewhere such as in the Sahelian Permanent Interstate Committee for Drought Control (CILSS) in West Africa. These four meetings would be:

- The first forum is the pre-agricultural season conducted before the onset of the season. The forum assesses the national production projections, which are used to estimate needed production inputs, assess the input supply and compare them with the previous season, and make appropriate recommendations. In addition, the forum assesses the weather conditions and their impact on production. Problems affecting the performance of the season are discussed and remedial strategies sought.
- The second forum is conducted during land preparation and planting to review the implementation of recommendations made in the first forum and to ensure adequate and timely availability of inputs. Implementation follow-ups are conducted during this phase.
- The third forum involves presentations and reviews of the pre-harvest assessment results and preliminary food production forecast to provide prognosis of food security in the member states. During this meeting NEWUs submit and present preliminary forecasts and implementation constraints in the respective countries. The reports are discussed and possible solutions identified.
- The fourth and final forum involves presentations of harvest assessments by all member states. The data are discussed together with the access and utilization issues. They derive into preparing FBS, determining food needs and developing a consolidated region wide appeal for relief assistance, if any. Thereafter, a designated SADC-FANR committee or task force makes follow-up meetings and consultations with donors and stakeholders to ensure implementation of the recommendations and commitments made.

3.3.4 Definition of Food

Although FBS partly reveal how the food supply adequately meets the nutritional requirements of a country, and that should principally derive from all available foods, the food preferences and eating habits of different populations appear to influence the commodities to be included in the food balance analyses. The stereotype that cereals and especially maize is “the food” is strong among policy makers in most SADC countries. Other important foods, which are consumed as relish such as beans, fish meats and vegetables, or consumed at breakfast such as cassava, potatoes and milk, or just eaten as snacks between meals like fruits and chips are disregarded in the composition of FBS; and therefore, their nutritive values not determined and included. In some countries, these strong policy orientations have been criticizing and even demanding removing most other food commodities from the computation of FBS. In spite of the fact that people’s food consumption preferences are essential when considering the “utilization” aspect in an integrated food security analysis, it is absolutely essential to come up with a basket of important food commodities, particularly those locally produced for including in the expanded FBS analysis. This basket should identify and include the primary (staple) and supplementary food commodities. Such analysis becomes even more important at sub-national level because it facilitates determining the supply level of food commodities that matter most in those locations.

This requirement of a common food basket creates yet a different intervention dimension at both national and regional levels. While the technical analysis within the national and regional EWUs and food security units to develop a standard food basket is straight forward, that of influencing policy makers and other stakeholders on the composition of the expanded FBS requires strong advocacy and sensitization. Some of these interventions would require subjecting the presentations of the innovations for expanding FBS through similar processes of SADC Member States protocols for the Summits and issuing Declarations. A Declaration

on a common definition of “food” might be essential. Discussions with different professionals in the region during this study, perceive this approach to be the best practical way for creating awareness and approval at the higher national and regional policy-making levels.

3.3.5 Definition of Food Balance Sheets

Alongside the definition of “food”, the purposes to which FBS are prepared need revisiting. SADC defines food security as “*sustainable access to safe and adequate food at all times and by all people for an active and health life*”. Therefore, in order to achieve an active and health life, people need a good diet composed of carbohydrates, proteins, fats, as well as vitamins and essential minerals. If there is agreement that FBS determine both the national food supply situation and ability to meet the nutritional requirements of the people, then the analyses of FBS need to reflect that understanding. As previously indicated, there is need for establishing nutritional daily requirements to provide needed energy as well as proteins and fats.

FBS analyses that include all available food items satisfy this composition as well as the definition of dietary requirements. The practice of preparing FBS from cereals only implies curbing hunger or famine as the main goal. As the consumption patterns of people change, there is need to move away from the cereal only based FBS because already there are cases of obesity or under-nourishment among adults in some of the SADC countries, despite some studies reporting below standards nutritional levels.

4 CONCLUSIONS AND RECOMMENDATIONS

4.1 Conclusions

Several conclusions can be drawn from the salient results of the study.

1. The SADC region and Member States have for the past two decades been using the food balance sheet approach to estimate the food supply and demand situations as well as determining the food security situations in the region and respective countries. All countries produce national FBS only using the standard format for SADC but with some modifications. Whilst some of the Member States produce a yearly FBS, others go a step further to generate more than one national product in a year mainly to facilitate periodic monitoring of the food situation in their countries.
2. The current practice for the majority of SADC Member States is for preparing FBS wholly from cereals although the countries produce different varieties of food crops (both cereals and non-cereals), keep different kinds of livestock and the region is endowed with large quantities of inland and marine fisheries. A few countries (Angola, Malawi, Tanzania, South Africa and Zambia) have already broadened their national FBS to include some of the non-cereal crops. Only South Africa has gone to the extent of including livestock products, fruits and vegetables in the food balance analysis. None of the Member States is currently incorporating fish products in their FBS. In some of the countries, the proportion between the production of cereals and non-cereals is almost equal, particularly the northern states of SADC. Additionally, at sub-national levels, the contributions of livestock or fisheries products in their food basket are more prominent than crops.
3. All countries in the region are plagued with dearth of accessibility of reliability of statistics on the production of non-cereal crops, fisheries, and livestock products

including the off-take and values, and the consumption of those commodities. These constraints are blamed to be limiting the expansion of FBS beyond the current practice. Although different methodological innovations have been developed by different practitioners such as the FAO Statistical Division, to improve yield and production estimates as well as reliability of cereal crops, those for capturing the production data for non-cereals, livestock and fisheries have remained weak.

4. Other limitations identified affecting the expansion of FBS in the region and countries include food consumption stereotypes and preferences, which put strong emphasis on cereals and particularly maize as the only paramount food commodity as well as the intrinsic assumptions on the classifications and composition of food commodities needed to meet dietary requirements. Cereals have been misunderstood to constitute the entire daily per caput dietary requirements.

4.2 Recommendations

The recommendations focus on what SADC-FANR and FSUs of Member States should be doing differently to improve the validity and reliability of data, which are fundamental for preparing sound expanded FBS; and for improving the utilization of those FBS once they are produced.

1. It is recommended that SADC-FANR and Member States adopt the expanded FBS of calculating food commodities according to the established and agreed dietary requirements of the people in addition to the FAO established food compositions. The examples given in the report demonstrate clearly the importance of including available food commodities in the FBS analyses for meeting the dietary requirements for an active and health life. Using these calculations, guarantees expanding FBS to include all available food commodities.
2. To ensure availability and accessibility as well as reliability of the data needed for preparing FBS, the regional and national early warning systems should consider enhancing the needed capacities in the region and member states for carrying out those tasks. In addition, SADC-FANR Directorate should coordinate the activities of the established systems, which include the Agricultural Information and Management System (AIMS), the Regional Fisheries Information Systems (RFIS) and the Promotion of Regional Integration in the SADC Livestock Sector (PRINT) so as to enable capturing data on non-cereals, livestock and fisheries products, comprehensively.
3. Regional and national early warning and food security systems should ensure that generated FBS are not an end in themselves but they ought to be integrated in broader food security and nutritional analyses (availability, access, utilization and stability) so that the localized food insecure and vulnerable groups of populations are identified and appropriate response decisions made. This would, in addition, take the advantage of strengthening collaboration with the regional and national VACs together with other existing food security networks in the region and member states.
4. The SADC-FANR and Member States need to initiate a dialogue and establish mechanisms focused on awareness building and sensitization of those policy and decision-makers and consumers to distinguish dietary requirements from food preferences as well as the role of FBS in the broader context of the national or regional food security.
5. Given that all these activities require substantial financial resources, the SADC Secretariat and Member States should consider increasing their budgetary allocations to

sufficient levels that would strengthen the SDAC-FANR and NEWUs and facilitate effective implementation of these important food security issues.

ANNEXES

Annex 1: People Consulted

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Annex 3a: Survey Questionnaire on Crop Production Utilization and Food Balance Sheets

Planning for Expanded Food Balance Sheets for SADC - General, Crop Production and Utilization Questionnaire for Member States

Dear.....

The SADC region has used the food balance sheet (FBS) approach to food security assessment since 1986 when the Regional Early Warning System was established.

However, the current analysis of the food balance sheet in the region and Member States focuses primarily on cereal food commodities, with only a few countries including some non-cereal crops such as cassava, plantains and sweet potatoes. Ideally, and in order to obtain a comprehensive picture of the overall food security situation in a country/region using the food balance approach, all possible food commodities, from whatever source, should be quantified and included in the analysis. This would mean including in the food balance sheet all cereals, pulses, root crops, fruits, livestock products, fish and many other food products.

While it may be impractical to include all food commodities available to people in the balance sheet, there is, nevertheless an urgent need to expand food items in calculating food balance sheets in order adequately analyze the food security situation in Member States and the SADC region. It has been recommended that the food balance sheet should cover at least 75% of the calorific intake of the people in each member state.

In order to meet this objective, we want to know how we can improve the analysis of the food balance sheet. We can only do this if you provide us with data and information on crop production and food balance sheet from your country. Please take the time to respond to the questions in the questionnaire below.

Please send the filled questionnaire to Mr. Bentry P. Chaura, Email: bchaura@sadc.int

1. Respondent details

Name of Country:	
Ministry/Institution:	
Position of person completing this questionnaire:	

A. Production of Food Balance Sheets

2. Do you produce a national food balance sheet? Please mark only one.	Yes	
	No	
If the answer is "Yes" Name of institution(s) preparing FBS.....		
Frequency (please mark one)	Year when started	
	Two or more times per year	
	Once per year	
	Once in two years	
	Once in three years	
If the answer is "No" What are the reasons		

3. Do you produce sub-national food balance sheets? Please mark only one.	Yes	
	No	
If the answer is "Yes"	Name of institution(s) preparing FBS.....	
	Year when started	
Frequency (please mark one)	Two or more times per year	
	Once per year	
	Once in two years	
	Once in three years	
If the answer is "No" What are the reasons		

B. Food Balance Sheet Supply Elements

Production - Food Crops

4. Which food crops are included in the FBS? (Please mark all that apply)	Maize	
	Rice/Paddy	
	Sorghum	
	Millet	
	Wheat	
	Beans	
	Peas	
	Groundnuts	
	Cassava	
	Sweet Potatoes	
	Round/Irish Potatoes	
	Cooking Bananas (Matoke)	
	Other (please specify)	
Other (please specify)		

Production - Livestock Products

5. Which livestock products are included in the FBS? (Please mark all that apply)	Milk	
	Meat (include beef, goat, sheep, pork)	
	Poultry Meat (include all edible birds)	
If the answer is "None" in column 2, give reasons in this space below.	Eggs (all edible eggs)	
	Other (please specify)	
	Other (please specify)	
	None	

Production - Fish Products

6. Which fish products are included in the FBS? (Please mark all that apply)	Inland Artisanal (Freshwater) Fish	
	Marine Artisanal Fish	
If the answer is "None" in column 2, give reasons in this space below.	Other (please specify)	
	Other (please specify)	
	None	

Change in Food Stocks

7. Which stocks are included in the FBS? (Please mark all that apply with)	Monitored Opening Government Stocks	
	Monitored Closing Government Stocks	
	Monitored Opening On-farm Stocks	
	Monitored Closing On-farm Stocks	
	Unmonitored Opening On-farm Stocks	
	Unmonitored Closing On-farm Stocks	
If the answer is "None" in column 2, give reasons in this space below.	Monitored Opening Commercial Stocks	
	Monitored Closing Commercial Stocks	
	Unmonitored Opening Commercial Stocks	
	Unmonitored Closing Commercial Stocks	
	Other (please specify)	
	Other (please specify)	
	None	

Food Imports/Exports

8. Which data are included in the FBS? (Please mark all that apply)	Commercial imports	
	Food Aid	
If the answer is "None" in column 2, give reasons in this space below.	Estimates of Unrecorded trade (cross border)	
	Commercial Exports	
	Other (please specify)	
	None	

C. Food Balance Sheet Utilization Elements**Food Use**

9. What daily calorie requirement (that is KCal/caput/day do you use in the FBS (Please mark one)	2,100	
	Less than 2,100 (write the figures)	
	More than 2,100 (write the figures)	

Feed Use

10. Is feed use factored in the estimation of the FBS (Please mark one)	Yes	
	No	

Seed Use

11. Is seed use factored in the estimation of the FBS (Please mark one)	Yes	
	No	

Waste or Losses

12. Is waste of loss factored in the estimation of the FBS (Please mark one)	Yes	
	No	

D. Major Food Crops Produced in the Country**Major Cereal**

13. Information on major cereal food crops produced in the country (Fill in the blanks)

Name of Crop	2000/01 or 2001		2002/03 Or 2003		2004/05 Or 2005	
	Hectares (Ha) planted	Metric tons (MT) harvested	Hectares (Ha) planted	Metric tons (MT) harvested	Hectares (Ha) planted	Metric tons (MT) harvested
Maize						
Paddy						
Sorghum						
Millet						
Wheat						
Other (specify)						

Other Major Food Crops

14. Information on other major food crops produced in the country (Fill in the blanks)

Name of Crop	2000/01 or 2001		2002/03 Or 2003		2004/05 Or 2005	
	Hectares (Ha) planted	Metric tons (MT) harvested	Hectares (Ha) planted	Metric tons (MT) harvested	Hectares (Ha) planted	Metric tons (MT) harvested
Beans						
Peas (all peas)						
Cassava						
Sweet Potatoes						
Round/Irish Potatoes						
Other (specify)						
Other (specify)						

15. Are those estimates available at sub-national levels?	Region/Province	Yes	
		No	
	District	Yes	
		No	

For all crops listed above, please provide the main source(s) of data

16. Provide sources of data for food crops (tick all that apply)

Source	Maize	Paddy	Sorghum	Millet	Wheat	Beans	Pulses	Cassava	S/Potatoes	R/Potatoes
Ministry										
Admin Records										
NGOs										
Commercial										
FAOSTAT										
Producers										
Other										

For all crops listed above, please assess the reliability of the data

17. Assess the degree of Reliability of Data (Please mark one degree of for each crop)

Source	Maize	Paddy	Sorghum	Millet	Wheat	Beans	Pulses	Cassava	S/Potatoes	R/Potatoes
Not reliable										
Low reliability										
Reliable										
Very Reliable										
Please comment on the general reliability of these data										

E. Food Crops Imports and Exports

18. Provide national estimates of **food crop imports** and mark all sources of information. If the information is not available indicate "not available" in the appropriate space.

Type	2000 (Metric Tons)	2003 (Metric Tons)	2005 (Metric Tons)	Source of Data					
				Ministry Estimates	Local Gov Admin Records	NGOs	FAOSTAT	Fish folks or company	Other
Maize									
Paddy/Rice									
Sorghum									
Millet									
Wheat									
Beans									
Cassava									
Other (Specify).....									

19. Provide national estimates of **food crop exports** and mark all sources of information. If the information is not available indicate "not available" in the appropriate space.

Type	2000 (Metric Tons)	2003 (Metric Tons)	2005 (Metric Tons)	Source of Data					
				Ministry Estimates	Local Gov Admin Records	NGOs	FAOSTAT	Fish folks or company	Other
Maize									
Paddy									
Sorghum									
Millet									
Wheat									
Beans									
Cassava									
Other (Specify).....									

20. Assess the degree of Reliability of data on **Imports** (Please mark one degree of for each crop)

Source	Maize	Paddy/Rice	Sorghum	Millet	Wheat	Beans	Cassava	Other
Not reliable								
Low reliability								
Reliable								
Very Reliable								

21. Assess the degree of Reliability of data on **Exports** (Please mark one degree of for each crop)

Source	Maize	Paddy/Rice	Sorghum	Millet	Wheat	Beans	Cassava	Other
Not reliable								
Low reliability								
Reliable								
Very Reliable								

F. Improving the Data collection and reliability

22. Please provide suggestions for improving the collection of livestock production data in your country and SADC region.	
19. Please provide suggestions for improving the reliability of crop production data in your country and SADC region.	

G. Improving or Expanding the Food Balance Sheet

23. Please provide suggestions for additional or alternative information or analyses that you would like to see included in the expanded Food Balance Sheet for your country?	
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H. Opinion about Food Balance Sheet

24. Overall, what do you perceive to be the weaknesses of a food balance sheet?	
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25. Overall, how useful is the Food Balance Sheet in supporting your decision making on food security in the country/region?	Very useful	
	Useful	
	Not useful	

Thank you for taking the time to complete this questionnaire. Please return the completed form to Mr. Bentry P. Chaura, Email: bchaura@sadc.int by Monday, April 24, 2006.

Annex 3b: Survey Questionnaire on Crop Production Utilization and Food Balance Sheets

Planning for Expanded Food Balance Sheets for SADC - Livestock Production and Utilization Questionnaire for Member States

Dear

The SADC region has used the food balance sheet (FBS) approach to food security assessment since 1986 when the Regional Early Warning System was established.

However, the current analysis of the food balance sheet in the region and Member States focuses primarily on cereal food commodities, with only a few countries including some non-cereal crops such as cassava, plantains and sweet potatoes. Ideally, and in order to obtain a comprehensive picture of the overall food security situation in a country/region using the food balance approach, all possible food commodities, from whatever source, should be quantified and included in the analysis. This would mean including in the food balance sheet all cereals, pulses, root crops, fruits, livestock products, fish and many other food products.

While it may be impractical to include all food commodities available to people in the balance sheet, there is need to expand the composition of food items in calculating food balance sheets in order adequately analyze the food security situation in Member States and the SADC region. It has been recommended that the food balance sheet should cover at least 75% of the calorific intake of the people in each Member State.

In order to meet this objective, we want to know how we can improve the analysis of the food balance sheet. We can only do this if you provide us with data and information on livestock production from your country. Please take the time to respond to the questions in the questionnaire below.

Please send the filled questionnaire to Mr. Bentry P. Chaura, Email: bchaura@sadc.int

1. Respondent details

Name of Country:	
Ministry/Institution:	
Position of person completing this questionnaire:	

A. Livestock Production in the Country

2. Provide national estimates of **livestock populations** and mark all sources of information. If the information is not available indicate "not available" in the appropriate space.

Type	2000 (Million)	2003 (Million)	2005 (Million)	Source of Data					
				Ministry Estimates	Local Gov Admin Records	NGOs	FAOSTAT	Livestock Owners	Other
Cattle									
Goats									
Sheep									
Poultry									
Pigs									
Rabbits									
Other.....									

3. Have the data in item 2 above obtained from census or surveys or estimates?	From census	
	From surveys or estimates	

4. If the data have been obtained **from surveys or estimates**, assess their degree of Reliability (Please mark one degree of for each livestock)

Source	Type of Livestock						
	Cattle	Goats	Sheep	Poultry	Pigs	Rabbits	Other
Not reliable							
Low reliability							
Reliable							
Very Reliable							

5. Provide national estimates of **livestock products** and mark all sources of information. If the information is not available indicate "not available" in the appropriate space.

Type	2000 (Metric Tons)	2003 (Metric Tons)	2005 (Metric Tons)	Source of Data					
				Ministry Estimates	Local Gov Admin Records	NGOs	FAOSTAT	Livestock Owners	Other
Beef									
Lamb (Mutton)									
Goat Meat									
Pork (Pig Meat)									
Chicken									
Milk									
Eggs									
Honey									
Butter									
Other.....									

6. Assess the degree of Reliability of the Data in item 5 (Please mark one degree of for each livestock)

Source	Type of Livestock Product									
	Beef	Lamb (Mutton)	Goat Meat	Pork (Pig Meat)	Chicken	Milk	Eggs	Honey	Butter	Other
Not reliable										
Low reliability										
Reliable										
Very Reliable										

7. Are those estimates available at sub-national levels?	Region/Province	Yes	
		No	
	District	Yes	
		No	

B. Population Dependent on Livestock

	2000 - (Million)	2003 - (Million)	2005 - (Million)
<i>8. Total national population</i>			
<i>9. Population dependent on livestock</i>			

C. Imports and Exports of Livestock and their Products

10. Provide national estimates of ***imports of livestock and their products*** and mark all sources of information. If the information is not available indicate "not available" in the appropriate space.

Type	2000 (Metric Tons)	2003 (Metric Tons)	2005 (Metric Tons)	Source of Data					
				Ministry Estimates	Local Gov Admin Records	NGOs	FAOSTAT	Livestock Owners	Other
Cattle									
Goats									
Sheep									
Beef									
Lamb (Mutton)									
Goat Meat									
Pork (Pig Meat)									
Chicken									
Milk									
Eggs									
Honey									
Butter									
Other.....									

11. Provide national estimates of ***exports of livestock and their products*** and mark all sources of information. If the information is not available indicate "not available" in the appropriate space.

Type	2000 (Metric Tons)	2003 (Metric Tons)	2005 (Metric Tons)	Source of Data					
				Ministry Estimates	Local Gov Admin Records	NGOs	FAOSTAT	Livestock Owners	Other
Cattle									
Goats									
Sheep									
Beef									
Lamb (Mutton)									
Goat Meat									
Pork (Pig Meat)									
Chicken									
Milk									
Eggs									
Honey									
Butter									
Other.....									

D. Contributions of Livestock Products to Food Balance Sheet

12. Which data on livestock products do you contribute to the formulation of FBS? (Please mark all that apply)	Milk	
	Meat (include beef, goat, sheep, pork, rabbit)	
	Poultry Meat (include all edible birds)	
	Eggs (all edible eggs)	
	Other (please specify)	
	Other (please specify)	
	None	

E. Improving the Data collection and reliability

13. Please provide suggestions for improving the collection of livestock production data in your country and SADC region.	
14. Please provide suggestions for improving the reliability of livestock production data in your country and SADC region.	

F. Improving or Expanding the Food Balance Sheet

15. Please provide suggestions for additional or alternative information or analyses that you would like to see included in the expanded Food Balance Sheet for your country?	
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G. Opinion about Food Balance Sheet

16. Overall, what do you perceive to be the weaknesses of a food balance sheet?	
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17. Overall, how useful is the Food Balance Sheet in supporting your decision making on food security in the country/region?	Very useful	
	Useful	
	Not useful	

Thank you for taking the time to complete this questionnaire. Please return the completed form to Mr. Bentry P. Chaura, Email: bchaura@sadc.int by Monday, April 24, 2006.

Annex 3c: Survey Questionnaire on Crop Production Utilization and Food Balance Sheets

Planning for Expanded Food Balance Sheets for SADC - Fish Production and Utilization Questionnaire for Member States

Dear

The SADC region has used the food balance sheet (FBS) approach to food security assessment since 1986 when the Regional Early Warning System was established.

However, the current analysis of the food balance sheet in the region and Member States focuses primarily on cereal food commodities, with only a few countries including some non-cereal crops such as cassava, plantains and sweet potatoes. Ideally, and in order to obtain a comprehensive picture of the overall food security situation in a country/region using the food balance approach, all possible food commodities, from whatever source, should be quantified and included in the analysis. This would mean including in the food balance sheet all cereals, pulses, root crops, fruits, livestock products, fish and many other food products.

While it may be impractical to include all food commodities available to people in the balance sheet, there is need to expand the composition of food items in calculating food balance sheets in order adequately analyze the food security situation in Member States and the SADC region. It has been recommended that the food balance sheet should cover at least 75% of the calorific intake of the people in the region.

In order to meet this objective, we want to know how we can improve the analysis of the food balance sheet. We can only do this if you provide us with data and information on fish production from your country. Please take the time to respond to the questions in the questionnaire below.

Please send the filled questionnaire to Mr. Bentry P. Chaura, Email: bchaura@sadc.int

1. Respondent details

Name of Country:	
Ministry/Institution:	
Position of person completing this questionnaire:	

A. Fish Production in the Country

2. Provide national estimates of **fish products** and mark all sources of information. If the information is not available indicate "not available" in the appropriate space.

Type	2000 (Metric Tons)	2003 (Metric Tons)	2005 (Metric Tons)	Source of Data					
				Ministry Estimates	Local Gov Admin Records	NGOs	FAOSTAT	Fish folks or company	% fish available for national consumption
Marine Industrial									
Marine Artisanal									
Inland industrial									
Inland Artisanal									

3. Are those estimates available at sub-national levels?	Region/Province	Yes	
		No	
	District	Yes	
		No	

B. Population Dependent on Fishing

	2000 - (Million)	2003 - (Million)	2005 - (Million)
4. Total national population			
5. Population dependent on fishing			

D. Fish Imports and Exports

6. Provide national estimates of **fish imports** and mark all sources of information. If the information is not available indicate "not available" in the appropriate space.

Type	2000 (Metric Tons)	2003 (Metric Tons)	2005 (Metric Tons)	Source of Data					
				Ministry Estimates	Local Gov Admin Records	NGOs	FAOSTAT	Fish folks or company	Other
Dried									
Frozen									
Fresh									
Other (Specify).....									

7. Provide national estimates of **fish exports** and mark all sources of information. If the information is not available indicate "not available" in the appropriate space.

Type	2000 (Metric Tons)	2003 (Metric Tons)	2005 (Metric Tons)	Source of Data					
				Ministry Estimates	Local Gov Admin Records	NGOs	FAOSTAT	Fish folks or company	Other
Dried									
Frozen									
Fresh									
Other (Specify).....									

E. Contributions to the Food Balance Sheet

8. Which data on fish products do you contribute to the formulation of FBS? (Please mark all that apply)	Inland Artisanal Fish	
	Marine Artisanal Fish	
	Other (please specify)	
	None	

9. Assess the degree of Reliability of Data (Please mark one degree of for each crop)

Source	Production				Imports	Exports
	Inland Industrial	Inland Artisanal	Marine Industrial	Marine Artisanal		
Not reliable						
Low reliability						
Reliable						
Very Reliable						

F. Improving the Data collection and reliability

<p>10. Please provide suggestions for improving the collection of fish production data in your country and SADC region.</p>	
<p>11. Please provide suggestions for improving the reliability of fish production data in your country and SADC region.</p>	

G. Improving or Expanding the Food Balance Sheet

<p>12. Please provide suggestions for additional or alternative information or analyses that you would like to see included in the expanded Food Balance Sheet for your country?</p>	
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H. Opinion about Food Balance Sheet

<p>13. Overall, what do you perceive to be the weaknesses of a food balance sheet?</p>	
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<p>14. Overall, how useful is the Food Balance Sheet in supporting your decision making on food security in the country/region?</p>	<p>Very useful</p>	
	<p>Useful</p>	
	<p>Not useful</p>	

Thank you for taking the time to complete this questionnaire. Please return the completed form to Mr. Bentry P. Chaura, Email: bchaura@sadc.int by Monday, April 24, 2006.