

# DATA NEEDS FOR FOOD SECURITY ANALYSIS

A Paper Presented  
In

A User-Producer Workshop on Food Security Data Base – “*Streamlining Food Statistics and Information for Food Security in Tanzania*” Organized by Food Security Department,  
At Njuweni Hotel, Kibaha, 03.04 – 04.04.2000.

By

Ombaeli O. N. Lemweli  
Agricultural Economist, FSD  
Dar es Salaam, April, 2000

## 1.0 Introduction

Food security analysis is a complex process that is multisectoral and multidisciplinary in nature. It involves assessment of the food security situation, analysis of the main factors that contribute to food insecurity and the current policies, programmes and projects affecting food security in a country over a period of time. The aim is to design appropriate means and decisions through which limited resources can be targeted, vulnerable groups can be identified and profiled, appropriate programmes and policies can be designed and their impact analyzed. Because of these, food security data/information is therefore an important prerequisite for food security analysis. For effective analysis to take place, timely availability of adequate data that is collected, handled, analyzed systematically must be available. This paper is therefore discusses data needs for food security. It focuses on data requirement and availability, types and sources with aim of establishing gaps and suggests some remedial measures as an attempt to the way forward.

## 2.0 Data requirements

### 2.1 An overview of food security analysis

Food security is generally defined as "physical and economic access by all people at all times to enough and safe food for an active healthy life.". Its essential elements are **availability, accessibility and stability**. In each of the three elements, there are specific indicators which are used to provide data and hence information for food security analysis. Accordingly, there are outcome indicators, which reflect both supply and access, and outcome indicators (direct and indirect) which serves as proxies for food consumption. Normally, food security or rather food insecurity analysis takes place at National/sub-national, household and individual levels where most interactions take place. And, depending on financial, human, institutional and infrastructural resources such indicators have been used to identify various factors that influence food security at those levels.

### 2.2 Types of data required

The various data that are required for food security analysis are generated from both primary (e.g. surveys, PRAs etc.) and secondary sources. Such data are collected and analyzed by different institutions and under different systems such as, Early Warning Systems (EWS) i.e. National Early Warning Systems (NEWS), Regional Early Warning Systems (REWS) and Global Early Warning Systems (GEWS), USAID-Famine Early Warning System (EWS), FIVIMS, WFP-Vulnerability Assessments and Mapping (VAMS) and SCF-UK Risk Mapping, etc. And, based on the various indicators mentioned above data required can be grouped of the following categories:

#### 2.2.1 Supply data

In most case these are aggregated at national, regional, district, and local (in some few cases) levels. Some of these are as listed below:

**Meteorological data.** Such data can be obtained from Government reports, monitoring stations and of recent satellite information and remote sensing. They include rainfall historical data, current records

of rainfall levels and variability. They reflect the conventional emphasis on supply determinants of food security. Rainfall is an appropriate indicator when acute food shortage results from droughts or other extreme weather conditions such as floods.

**Information on natural resources** (including grazing land). May be from periodic assessments, government reports, government and donor studies local community/NGOs and satellite imageries measured in dekadal values (average/long-term etc.). Natural resources assessments may indicate nature and extent of availability of common property resource, extent of damage, degradation or decline of common property resource as a result encroachments, poor farming practices, environmental degradations etc. and their consequences on food security. Where possible, a special dimension of natural resources including food from natural resources which grow in the wild that in many places are gathered to form a significant part of the diet. Cost of maintaining computerized monitoring systems on a sustainable basis (e.g. vegetation monitoring - NDVI- vegetation index under NOAA/AVRR system) may, however, be prohibitive without guaranteed and confirmed financial support e.g. from government or donors.

**Agricultural production data** (crops and animals): Normally on crop harvests from crop cuttings on sample plots and forecasting, government and farmers reports and of recent remote sensing. Can be used in assessments of regional baseline vulnerability by calculating average per capita food production over the previous year, seasonal kg/capita, departure from average kg/capita, % change from past years, etc. The data is not gender aggregated.

**Inputs Data.** Include supply and availability of basic inputs to farmers such as fertilizers and seeds, agro-chemicals and sometimes farm implements (in quantities, price etc.). Such information may include institutions and services for input, supply and distribution, credit facilities etc.

**Agro-ecological models.** To improve accuracy of crop forecast, these models take into account access to soil and water conditions for specified crops e.g. FAO-Specific Soil Water Balance Model. Data for such models can be obtained from monitoring stations and soil assessment.

**Food balance sheet.** Principal tools for calculating national food security on yearly basis, constructed by assembling information on food supplies and disposals i.e. production-consumption requirements (opening stocks, production, and imports (supplies), domestic utilization, exports and closing stocks (disposal)). It is used to determine expected food deficit or surplus, the necessary food imports and food aid requirements. It is not drawn on disaggregated basis to detect differences across districts regions and can not tell how many people are affected by supply shortfall, where and what type of assistance needed. Often, underestimates non-traded crops (e.g. cassava, yams potatoes etc).

**Information on pest attack.** Information is either from government reports or field assessments. It includes frequency and extent of damage (as percentage change from last year or in seasonal amount kg/capita for crops etc) as a result of periodic attack on both plants and animals by pest (e.g. locust), can have a devastating effects on production. Also includes types of government services available for response as these influence vulnerability of the attack.

**Market information.** Based on price data and market surveys, which include value of crop prices,

## 1.0 Introduction

Food security analysis is a complex process that is multisectoral and multidisciplinary in nature. It involves assessment of the food security situation, analysis of the main factors that contribute to food insecurity and the current policies, programmes and projects affecting food security in a country over a period of time. The aim is to design appropriate means and decisions through which limited resources can be targeted, vulnerable groups can be identified and profiled, appropriate programmes and policies can be designed and their impact analyzed. Because of these, food security data/information is therefore an important prerequisite for food security analysis. For effective analysis to take place, timely availability of adequate data that is collected, handled, analyzed systematically must be available. This paper is therefore discusses data needs for food security. It focuses on data requirement and availability, types and sources with aim of establishing gaps and suggests some remedial measures as an attempt to the way forward.

## 2.0 Data requirements

### 2.1 An overview of food security analysis

Food security is generally defined as "physical and economic access by all people at all times to enough and safe food for an active healthy life." Its essential elements are **availability, accessibility and stability**. In each of the three elements, there are specific indicators which are used to provide data and hence information for food security analysis. Accordingly, there are outcome indicators, which reflect both supply and access, and outcome indicators (direct and indirect) which serves as proxies for food consumption. Normally, food security or rather food insecurity analysis takes place at National/sub-national, household and individual levels where most interactions take place. And, depending on financial, human, institutional and infrastructural resources such indicators have been used to identify various factors that influence food security at those levels.

### 2.2 Types of data required

The various data that are required for food security analysis are generated from both primary (e.g. surveys, PRAs etc.) and secondary sources. Such data are collected and analyzed by different institutions and under different systems such as, Early Warning Systems (EWS) i.e. National Early Warning Systems (NEWS), Regional Early Warning Systems (REWS) and Global Early Warning Systems (GEWS), USAID-Famine Early Warning System (EWS), FIVIMS, WFP-Vulnerability Assessments and Mapping (VAMS) and SCF-UK Risk Mapping, etc. And, based on the various indicators mentioned above data required can be grouped of the following categories:

#### 2.2.1 Supply data

In most case these are aggregated at national, regional, district, and local (in some few cases) levels. Some of these are as listed below:

**Meteorological data.** Such data can be obtained from Government reports, monitoring stations and of recent satellite information and remote sensing. They include rainfall historical data, current records

of rainfall levels and variability. They reflect the conventional emphasis on supply determinants of food security. Rainfall is an appropriate indicator when acute food shortage results from droughts or other extreme weather conditions such as floods.

**Information on natural resources** (including grazing land). May be from periodic assessments, government reports, government and donor studies local community/NGOs and satellite imageries measured in dekadal values (average/long-term etc.). Natural resources assessments may indicate nature and extent of availability of common property resource, extent of damage, degradation or decline of common property resource as a result encroachments, poor farming practices, environmental degradations etc. and their consequences on food security. Where possible, a special dimension of natural resources including food from natural resources which grow in the wild that in many places are gathered to form a significant part of the diet. Cost of maintaining computerized monitoring systems on a sustainable basis (e.g. vegetation monitoring - NDVI- vegetation index under NOAA/AVRR system) may, however, be prohibitive without guaranteed and confirmed financial support e.g. from government or donors.

**Agricultural production data** (crops and animals): Normally on crop harvests from crop cuttings on sample plots and forecasting, government and farmers reports and of recent remote sensing. Can be used in assessments of regional baseline vulnerability by calculating average per capita food production over the previous year, seasonal kg/capita, departure from average kg/capita, % change from past years, etc. The data is not gender aggregated.

**Inputs Data.** Include supply and availability of basic inputs to farmers such as fertilizers and seeds, agro-chemicals and sometimes farm implements (in quantities, price etc.). Such information may include institutions and services for input, supply and distribution, credit facilities etc.

**Agro-ecological models.** To improve accuracy of crop forecast, these models take into account access to soil and water conditions for specified crops e.g. FAO-Specific Soil Water Balance Model. Data for such models can be obtained from monitoring stations and soil assessment.

**Food balance sheet.** Principal tools for calculating national food security on yearly basis, constructed by assembling information on food supplies and disposals i.e. production-consumption requirements (opening stocks, production, and imports (supplies), domestic utilization, exports and closing stocks (disposal)). It is used to determine expected food deficit or surplus, the necessary food imports and food aid requirements. It is not drawn on disaggregated basis to detect differences across districts regions and can not tell how many people are affected by supply shortfall, where and what type of assistance needed. Often, underestimates non-traded crops (e.g. cassava, yams potatoes etc).

**Information on pest attack.** Information is either from government reports or field assessments. It includes frequency and extent of damage (as percentage change from last year or in seasonal amount kg/capita for crops etc) as a result of periodic attack on both plants and animals by pest (e.g. locust), can have a devastating effects on production. Also includes types of government services available for response as these influence vulnerability of the attack.

**Market information.** Based on price data and market surveys, which include value of crop prices,

monthly value/average (current and previous years).

**Regional conflicts.** Civil war and local traditional over resources can lead to regional instability in markets, or results in destruction of crops and infrastructure and can drastically affect food availability to people. Large influx of refugees as a result, can also tax resources that are available. Such information though not readily available can be obtained from key informants and NGOs and may include exposure to regional conflicts and its consequences including the number of incidents and influx of refugees.

### 2.2.2 Food Access data

Experience has shown that despite the availability of food, food insecurity and famine have continued to occur at community levels and in particular the household level. Consequently, the various indicators that measure food access have become apparent and stable access is now recognized as critical to household food security. And the need for data/information on factors that play role in limiting food availability and options that households have for food access. Food entitlements<sup>1</sup> and effective demand of households are now seen as crucial to household food security and household is probably the most important level through which food security can be analyzed. A household's stable access to food is thus determined by its means of procuring food (produced, purchased, gathered) and social mechanism that buffer the households from periodic shocks.

Several indicators/data to reflect food access especially on various means and coping strategies used by households to meet their food security are available. These are location specific, vary by regions, community, social class, ethnic groups, households and gender. Sources of such data are mainly from primary sources, collected through PRA, formal surveys and in-depth interviews; market surveys and in some cases from secondary sources e.g. government records and NGOs (like data on migration).

#### 2.2.2.1 Data on coping strategies

Essentially, strategies involve routine activities that can be grouped into:

##### i) Risk minimizing strategies

These involve data on adjustment to production and resources before and during production i.e. on diversification of resources and enterprises, important data being:

- Land use practices e.g. changes in crop mix or time of planting
- Diversification of livestock e.g. changes in livestock mix, early movement to alternative range, number of animal deaths etc.

---

<sup>1</sup> *Amartya Sen has defined entitlements as "a set of alternative commodity bundles a person can command using the totality of rights and opportunities that he/she faces i.e. what a person can produce, buy or borrow given what they own and the state can allow them to do with that". They can either be: Trade based, production based, own labour and inheritance or transfers. They give an individual control over resources they can use to satisfy their needs e.g. food.*

## ii) **Loss minimizing strategies**

Capture data on farmers' response to lower than expected production due to natural hazards e.g. drought:

- Quantitative and qualitative dietary changes e.g. number of meals/day, dietary diversity, etc.
- Change in food sources e.g. increased dependence of wild foods, number of households depending on reserve foods, etc.
- Diversification of income sources e.g. changes in petty marketing patterns, wage rates, number of off-farm employment, etc.
- Access to credit/loans e.g. number of people seeking credit/loan from relatives or other sources
- Livestock sales - number of livestock sales, seasonal decline of livestock sales, etc.
- Sale of production assets e.g. personal and capital goods (jewelry, farm implements household belongings, etc.), sale of young female animals etc.,
- Seasonal migrations - number of people migrating for works
- Distress migration - number of whole families moving out of the area

### 2.2.2.2 Data on food consumption

These are generated from:

#### i) **Direct indicators**

These are those which are closest to actual food consumption rather than market marketing channel information or medical status such as data on household budget and consumption survey, food frequency assessments, household perception on food security, etc

#### ii) **Indirect indicators**

Used in the absence of direct indicators (on the grounds of cost in terms of time and money). Included are data on storage estimates (an indicator for household food security status), subsistence potential ratio (based on the size of the farm, expected yield, age and sex composition of household and nutritional status e.g. anthropometric measurements on children under five i.e. weight for age and height for age, etc. These are used for targeting and monitoring impact of relief operations and defining areas with vulnerability.

### 2.2.3 Others

#### 2.2.3.1 Economic and Social Activities

These data on production activities, macroeconomic contexts, and trends in economics and sector growth, economic infrastructure (quality and coverage of roads, feeder roads, communication and transport) and on social infrastructure (number quality and distribution of education, health, water and sanitation facilities

### **2.2.3.2. Population and demographic data**

These may include data on population size, growth rate, structure and some basic household characteristics.

### **2.2.3 3 Policy and programmes related information/data**

These include data/ information on institutional and legal framework, plans and programmes, projects and strategies food security (targeting vulnerable groups). Others are government policies their impact on food security (e.g. agriculture and price policy, exchange rate policy, trade policy, institutional policy reforms -i.e. parastatal reforms and privatization) and other sector policies affecting food security e.g. transport, infrastructure, health, education, agro-industry, etc.

## **3.0 Roles of Institutions and Agencies in Data Requirements**

### **3.1 An Overview**

A number of institutions through their various routine activities in their various systems produce a lot of data/information that is in one way or another useful for food security analysis. This section gives a review of such institutions (the list is by no means complete) and the types of data they produce, details being on Food Security Department, while those for other institutions is just a mention and not the scope of the paper to dwell with them in details.

### **3.2 Food Security Department (FSD)**

The FSD under the Ministry of Agriculture and Cooperatives (MAC) through its mandates, is responsible for monitoring crop production, food supply and managing the Strategic grain Reserve (SGR) through its two main Units namely, the Crop Monitoring and Early Warning Unit (CMEWU) and the Strategic Grain Reserve Unit (SGRU). Available Data/information is aggregated at district, regional and national a level (that for SGR is aggregated from its seven zonal offices in Kipawa, Arusha, Dodoma, Shinyanga, Makambako, Songea and Sumbawanga). These form the basis for the assessment of food security situation, forecasting the forthcoming situation and advise the government on action to be taken in case of food shortage.

In the due course of its routine activities, FSD collects data/information from both primary and secondary sources. This is either through field surveys, rapid assessments to the region and from various reports from government and other institutions' records (see annex 1 for a detailed guideline format for data collection) which include among others:

- Qualitative and quantitative crop performance data
- Data on adverse effects to crops i.e. due to diseases and pest attacks
- Meteorological data
- Input supply and distribution data i.e. fertilizers and seeds
- Market information for cereal staples (price information)



- Household coping strategies
- Food import-export (commercial & food aid) data
- Data on SGR stocks and its management

FSD has some linkages and collaboration with government and other institution that collect related data as follow:

- i) **Marketing Development Bureau (MDB)** now the Marketing Information Unit under the Agricultural Information Service (AIS) section of the Planning and Policy Department of MAC responsible for marketing information services. Relevant information available under MDB include retail prices for 45 urban markets (fortnightly and 3 monthly), whole sale prices of major food crops such as maize, rice, wheat, sorghum, millets and round potatoes for 19 urban markets. Also, markets supply data for maize, beans, and rice in 7 wholesale markets and monthly producer prices. Such information is normally available in quarterly monthly bulletin, monthly memo, and in annual reviews for various food crops and is important for policy advice to the government and other institutions including private sector. The Food Security bulletin draws much of its marketing information from MDB.
- ii) **Meteorological Agency** technical assistance and data rainfall related data and information
- iii) **Agricultural Statistic Unit (ASU)** of AIS-MAC in collaboration with the National Bureau of Statistics (NBS) provides statistics on crops and livestock production and other Basic statistics. NBS also produces data on Household Budget Surveys.
- iv) **Regions - DALDOs and RADOs** in collaboration with Local Government and Regional Administration through extension and statistic officers in their localities provide districts/regional regional aggregated statistics on crops and livestock production.
- v) **Input Section of MAC** has data on agricultural inputs (e.g. seeds, fertilizers, agro-chemicals) supply, availability, prices etc
- vi) **Plant protection Section of MAC** provides data on adverse effects on crops due to pests/diseases and early warning signals.
- vi) **Disaster and Relief Coordination Department** of the PMO coordinates relief management with respect to emergencies such as floods, fire, drought has data/information, on population affected from regions (the basis for food requirements and basic needs estimations), food requirements for specific disaster areas. The Department, in collaboration with FSD, WFP, FAO, USAID-FEWS, and some NGOs initiates and coordinates vulnerability assessments which collects data on actual levels of food assistance requirements, number of vulnerable people and their localities, the basis for which SGR stocks are released for distribution.

The data collected under FSD plus the supplements from the collaborative institutions form an important input for the publication of Monthly Food Security Bulletins, a 10-days Agrometeorological Update and other technical information as may be required. Such publications are distributed to

various government institutions and departments, donor agencies, regional and global early warning systems, NGOs and private institutions, research and training institution, and others (on request) for various food security analyses and decision making.

### 3.3 Other Institutions

There are a number of other institutions, which through their various routine activities collect data on food security and related information:

- i) **Food and Nutrition Unit of MAC** collects through extension workers data/information that is aggregated from village, district, regional and finally national levels on agriculture and nutrition, nutritional status and food production, food preservation and processing and some on household food security and nutrition. The unit has strong link with UNICEF, TFNC and Ministry of Health.
- ii) **Tanzania Food and Nutrition Center (TFNC)** is mandated to monitor nutritional development of the population, through research, information, education and provide advisory services to the government and public. In its routine activities and projects, TFNC conducts nutrition and food security situation analysis in which a bulk of data is available on nutritional status (prevalence data) e.g. protein-energy malnutrition, micronutrients (i.e. IDD, VAD, anemia etc.) and child feeding practices. Also, information on household food security particularly on food storage, food processing and preservation, food requirements, food security indicators, food utilization and on nutrition related diseases. Most of the information is available through its (TFNC) publications such as Lishe Journal, Tanzania Nutrition Trends (TNT) etc. TFNC has link with many institutions including UNICEF, FSD, FAO, etc.
- iii) **Ministry of Health** through Health Information Management System (HIMS) has health and nutrition related information/data such as infant mortality, under weight children (Protein-Energy Malnutrition), diseases (e.g. malaria, diarrhea, anemia, HIV/AIDS, etc), low birth weight data, etc.
- iv) **UN-Agencies**

**FAO** provides not only technical support to food security programmes and projects (Special Programme on Food Security), Early Warning Systems, but also through its various publications and information system produces a lot of information/data (global and country specific) on food and agriculture including food security.

**UNICEF** among other activities, funds and support country specific programmes on nutrition and community participatory approaches to nutrition monitoring with interest of developing household food security indicators, the basis for which data will be made available.

**WFP** collects on weekly basis data on emergency food aid including number of refugees and other people receiving food aid, commodities distributed e.g. cereals (i.e. maize, rice, etc), pulses, vegetable oils, salts, etc. It also has data on food distribution to drought/flood-affected

areas, Vulnerability and mapping information and on others on food and nutrition related projects, e.g. dairy development, water and sanitation, dam construction etc.

- v) **NGOs and religious institutions** through their activities have some localized information/data on disaster and emergency relief activities, refugees and food distribution to vulnerable groups, etc. but such information is in piecemeal due to lack of coordination and clear framework for their operations

### 3.4 Internet as a Source of Data

With the technological advances in computer and communication and especially the development of Internet one can easily access information/data (global, regional or country specific) on food security and related from different web-sites e.g. FAO, WFP, SADC food security, etc. and provides the opportunities for data networking.

## 4.0 Data Gaps and Limitations

This section tries to give some gaps and limitations on data/information for food security based on the information given on section 2 of the paper. The analysis focuses only routine activities that are under the FSD, the mandated and one of the major institutions that undertakes food security issues and through which most of the data/information for food security analysis in the country is generated.

- 4.1 The available systems for data collection were formulated to respond to food shortages (i.e. the inter-annual variation production and productivity) due to climatic variations, diseases and pest and some unpredictable natural disasters at least in the short to medium-term. Focus was more on capturing information on production and hence availability as a major problem of food security than on factors and options those communities have for food access as the long-term solution to food insecurity.
- 4.2 Most information is aggregated at district, regional and national level and not at community or household levels as the focal point for food security analysis.
- 4.3 The data is not gender disaggregated to allow for gender analysis in food security analysis.
- 4.4 Crop Monitoring and Early Warning as the name suggest was initially under the Crop Development Section in the Ministry of Agriculture (by then) to conduct crop early warning information (mainly on major on grains and non-grains). Consequently, the contribution from livestock and say fishery as important sources of food has not been properly captured and information from these sources is minimal. The food balance sheets for example do not incorporate data from such sources.
- 4.5 There is limited baseline data for food security analysis, a situation that tends to limit the extent to which evaluation can be made. Information on household food security is inadequate. It is either partial or incomplete and its handling is neither systematized nor coordinated and is of doubtful reliability. This has imposed limitations on efforts to target limited resources, identify

and profile vulnerable groups and hence appropriate intervention measures.

- 4.6 Failure to publish results regularly e.g. food security bulletins. This may be due to limited resources such as financial resources for intensive gathering of data and dissemination and others like vehicles, computers and shortage of skilled manpower for data handling and management, most of which depends on external funding.
- 4.7 With liberalization and privatization, retrieval data and information from private sector has always being a problem. Sometime the information is not on time, is inadequate, incomplete and questionable.
- 4.7 Information flow between institutions is inadequate hence cross check of data collected/handled by two different institutions is very minimal.
- 4.8 There is limited access to information by users due to limited knowledge on source, and type of information needed and sometimes the interpretations of the data by some users is not easy.

## **5.0 Summary, Conclusions and Recommendations**

The importance of data needs for food security analysis can not be over-emphasized here. Food security definition and in particular, its three essential elements namely availability, accessibility and stability form the basis for which food security analysis at national, regional/district, household and individual level is carried out. Based on these parameters the paper has described different types of data/information requirement, the reviewed types of data available/produced by various institutions through their various routine activities and has established the data gaps that exist. At the end, some remedial measures have been given on how to improve the situations with some considerations for a food security information system.

What emerges from the above analysis on the understanding of the data needs for food security analysis is that, few institutions and systems for data collection are presently in place that adequately incorporate supply/production data and access/entitlement as part of the indicator set. Food supply data persist primarily because they are easier to get and are suited for aggregate analyses. On the other hand, socio-economic data require an in-depth knowledge of local area and the fact that very few donors or government are willing to commit the time or limited resources necessary to obtain such type of data. However, decentralized food security monitoring systems hold the greatest promise for capturing data in vulnerability in different groups than decentralized food security monitoring systems which are likely to experience more difficulties in adequately providing data for the assessment and analysis of food security at local levels.

Given that the data for food security analysis for that matter is complex with wider diversity of users and data uses, the information needs of different user group/uses will influence the selection of food security indicators and data collection methods to be used. While the national government and donors require quantitative information in a centralized system for planning and policy decisions involving sharing of limited resources across the region, local governments, NGOs and local communities require qualitative information in a decentralized system to design appropriate interventions, something

which call for a balance of data needs between the two systems.

It is important that attempts are therefore made to improve our systems/institutions for data collection in such a way to minimize and if possible eliminate most of the data gaps/constraints as identified.

In addition, food security information systems can be designed to take both the concerns of data from centralized and decentralized system into account. Using a staged process, vulnerability mapping can help determine, in a cost-effective way, where the decentralized system should be used while a contingency plan can be developed to link the information to response. In developing such a system some questions are, however, necessary:

- i) Why do you need to know about a particular food security indicator/data? What is the underlying theory or assumption being made?
- ii) What specific information do you need to interpret the data accurately and use them efficiently in your information system?
- iii) What information is already available and what information must be collected by information system because it is not available from any source?
- iv) How can best these information be collected in such a way that it is cost effective, timely, and reliable? Must, quantitative methods be used for example?
- v) Who will analyze data and write bulletins or reports?
- vi) How will the information system presents its main findings and disseminate them to the users, especially policy-makers (who are involved in food security planning) and other stakeholders?

Above all, it should be made clear that collection, generation of data and dissemination of information is an expensive undertaking, therefore if the suggestions presented in the above recommendations are to be implemented, it is necessary that agencies involved are fully supported financially, physical and human resources.

## **6.0 Reference and Bibliography**

Maxwell, S. and Frankenberger, T., 1992. **Household Food Security: Concepts, Indicators, and Measurements. A Technical Review.** UNICEF-IFAD.

URT-FSD and FAO, 1996. **National Workshop on Household Food Security and Monitoring in Tanzania and Preparation for World Food Summit.** Workshop Proceedings.

FSD and MAC Various Publications.

FAO 1991. **National User/Producer Workshop in the Agricultural Statistics. Report of a National Workshop.** Dar es Salaam, Tanzania.