

Markets, Food Security and Early Warning Reporting

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1. INTRODUCTION

Markets are critical to understanding food security and to performing better early warning analysis. People around the world interact in markets on many different levels: a woman goes to the local market to purchase maize needed to feed her family for a week, a farmer purchases fertilizer to ensure his/her crops grow to full potential, some family members are employed as daily wage laborers on others' farms and some household members migrate to the city work in factories. From inputs, to labor, to cash crop to food, markets are important in providing households with food and other goods, inputs to their own productive activities and sources of livelihoods and income.

Including markets in food security analysis is essential given its varied and critical roles in food security. Without a clear understanding of current and projected market conditions, food security analyses will be incomplete and inadequate. For example, if an analyst learns that rainfall in a particular area of a country is likely to be poor and production negatively affected, using knowledge of market networks¹ can help identify the geographic areas with and without access to alternative supplies and thus more precisely define the most affected areas. Those most affected could be situated outside the area directly affected by reduced rainfall and production. Focusing on just this immediate area could seriously underestimate the number of food insecure households and completely overlook areas that are potentially in need of assistance. Markets help trace out the effects and impacts of stresses and shocks and more precisely define needs and appropriate responses.

Users of food security information, namely decision makers, prefer reporting to be thorough and adequately

explained, and yet not heavy and nor burdensome. A food security analyst needs to consider how to tell a story and present information effectively. What is the most effective way to present data: on a table or a graph? What should be included on

¹ A market network describes commodity flows and points of exchange from production to the final consumer. The emphasis of market networks is on spatial and exchange relationships.

the graph to illustrate a point most clearly? What terms should be used? How much detail should be provided in the narration of the markets and food security story to ensure readers understand and grasp the important implications and messages? At what time is the information or messages most appropriate and useful?

1.1. Objective and Format of the guidance

The objective of this guidance is to provide food security analysts with a guide to analysis and reporting on markets in a food security and early warning context. It includes important topics to cover as well as some mention of sources of information and best practices in illustrating information. This guidance is organized as follows:

1. Food security analysis and reporting and why an analyst should include markets;
2. What are the critical components of the market;
3. Monitoring markets;
4. Assessing the potential for markets to respond;
5. Best practices in reporting on markets; and
6. Quick references and resources for the analyst.

The guidance illustrates the type of market-related questions and topics that are considered when conducting food security and early warning analysis. It does not present the universe of ideas and possibilities in reporting on markets because the topic is extremely broad and the context will, to some extent, determine what type of market coverage and analysis is most useful and hence appropriate (e.g., labor markets are important where labor is a significant income strategy for food insecure households or those vulnerable to food insecurity). The questions presented in the text are meant to guide the analysts' thinking process.

The guidance attempts to present the information in the order in which an analyst would utilize and process market information and concepts. It begins with a brief introduction to a basic market framework and an explanation of what the primary components of the market (i.e., supply and demand) are. These sections provide the user of the guidance with some orientation as to what aspects of the market context are important to food security analysis. The next section covers monitoring, which is a food security analyst's typical entry point to assessing and analyzing markets. The sections that follow monitoring are organized according to the market analysis tools that are most central to assessing market anomalies as well as supply (market actors) and demand (households and other industrial users) responses to stressors, shocks and market phenomenon. Monitoring and evaluating supply and demand responses is key to food security analysis and early warning, and is essentially the most important aspect of market analysis for these purposes.

At the end of the guidance, there is a short list of basic market topics to include in food security reports and a check list of questions that summarizes many of the main points covered. It is not exhaustive, but it can be used when conducting analysis, writing reports or drafting briefing presentations.

References to other market guidance materials are made throughout the guidance. These other guidance materials go into considerably greater depth on a particular topic. They are all included in the reference list at the end of the document, with associated links to the FEWS NET website. All guidance materials are produced in all four languages of FEWS NET: English, French, Portuguese and Spanish.

2. FOOD SECURITY AND EARLY WARNING REPORTING AND ANALYSIS

2.1. Food Security

Food security occurs when all people, at all times, have physical and economic access to sufficient food to meet their dietary needs in order to lead a healthy and productive life.²

² USAID Policy Determination 19. Definition of Food Security. <http://www.usaid.gov/policy/ads/200/pd19.pdf>

There are three generally accepted elements to food security: availability, access, and utilization.

- **Availability** means sufficient quantities of appropriate and necessary types of food are consistently available to individuals, within reasonable proximity to them, or within their reach.
- **Access** means individuals have adequate incomes or other resources to purchase, barter, or obtain/produce levels of appropriate foods needed to maintain consumption of an adequate diet or nutrition level.
- **Utilization** refers to proper usage of food, processing and storage techniques, adequate knowledge of nutrition and child care, and the existence of adequate health and sanitation services.

The general idea behind food security analysis is to gather available information on a variety of topics to determine how specific events and conditions will affect people's food security at a household level. Analysts normally collect information on agroclimatology, production forecasts, nutrition, livestock body conditions, market prices, and a series of other important indicators to create a complete picture of food security conditions for a specific country or region. Given the range of information collected, food security analysis and early warning is a convergence or integration of various disciplines with a goal of making accurate predictions about future conditions and potential impact. It is not necessary for an analyst to be an expert in each discipline relevant to food security analysis, but instead able to pull together a basket of information quickly and perform analysis that leads to understanding the current situation and predicting future food security conditions.

Reporting on food security can be just as cumbersome as the analysis. The main idea is to present information in a concise but complete way, focused on the needs of the decision makers and other readers. When the audience is broad (as is the case on FEWS NET), analysts need to account for the perspectives and needs of government authorities, technical specialists, NGOs, and donors. Identifying those needs in advance helps add the greatest utility possible to the final product. The observations and analyses included in reports should have a clear link to food security outcomes. A reader should not be left wondering how all of this information relates to food security.

2.2 Early Warning

Early warning refers to providing sufficient lead time between prognosis and actual food security outcomes (normally negative) so as to enable decision makers (governments, humanitarian agencies and donors) to allow for appropriate and adequate response.³

Where the purpose of reporting is early warning, the content should focus on potential risks to food security, largely anomalous patterns and behaviors, as well as provide an indication of expected food security conditions or how the food security conditions are likely to evolve in the relatively near future. While it is helpful to provide an update on current conditions, the focus is on the future, making whatever projections are possible given the data and information that is available while being clear about the level of confidence associated with the projections. For example, if there are typical patterns that prices and other market phenomena follow under current and normal conditions and reasonably good information about impending conditions, it is possible to utilize this information to project and estimate (within some range of confidence) how the season will likely unfold and potential food security outcomes. If there are major threats that could alter those expected outcomes, an explicit note about them and their potential consequences is normally noted. For example, if significant flooding is expected in an area and roads are usually washed out or impassable for a period time as a consequence, incoming supplies will be obstructed. If a neighboring country typically blocks exports of cereals when the agricultural season has been poor, an analyst could expect inflows (formal or informal) to decline and prices to rise in areas that typically source from that country.

³ Adapted from United Nations Economic and Social Council. "Early Warning for Food Security, Bangladesh 2007." <http://webapps01.un.org/nvp/frontend!policy.action?id=164>

3. MARKETS, FOOD SECURITY AND EARLY WARNING

Markets are a critical, but often under-analyzed and under-reported, facet of food security work. Markets shed light on two of the three pillars of food security: availability and access. In terms of availability, market analysis helps to determine household, industrial and institutional supply and demand, geographically disaggregate and identify areas of potential food deficit and surplus. In terms of access, market analysis helps determine when prices are prohibitively high for particular households and/or when particular events or conditions prevent participants of market networks from responding by releasing stocks or moving commodities from one location to another. Labor market conditions that results in low wages or insufficient labor opportunities also affect household food access.

Market information and analysis contributes to food security analysis in that it:

- Deepens the understanding and analysis of food security;
- Adds a dynamic aspect to food security analysis;
- Links households to local, national, regional, and global economies;
- Highlights important national and regional spatial relationships or linkages;
- Yields more precise estimates of needs;
- Improves scenario and outlook development and monitoring;
- Clarifies appropriate type, magnitude, and timing of response; and
- Sheds light on the constraints to food security caused by market irregularities and inefficiencies.

Market analysis for food security monitoring and early warning purposes focuses on signs of deterioration or improvement in food security that are related to food availability and access such as production shortfalls, non-seasonal increases in the prices of food and inputs, falling agricultural output prices, distress sales of livestock (e.g., sales of breeding stock or draft animals), uncharacteristically early or large migration of people in search of causal employment. In sum, assessing markets for food security monitoring and early warning works the same way as food security monitoring and early warning work in general.

In both cases, the focus is to:

- Look for trends
 - Historic (over a number of years)
 - Seasonal (over one year)
- Compare information to reference points/periods typically when a crisis occurred (a drought year)
- Look for anomalies (what is different)
- Estimate or project future trends (directions, relative magnitudes; qualitatively or quantitatively)
- Estimate demand and supply responses (qualitatively or quantitatively)
- Form expectations, make plausible assumptions and develop outlooks of what is plausible or expected in the near future

While the analyst might focus attention on household level impacts and food security, it is important to appreciate the different ways that stresses and shocks relate to markets. In this way, all of the direct and indirect effects on households will be captured and more appropriate responses will be identified.

- Markets can be affected by a shock.
 - poor and erratic rainfall results in reduced production and supply, and subsequent high food prices
 - storms and floods destroy warehouses and roads spoiling grain stocks and severing supply chains, which in addition to limiting supplies, significantly raising costs and food prices
 - excessive fuel prices increase transport and processing costs, shrink trader margins and incentives, depress producer prices, and increase consumer prices
- Markets form part of the response.
 - traders move supplies from surplus to deficit areas based on price signals
 - governments buy and sell stocks in an effort to stabilize prices
 - institutions (government and non-government) make local purchases and distribute food as part of humanitarian response and social welfare programming

- Markets can be affected by the response.
 - an influx of food aid can depress prices, farmer and trader incomes and incentives
 - trade barriers disrupt lucrative market flows, cause shortages and result in high food prices
 - price floors for producers raise costs for traders and ultimately food prices for consumers

Food security analysis for early warning purposes requires that an analyst understand and continually assess the environment in which markets operate in order to anticipate potential market stresses, constraints and responses in order to foresee impending food security implications at the household level.

For more on markets and early warning → *Bonnard “Markets Assessment and Analysis.”*⁴

When the focus of the reporting is on food security, understanding how markets operate and influence food security is what really matters. For food security reporting purposes, it is not necessary to go into significant depth and beguile the reader with market analysis. Reporting should focus on food security outcomes along with some clear and concise explanation of important market determinants, which must, of course, be based on sound market analysis. This guide gives considerable attention to market analysis to assist the food security analyst in getting the food security story straight, which ultimately leads to better food security and early warning reporting.

There is standard market information that is useful to decision markets and responders. First, reports should provide regular updates of supply conditions, including estimates of market supplies, stock positions, relevant policies and prices of key commodities and their substitutes. This information should be disaggregated geographically and illustrate conditions for populations typically vulnerable to food insecurity. Second, reports should provide regular updates on demand conditions such as which households have options for fulfilling their food needs and sufficient coping capacities (responses) and what are the current buying behaviors of industries and other sources of derived demand for food commodities.

When anomalies are identified, e.g., an atypical rise in the price of a key staple, reports should provide readers with the best indication of likely market responses, market constraints, government and humanitarian agencies responses and the potential impact on vulnerability and food insecurity. The presentation of this information should be disaggregated geographically and by population group. The provision of some indication of longer term responses and outcomes should be attempted.

3.1 Market Framework and Baseline

A food security and early warning analyst needs to understand the geographic scope of markets or market networks. A first step is to develop an understanding of the spatial extent and linkages within the commodity market system. One simple way to develop this understanding is to create market network maps. FEWS NET has created Production and Market Flow Maps for all countries and regions of coverage as a geographic baseline of market networks.⁵

For more information on the how these maps were constructed and their utility in creating a market baseline, conducting market analysis and on-going monitoring, see → *FEWS NET Markets Guidance #4: Commodity Market Maps and Price Bulletins: Tools for Food Security Analysis and Reporting.*⁶

A food security analyst also needs a framework for understanding how markets operate. There are a number of good clear frameworks for food security analysis (see FAO Food Security Information for Action distance learning module⁷). FEWS NET has drafted simple frameworks for each country of coverage, which are posted on the FEWS NET website. Because economies and associated market, trade and livelihood opportunities are dynamic and constantly changing, frameworks and tools need to be updated and modified periodically to account for those changes.

⁴ Bonnard, Patricia (2008) “Markets Assessment and Analysis.” In FAO Food Security Information for Action Distance Learning Module. www.foodsec.org/DL. The learner’s notes are available at www.fews.net

⁵ For an example of a FEWS NET Production and Market Flow Map, see here: http://www.fews.net/docs/Publications/zm_fullmap_maize_norm.pdf

⁶ Available online at http://www.fews.net/docs/Publications/MT_Guidance_Market_Maps_and_Price_Graphs_in_Analysis_No_4_En.pdf.

⁷ See www.foodsec.org/DL

In terms of market analysis, FEWS NET has adopted the Structure-Conduct-Performance (S-C-P) approach derived for the Industrial Organization discipline, and adapted for analysis of markets, food security and early warning. It is extremely useful to build a market baseline using the S-C-P methodology. This can be done by executing an intensive study or by slowly, intermittently and strategically, pulling pieces of the S-C-P framework together in course of regular work; assessments and other field trips and targeted interviews. Even without a comprehensive S-C-P framework in place, it is useful to think about and consider how markets normally function through this type of conceptual framework.

- **Market structure** consists of the relatively stable features of the market that influence the rivalry among the buyers and sellers operating in a market. Some examples of market structure include the number of buyers and sellers of food commodities in the market, the number of sellers of agricultural inputs such as fertilizer and veterinary drugs, barriers to entry into the market and the nature of market relations (vertical coordination mechanisms) among market participants.
- **Market conduct** refers to the patterns of behavior that traders and other market participants adopt to affect or adjust to the markets in which they sell or buy. These include price setting behavior, and buying and selling practices.
- **Market performance** refers to the extent to which markets result in outcomes that are deemed good or preferred by society. Market performance refers to how well the market fulfills certain social and private objectives. These include price levels and price stability in the long and short term, profit levels, costs, efficiency and quantities and quality of food commodities sold.

For more information on the S-C-P approach and how to use it to create a market baseline or profile and how it relates to food security analysis and early warning, see →[FEWS NET Market Guidance #1: Structure-Conduct-Performance and Food Security](#).⁸

Once an analyst understands how markets and networks generally work (e.g., sources and destinations of commodity flows, who participates, what commodities are available at what times of year, how competitive is it, when is demand the highest, etc.), s(he) can use this as a baseline for the comparison of current conditions and regular monitoring information and deepen and identify food insecurity and effective responses more accurately.

4. COMPONENTS OF THE MARKET

Markets are comprised of, and driven by, supply and demand and together they determine the current conditions in a market and market outcomes or what the S-C-P paradigm refers to as performance. In some instances, government may intervene with a variety of policies or programs to affect the normal function of markets. Because governments provide an enabling (or disabling) environment for markets, government actions are often viewed as part of the market context. The market supply, market demand, and market context together form the essential components of markets.

4.1 Supply and Market Supply

Generally, national supply equals production *LESS* seed retention and losses *PLUS* net stock changes (i.e., stock purchases minus stock sales and losses) and net imports (i.e. formal and informal flows into the country minus formal and informal outflows). National Food Balance Sheets (NFBS) attempt to capture national supply. National food supply (generally including cereals but sometimes significant root crops as is the case in Malawi) is the same as food availability. This is what NFBSs attempt to measure.

The concept and term supply can also refer to the provincial or district supply or even regional supply (e.g., West Africa or Central Asian). If interested in food security in a certain district of a country, it is important to consider the supply of food within the district and sources of supply for markets within the district. NFBSs are not typically constructed at the sub-

⁸ Available online at http://www.fews.net/docs/Publications/MT_Guidance_S_C_P_No2_En.pdf.

national level or the regional level⁹. While it is helpful to know national supply and NFBSs are a useful piece of information, a food security analyst needs to know what is available and accessible to households in specific areas at specific times of the year and thus sub-national or meso-level supply.

It is also important to differentiate between production estimates, supply and market supply. Just because a commodity is produced locally does not necessarily mean it will be consumed locally; it can be consumed in different parts of the country, across the border or shipped overseas. Likewise, just because agricultural output is lower than normal does not necessarily mean there is a shortage of food. Old stocks released onto the market, imports, cross border inflows, etc. can compensate for the production shortfall and keep supplies at normal levels. While the NFBS provides information on supply and typically formal (not informal) trade (both imports and exports), there is no differentiation between total and market supply. This is an important distinction. Market supply refers to the amount of a commodity being offered in the market. This is different than total supply in that it includes only that which is being offered through markets. This excludes the portion of food being retained by households for own consumption.

Example: Market supply of maize in Kenya

This example, taken from a FEWS NET Food Security Outlook, clearly distinguishes the components of maize supply in Kenya and also how current conditions will affect future supply. This passage discusses the maize market supply components: local production (from the Rift Valley, a major surplus area), cross-border trade with Tanzania (formal and informal private imports), and government imports from South Africa (public imports).

“The reduced long-rains maize production this season (10 percent below average) will be a factor influencing food security in the current quarter (September – December 2008) and the year ahead. Maize is the overwhelming staple across all livelihood zones, and any shortfall in its production is synonymous with elevated food insecurity. The Ministry of Agriculture (MOA) anticipates that in total, 2.3 million MT of maize will be harvested during the current long-rains season (September 2008 – January 2009), which normally accounts for close to 85 percent of total annual national maize output. The expected level of production is below both the 2007 long-rains harvest of 2.52 million MT and the three-year average long rains production of 2.58 million MT. The reduction in output is attributed to a 60 percent crop loss in the central highlands and marginal agricultural areas as result of poor rains in much of those areas; erratic rains in southern parts of the Rift Valley highlands; sub-optimal application of fertilizers; low use of appropriate seed varieties, after nearly a 30 percent increase in the cost of production; and a 10 percent reduction in area put to maize.

“In addition, the country has relatively low carryover stocks from previous seasons. The Strategic Grain Reserve, which is a vital in mitigating the domestic shortfall, moderating market supplies and dampening the rise in prices, is carrying less than 25 percent of the statutory requirement of 360,000 MT. It is also estimated that inflows through cross border trade will be below normal, sustaining current higher than normal prices. About 200,000 MT is normally imported through cross-border trade, but this year, these imports are likely to decline substantially as Tanzania, which normally contributes 44 percent of maize imports, seeks to replenish its own stocks following a poor 2007 season and currently has an official ban on all cereal exports. Under this scenario, even if the upcoming short rains are normal and current crop projections hold, the country will most likely not have sufficient supply to meet annual demand of about 3.2 million MT for the July 2008 – June 2009 marketing year. In order to address the likely shortfall in national supply, the Government of Kenya (GoK) plans to import about 80,000 MT of maize from South Africa by October 2008, to cover the immediate gap and probably import additional maize next year, before July 2009.”

Source: Kenya Food Security Outlook, October 2008 – March 2009, FEWS NET

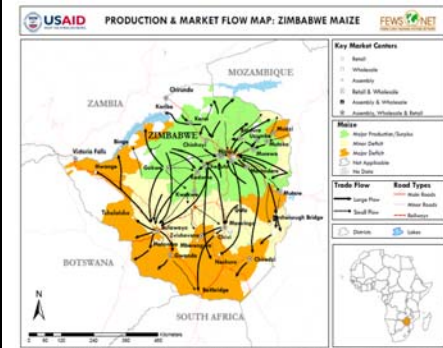
⁹ For more information on food balance sheets, see FAO (2002) “Food Balance Sheets: A Handbook” and Jacobs, Kristy and Daniel A. Sumner (2002) “The Food Balance Sheets of the Food and Agriculture Organization: A Review of Potential Ways to Broaden the Appropriate Uses of the Data.” FAO.

All too frequently, food security analysis focuses on local production and national supply. Inclusion of net cross border flows is confined to the food balance sheet calculation. But in many areas where markets are the main source of food, it is not necessarily local production that determines the supply of food available to households. Rather it is the market and the production in areas that typically provision the market and these areas can be near, far away or across the border. Therefore, when monitoring food supply and market conditions for a specific population group or geographic area, it is important to first establish what geographic scope of the market shed is and what the normal market network looks like. The basic geographic scope and important linkages of a commodity network can be easily observed with the use of commodity network maps.

Commodity market network maps

Typical market network maps show whatever information is most relevant to a specific market network, but should include:

- Surplus production areas
- Deficit and consumption areas
- Market centers (labeled according to market type, including cross-border market points)
- Flows of commodities between locations (markets)



Because the market supply is not stagnant but rather changing all the time, it is essential to understand what food is or will be available in a particular area and at what time of the year. NFBs are typically constructed annually and, in some few cases, it is updated, but infrequently. Understanding the seasonal calendar,¹⁰ trade flows (both into and out of the area of focus), local government and donor food distribution programs helps determine supply and its seasonality. Knowing the components of market supply will point to what indicators could be monitored in order to track market supply.¹¹ To understand supply at a sub-national level, it is necessary to identify the determinants of supply in the given area of interest: this can vary from one location within a country to another (e.g., production consumed locally, government programs formal and informal private imports, stocks, and food aid).

4.2 Market Demand

Market demand refers to the amount of a particular good that consumers and other buyers want to purchase at a given price. There are several demand concepts that are important to consider.

- **Household demand (effective demand):** Households with the ability to pay for food are said to have effective demand and only those households with effective demand will play a role in the market. There are households that would like to consume more of a good, but are unable due to monetary constraints: they are considered to have limited or no effective demand, hence limited or no effect on market outcomes. This group is generally represented by the poorest households. Household consumption from own production, gifts, and government or humanitarian programs (e.g., food aid) is not considered to be part of market demand.
- **Derived demand (e.g., industrial demand):** Derived demand is defined as demand for a commodity to be used as an input to another productive activity (e.g., the demand for maize as feed for poultry production). For certain commodities and places, it is possible to underestimate total market demand if only household demand is considered. Some examples of derived demand include cereals used for poultry feed, grain for bread production, and maize for breweries. Derived demand can also have an effect on prices; when a large-scale industry or business requires a commodity as an input and expands purchases, it can push up demand relative to supply and exert upward pressure on prices. The Nigerian chicken industry and Mozambican brewery are two examples of significant derived demand.
- **Demand for strategic grain reserves and humanitarian programs:** Government and non-governmental organizations make local purchases to support humanitarian and social safety net programs or strategic grain reserves (in the case of the government). The purchasing agent – government or humanitarian institution is

¹⁰ For an example of a seasonal monitoring calendar, see Annex 4.

¹¹ For a useful list of market indicators for food security and early warning, see Annexes 1 and 2 respectively.

included in demand. In some countries or in certain areas of a country, this type of demand can be substantial and a significant share of total market demand.

FEWS NET livelihood products (Baselines and profiles) are a good source of information on demand and demand preferences. The *Profiles* will typically list the major staple food as well as other important food commodities, including substitute commodities. There is usually some reference to how households within the livelihood zone obtain their food – own production, markets, etc. A livelihoods *Baseline* will provide more detail such as a breakdown of the share of food derived from each of these sources. Both *Profile* and *Baseline* products break this information down by wealth group¹² and by geographic location (livelihood zones).

Example: Market demand for grains in Nigeria

In this example, the analyst describes the elements of demand in Nigeria and also points to the complexity of sources of demand. This passage clearly illustrates the grain market demand components: local household effective demand and derived demand from poultry production.

The volume of grain trade between Nigeria and Chad is relatively minor compared with domestic grain trading channels as long as border areas of both countries produce adequate harvests. However, the combination of a grain production shortfall in northern Nigeria and relatively high demand for poultry-raising activities is tightening maize supplies from the Lake Chad border area and, as a result, affecting food prices (millet and sorghum) at the N'Djamena market.

However, despite the upturn in prices at other major domestic grain markets, prices at the Abéché market have moved in the opposite direction. The virtual suspension of efforts to rebuild the national grain reserves combined with the heightened security threat in the wake of the rebel incursion in the area may have temporarily reduced demand for grain and possibly helped drive down millet prices at that market.

Source: Chad Food Security Update, February 2008, FEWS NET

4.3 Market Context: Policies and other government interventions

The structure, conduct and performance of markets can be influenced by government policies such as subsidies, tariffs, quotas, price controls, and import and export taxes. For example, the number of traders who acquire trading licenses (barriers to trade), or the volume of goods and services that traders can import into a country (performance) is influenced by license requirements, import taxes and import quotas.

Policies affect markets and, consequently, food security. Governments often intervene in the free-functioning of markets for the purpose of alleviating the negative impacts of a particular event (e.g., shortfall in production) or creating an incentive for a certain type of behavior (e.g., subsidies for increased production or trading). However, a policy can have effects (both positive and negative) beyond the scope originally intended. While some policies have a positive impact on the targeted population, they may also have the opposite effect on another population group. Policies with explicit food security objectives and those with relevant indirect effects are both important to food security analysis and early warning (e.g., exchange rate policy).

It is important to understand the policy environment in which markets and households operate. Table 1 below provides a short list of policies and implications as an illustration of the many types of policies that can be considered. Governments of different countries may rely on very different policy mechanisms to arrive at the same goal. Note that the table describes potential effects only; the situation on the ground needs to be verified for each regional, country or subnational context.

¹² The HEA Livelihoods Approach breaks down wealth group by “poor,” “middle,” and “better-off.” These definitions are determined by the local community of focus. For more information on wealth groups, see <http://www.feg-consulting.com/hea/wealth-breakdown>.

Table 1: Illustrative list of government policies and their possible impacts

Policy	Possible Impacts on Markets	Possible Impacts on Populations
Import restrictions	Reduced supplies, slower and more limited response, possible smuggling and associated increased costs of trade	Reduced availability, higher prices, smuggling tend to push prices up
Price ceilings on food items	Reduced returns, lower supply	Reduced availability, lower prices
Grain reserves	Good management leads to more stable markets; poor management leads to greater uncertainty and volatile market conditions for traders	Good management leads to more stable supplies with lower prices and more stable prices; poor management leads to more erratic supplies and prices
Taxes along the market chain	Depending on elasticity, higher costs of trade and reduced supply	Depending on elasticity, high prices and less availability
Export ban	Reduced market outlets, increased stocks, lower returns	Increasing availability, reduced prices
Export ban in neighboring country	Reduced formal and informal flows into country, reduced supply, slower and insufficient response, possible smuggling and associated increased costs of trade	Reduced availability, higher prices, smuggling tends to push up prices
Import ban in neighboring country	Reduced market opportunities, lower returns and reduced incomes, more local supplies	Increased or excess availability, reduced access for those whose income is dependent on exports, lower prices
Support prices for producers	Increase production and supply (sometimes a draw for cross border flows)	Better prices for producers, higher prices for consumers, tighter margins for traders
Subsidies to input imports	Increased production	Increased availability and lower prices
Food aid distribution	Depending on elasticity, decreased demand for commodities, lower returns, less supply response	Increased availability, decreased prices
Cash transfers	Depending on elasticity, increased demand for food, higher returns, greater supply response	Depending on elasticity, increased access to food, increased availability, and lower prices

Source: Bonnard, Patricia (2008) "Markets Assessment and Analysis." In *FAO Food Security Information for Action Distance Learning Module*. www.foodsec.org/DL. Learner's notes are also available at www.fews.net or [http://www.fews.net/docs/Publications/Market Assessment and Analysis Training Module.pdf](http://www.fews.net/docs/Publications/Market%20Assessment%20and%20Analysis%20Training%20Module.pdf)

A policy enacted in one place may have effects in other places as well. One obvious example is an export ban. If a particular country (e.g. Tanzania) restricts or limits the amount of cereal allowed to exit the country, there will certainly be effects on surrounding countries such as Kenya that rely on those supplies. For this reason, it is important to think about the how markets and populations are connected and how events across the border could have significant effects on the local population. Livelihoods baselines and profiles can help identify some of these linkages.

Often there is more than one policy in place at one time, making it more difficult to determine the overall impact on food security. A very useful way to look at a set of policies is to create a "policy matrix." The matrix could look similar to Table 1 above, but be more specific to the populations and geographic areas of interest (e.g., areas that are more vulnerable to food insecurity or key policies). No matter how the information is presented, the following questions about the policy should be answered in reporting:

- What is the policy (a brief description)?
- What is the objective of the policy?
- How long is it expected to remain in place?
- What geographic areas will it affect?
- What population groups will be affected?

- What is the likely food security outcome?

Even if a matrix has not been created and included in a food security report, these types of questions need to be asked and answered in reporting. The following questions can help identify food security relevant policies and interventions and potential impacts:

- Are there government controlled commodity purchases or sales prices at any level of the market?
- Are there import or export restrictions — taxes, bans, quotas? And, if so, on what commodities?
- Are there licensing requirements or fees for engaging in trade?
- Are there import or export restrictions in neighboring countries?
- Is there food distribution?
- What is the exchange rate policy?
- How long will the policy or intervention remain in place?
- What are the effects and who is the target group?
- Are there any indirect or unintended effects of the policy?
- Who gains and who loses given a specific policy?

Understanding who gains and who loses is critically important. A policy to limit the cost of food sounds like a laudable food security measure because it aims to reduce household costs and support food access. But, if the policy is not designed carefully, it is possible that the retail price ceiling could excessively squeeze market margins and traders could lose the incentive to supply markets. In the end, food would be cheap, but generally unavailable.

Another important consideration is infrastructure. Infrastructure (e.g., roads, ports, tolls, etc.) enables markets to function more efficiently. For example, without passable roads, accessing a market is difficult for both traders and consumers. Governments normally are responsible for maintaining infrastructure. For this reason, changes in infrastructure (e.g., collapse of a bridge between two markets, impassable roads, etc.) should be considered within the enabling environment and market context.

Example: Policy restricted wheat flows from Pakistan affect food prices in Afghanistan

Production from and trade with Pakistan and Kazakhstan is extremely important for wheat supply in Afghanistan, making policy in the region critically important to food security in Afghanistan. Here, the analyst describes the impact of policy on food prices in Afghanistan and predictions for future months.

Retail prices for wheat continue to rise, particularly in Mazar-e-Sharif and Hirat markets, which are major centers of cereal trade. Food prices are likely to increase further in the coming months, due to possible increases in export duties or outright restrictions on wheat exports from Kazakhstan. Pakistan has already restricted wheat exports to Afghanistan.

Source: Afghanistan Food Security Update, March 2008, FEWS NET

5. MONITORING MARKETS FOR FOOD SECURITY ANALYSIS

Food security and early warning analysts monitor markets to gauge household food access and the ability of markets and households to respond to shortfalls and market disruptions, in general. As with other themes in food security, market monitoring is generally ongoing, tracking current conditions, identifying anomalies and interpreting food security implications. Early warning adds a dimension of projecting conditions and food security implications at some future point in time.

Food security analysis Current market conditions	Current market supply
	Current market demand
Early warning Future market response	Supply response
	Demand response

An important aspect of monitoring is seasonality. When monitoring agricultural phenomena, the typical season is the agricultural season, especially from planting to harvesting. When monitoring markets, the typical season is from harvest to harvest because the focus is on how does product move from the point of production through the market chain to the consumer and how does the supply of food change over the course of the year – from abundance to scarcity. Most food security analysts have some type of calendar to help identify the times over a year or season that are best for monitoring or checking in on the progress of specific events. Generally, calendars will include the timing of rainfall, harvest, and the hunger season, among other things.

Annex 1 and 2 of this guidance provide a fairly complete list of indicators that can be used to monitor markets for food security and early warning purposes. While the information in the Annexes represents a good foundation, variables and indicators should be selected with the local context in mind.

The section below presents a starting point for market analysis for food security and early warning purposes. Similar to the previous section, lists of questions and examples are provided in an effort to guide the thought process of food security analysts. In most cases, this guidance will give a brief introduction to types of analyses and terms related to markets, but refer the reader elsewhere for a more detailed explanation of how to perform the actual analysis and what it tells you.

Market monitoring calendars

Incorporating market events and seasonality into a calendar can help a food security analyst remember to monitor specific market-related events as well. Some market “events” or temporally specific occurrences for inclusion on a food security monitoring calendar are:

- Commodity availability by time of year
- Labor opportunities (what times of year are they plentiful and scarce)
- When is supply highest and lowest
- Normal government interventions or programs
- When do traders make specific decisions about the movement of commodities
- When are food prices the highest and lowest

Food security calendars (with market characteristics included) help food security analysts (1) determine when to monitor or check on specific events and (2) determine which variables and indicators to monitor.

Refer to Annex 4 of this guidance for an example of a monitoring calendar.

Some questions that help orient the monitoring of market supply and demand include:

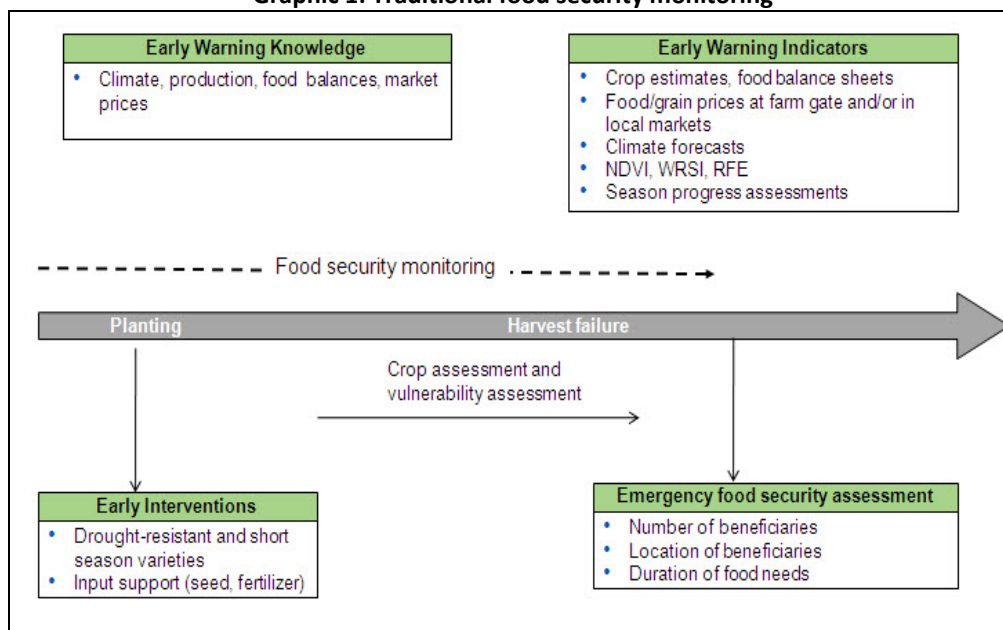
- What does the typical (normal or average) supply situation look like at this time within the market catchments — locally, regionally, or globally? How does this year compare?
- Is there enough food in the markets?
- What is happening to household, commercial and public food stocks?
- Are there incentives or disincentives to moving commodities from one place to another (see Supply Response)?
- Are food aid distribution and programming affecting supply (see Supply Response)?
- What is happening to food prices and costs of marketing food (see Price Analysis)?
- What is happening to the demand and remuneration for labor (see Labor Markets)?
- What are the current conditions of the markets that employ labor (see Labor Markets) and how does this compare to average conditions?
- What does the current demand situation look like — locally, regionally, or globally? How does this year compare to the normal or average situation?
- Are there any new businesses or industries that may compete for food (e.g. poultry with grain as input or wheat as an input for baked bread)?
- Are there any institutional purchases that may compete for food (e.g. strategic grain reserves or WFP)?

5.1 Monitoring markets

Typically, seasonal food security monitoring starts at the beginning of the agricultural season or shortly before. Early in the season, the focus is on agro-climatic indicators, and as the season progresses indicators of local production are added. Consumer prices for basic grains are monitored throughout, but they receive greater attention during the growing season, which tends to correspond to the hunger season. Perhaps overly simplistic, but this standard approach to seasonal monitoring is essentially a stock taking exercise of production and on-going assessment of food prices as a proxy for food

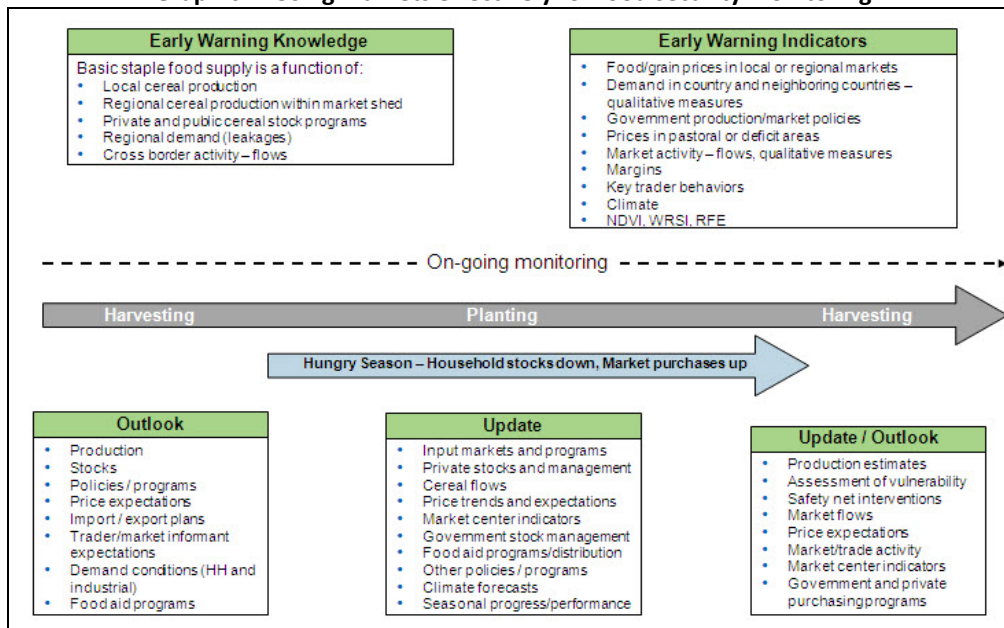
access. This approach is illustrated in the Graphic 1. The source of data and information is remote sensing, market information systems and sometimes the Ministry of Agriculture if crop forecasting or assessments are conducted. Market monitoring is limited to staple grain retail price collection.

Graphic 1: Traditional food security monitoring



Analysis of food security can be enhanced significantly with the inclusion of more in depth analysis of markets, and a more varied approach to data collection and monitoring. While an assessment of current local conditions is necessary, the capacity to use current information to project likely future outcomes is a significant asset to early warning systems. This requires information on production, public and private food stocks, policies and programs that create market incentives and disincentives throughout the relevant market shed and over the marketing or consumption season (from harvest to harvest). This may include collecting data and information from other countries, and key market participants' expectations of how the marketing season will unfold. While the harvest remains a logical point for taking stock of market and food security conditions, strategic updating of this type of information over the marketing season is critical. This could be carried out two or three times per year. When the initial stock taking and later updates should be carried out depends on the seasonal calendar. Graphic 2 illustrates this monitoring approach. It includes more context variables (knowledge base), a wider set of indicators, varying periodicity of monitoring activities, more diverse set of monitoring methods (infrequent and strategic visits or calls to traders in addition to standard regular price collection) and an appreciation for a wider range of response options hence decision maker information needs.

Graphic 2: Using markets effectively for food security monitoring



5.2 Which markets are important to understand and monitor?

Monitoring and analyzing markets for food security and early warning purposes tend to focus on food consumption and hence food markets that consumers' interact with, i.e., retail markets. But the food that is available at a certain price at the retail level is the direct result of how food commodities moved through the market system (from the farmer to the retailer). Moving through the market system implies influence from a wide array of market actors such as small-scale intermediaries, transporters, wholesalers, government buying and selling agencies, importers, millers and humanitarian assistance agencies. Actions all along a commodity market chain contribute to the ultimate availability and price of the commodity, not just agricultural performance and retail market agent behaviors. For this reason, it is important to understand and monitor the performance of the particular **market system (or market chain) as whole** and especially those aspects and points of exchange which influence market outcomes most. A food security analyst should continually build his/her knowledge of this system.

There are other markets besides staple food markets that are especially important for food insecure and vulnerable populations. **Cash crop markets**, for example, provide income from sales or wages through employment associated with the production, transformation or sale of cash crops. **Input markets** (e.g., fertilizer, seeds, fuel) are often important for cash crops production and, in some cases, for small-scale farmers.

Many food insecure and vulnerable households depend on **labor markets** either in agriculture or non-agricultural enterprises. And, many households also have their own small-scale business that may operate year round, seasonally or only as a coping strategy. These businesses operate within markets as well.

Market analysis essentially starts with an understanding of the geographic scope markets and the key linkages or relationships between market actors. One good way to better understand the spatial characteristics of markets and market networks is to create market network maps. Creating and using these maps can help determine the linkages between locations and predict how events, shocks, or hazards in one location might affect markets in another location. An occurrence or irregularity in one place may have compounding effects in other places.

With a commodity network map, an analyst can use it frequently as a (1) reference, (2) tool to target monitoring, and (3) tool to help disaggregate when reporting. Well designed maps can help analysts answer a lot of market and food security questions, including:

- Are food commodities this year moving according to typical or normal patterns?
- Are the “surplus” areas supplying the “deficit” areas in the way that they normally do?
- Are the markets that are traditionally supplied by surplus areas receiving the anticipated volumes?
- Looking at the market network captured on the maps, which markets are critical to monitor for the overall supply and movement of commodities within a region or country?
- If an event happens in one market, what are the possible implications for other markets within the network and thus people reliant on those other markets?
- Which markets matter to specific livelihoods zones, populations, etc? Are these the markets within that zone or outside the zone?
- Which markets should be included in a food security, vulnerability or emergency needs assessment?

For additional guidance on how to make market network maps and use them in analysis and reporting, refer to →**FEWS NET Markets Guidance #4: Commodity Market Maps and Price Bulletins: Tools for Food Security Analysis and Reporting.**

For additional guidance on how to monitor markets →**Bonnard “Markets Assessment and Analysis.”**¹³

It is not possible to study and monitor every economic activity within a country and their associated markets. But, it is possible to place an emphasis on those economic activities that are critical to food insecure and vulnerable households in areas typically considered vulnerable and thus warrant extra attention. Livelihood products such as baselines, profiles and zone maps provide good orientation to where an analyst could focus. Social and economic literature is now relatively easily accessible on the internet, and is good source as well.

5.3 Price analysis

Prices are probably the market indicator most often used, analyzed, and reported in food security work because household food access is inextricably linked to food prices. It’s important to remember, however, that prices are the outcome of the interaction of both demand and supply and they are a measure of market performance – how well do markets allocate scarce resources among competing demands.

Prices are monitored and analyzed in order to identify anomalies (i.e., deviations from the norm or average) that may have food security impacts. Creating an average of the last few years is a helpful way to smooth out past anomalies and determine what a “normal” year might look like. Average historic prices (five years is preferred) should be used for comparison and can be coupled with a reference year¹⁴ for an additional level of detail.

While it’s useful to note the price level (specific price at a moment in time) because this is the actual price buyers are facing, it is also important to view them in terms of trends over time, and not just discrete isolated points. One very basic way to view trends and make assumptions about the meaning of current prices is to graph them against historic prices, average prices and a reference year. FEWS NET produces monthly Price Bulletins comparing current nominal monthly prices in retail markets to a five-year average and a reference year.¹⁵ For more information on how to create and use price graphs in food security monitoring, refer to →**FEWS NET Markets Guidance #4: Commodity Market Maps and Price Bulletins: Tools for Food Security Analysis and Reporting.**¹⁶

While very useful, graphs or other graphics are no replacement for thoughtful analysis. Graphs should be used as a tool to help explain a point, but not serve as the entire story or a substitute for one. Some complementary narrative should accompany and interpret the graphs or what the content of the graphs mean in terms of food security. Readers and

¹³ Bonnard, Patricia (2008) “Markets Assessment and Analysis.” In FAO Food Security Information for Action Distance Learning Module. www.foodsec.org/DL. The learner’s notes are available at www.fews.net

¹⁴ The reference period is a period of time used to help explain or project into the future the performance and likely food security outcomes of the current period

¹⁵ For an example of these bulletins, visit <http://www.fews.net/Pages/archive.aspx?pid=650&loc=3&l=en>

¹⁶ Available online at http://www.fews.net/docs/Publications/MT%20Guidance_Market%20Maps%20and%20Price%20Graphs%20in%20Analysis_No%204_En.pdf.

decision makers need to understand what they are seeing in the graphs and how it is relevant to food security. The purpose of monitoring prices is to better understand outcome of market supply and demand forces, price behavior, and how this relates back to the food security of a particular place; this connection should not be lost in reporting.

Some questions that help guide how to place price trends within their food security context include:

- Are these price trends normal (close to the five-year average)? How do they compare to normal price behavior or years in the past?
- Are prices following a seasonal pattern? If they are different, how so and why? Analysis should be more than “prices went up” or “prices went down.” Both the magnitude and potential impact of the change need to be accounted for (i.e., put price movement within its context).
- Are livestock prices low and declining (or high and increasing)? Is this abnormal and will this trend continue? Have they surpassed some threshold value?
- Are cereal prices high and rising (or low and falling)? Is this abnormal and will this trend continue? Have they surpassed some threshold value?
- To what extent is inflation accounted for in current price movements?
- How are prices of different commodities in the same market center moving relative to each other?
- How are prices of the same commodity in different markets moving relative to each other?
- How will demand respond to increasing (or decreasing) food prices?
- How will supply respond to increasing (or decreasing) food prices?
- What are prices likely to be next month? What about later in the season?

Example: High prices in Uganda due to low stocks

In the example below, the analyst compared the price trends from this season with those in the past, providing a baseline that readers can understand. The analyst then provided the reason for high prices and when they are expected to normalize.

While most of the tradable stocks from last season are exhausted, demand remains high at domestic and export markets. As a result, commodity prices remain higher than in recent years and the five-year average, and are expected to remain so until stocks are replenished beginning in July/early August with the next harvest. Price differentials between production and consumption areas, mainly in urban areas, remain consistent, indicating the influence of delivery costs rather than speculative reasons, a concern many have as increasing prices may tempt traders to hoard stocks in anticipation of higher profits. Nonetheless, annual and perennial foods in Uganda’s district markets appear to be in good supply for all commodities, except in Karamoja, northeastern Uganda.

Source: Uganda Food Security Update, May/June 2008, FEWS NET

5.3.1 Inflation rates, price adjustment, and real prices

Inflation is defined as an overall rise in the prices of goods and services in an economy. In countries where food security is a problem, inflation is frequently a problem as well. Inflation may be the reason for abnormally high nominal prices, making food access a problem and contributing to food insecurity, and perhaps causing a general increase in the cost of living for all goods and services crucial to the fulfillment of poor households’ basic needs. Also, inflation might be outstripping any increases in wages and income, making purchases more difficult for households.

One way to understand how inflation is affecting prices is to convert nominal prices (prices that have not been adjusted for inflation) into real prices (prices that have been adjusted for inflation). It is useful for food security analysts to report prices in nominal terms, as these are the ones observed on the market and understood most easily by market participants, but they should consider real prices in addition to nominal price analysis to clarify the underlying causes of price rises.

Price adjustment refers to converting nominal prices to real prices using a given level of inflation. For guidance on how to (1) determine the current inflation rate and (2) create real prices, refer to **→FEWS NET Market Guidance #3: Adjusting Prices for Inflation and Creating Price Indices.**¹⁷

¹⁷ Available online at

http://www.fews.net/docs/Publications/MT%20Guidance_Price%20Adjustment%20for%20Inflation_No%203_En.pdf

Real prices allow an analyst to determine how relatively expensive a good is. But, because inflation rates are often determined using a basket of goods (where food accounts for about 20 to 25 percent), reported inflation rates may significantly over or under-estimate the price increases of food. For this reason – among others – it's important to understand how indices of inflation are calculated and how best to interpret them and real prices.

Regular reporting of real prices and inflation rates is not necessary. It's accounting for inflation in the analysis that is. Recall that a rise in price is an indication of increasing scarcity. But if there is significant generalized inflation in the economy, the price rise may not be indicative of increasing scarcity of that particular good. Knowing that there is considerable inflation suggests caution in announcing shortages of a commodity. The rise in food prices may be reflecting the general rise in costs throughout the economy rather than scarcity of a particular food commodity. Nominal prices are generally a better descriptor for decision makers and readers of reports. If inflation is becoming a problem or if real prices describe a specific and useful story, they should be included in the report, but not necessarily in every report just because inflation information is available.

Here are some questions to consider when reporting inflation and real prices:

- What is the current inflation rate?
- What is contributing to the current inflation rate?
- Are food prices rising as a result of inflation or scarcity?
- Are food prices rising at the same rate of wages and income?
- How would nominal prices compare to real prices? Are staple foods relatively more expensive now than in the past?
- What does the inflation rate say about food security more generally?
- Who is affected by the current inflation rate?

Example: Inflation and its effects in Ethiopia

Given the very high rates of inflation - both general inflation levels and food inflation – the following was observed regarding population groups most affected.

The national inflation rate in February 2009 was 46.1 percent, with food inflation at 61.1 percent and a non-food inflation rate of 24.2 percent. The price of maize, the food most widely consumed by the poor, is 130 percent higher than the 2004-2008 average and 47 percent higher than that of February 2008. The food security of households that spend a significant proportion of their income on food will continue to be negatively affected due to the high and rising staple food prices.

Source: Ethiopia Food Security Update, March 2009, FEWS NET

5.3.2 Consumer price index or food price index

While trends in prices of individual commodities are important and interesting for disaggregating analysis, looking at a basket of goods helps provide more information about how food prices (and household food expenditures) are moving together. This can be done by looking at the consumer price index and food price index for an area, as both provide a slightly different set of information.

Most governments create at least national level consumer price indexes. For food security, it is sometimes helpful to also look at a sub-national consumer price index, narrowing the geographic breadth of prices to focus on a specific population. Even more so, looking only at food prices, via a food price index, helps to isolate price movements of food as opposed to the consumer goods. Each type of index has its own merit and usefulness for food security and early warning work; picking the correct one to use and reporting requires an understanding of what is available, how the indices are calculated and how this relates to expenditure patterns of vulnerable households.

Consumer price indexes are also an indication of the rate of inflation, as described in the previous section. This is the most common source of used for inflation statistics. A food security analyst only needs to draw attention to the movement of different price indexes in reporting when there is reason for concern. In general, it is good to collect information regularly in order to identify anomalies, but only include it in reports when there is a specific link to food security or current events that may lead to food insecurity in the near future.

For guidance on how to (1) understand the utility of using a consumer price index for food security work and (2) create and use either a consumer or food price index of your own, refer to →**FEWS NET Markets Guidance #3: Adjusting Prices for Inflation and Creating Price Indices.**¹⁸

With a consumer price index or food price index, the following questions can be considered for analysis and reporting:

- How is the cost of living changing?
- How is the cost of living changing compared to prices of one particular commodity? What does this say about the relative expense of this particular commodity and how does it contribute to food security?
- How are food prices moving in comparison to others goods, wages and income opportunities?
- What does the food price index movement say about access to food in general? What about specific staple commodities?

Example: Increased cost of living in Maputo, Mozambique

This analyst describes cost of living increases as they relate to specific populations.

The cost of living for poor households in Maputo has increased by approximately 20 percent since November 2007. For these households, who spend a substantial portion of their income on food purchases, and have already had great difficulty meeting basic needs at informal sector wages, this increase is leading to reduced food access.

Source: Mozambique, Food Security Update May 2008, FEWS NET

5.4 Labor markets — wages, income, and labor opportunities

Not only is the price paid for food and goods important to food security analysis, but also the wages and income that support those purchases. Income provides a means of exchange for staple foods and potentially a store of savings to smooth future consumption. Households can earn income from a variety of different activities: on farm production and sales, cash crops for export, migratory labor, occasional farm and non-farm labor, livestock sales, fishing, etc. The FEWS NET Livelihood products are a source of information on wage and income opportunities available to and preferred by households in a given location. Food security and vulnerability assessments are helpful as well, although, they generally cover current behavior unlike the Livelihoods products that cover normal or baseline patterns.

With an understanding of household income types and levels, and economic conditions a food security analyst can make predictions about food access and the ability of a family to procure the necessary food to fulfill requirements. To access income from wage labor, it's important to consider both the wage rate and the amount of time worked – a decline in the demand for labor (e.g., wage labor opportunities) can be assessed through a decline in the daily wage rate or in job opportunities.

If wages and income start to fall, it is reasonable to assume that, household resources will be stressed making necessary purchases. Looking at available wage data can provide an indication of the cash earnings. Most governments collect wage information regularly in urban centers, but wage data for rural areas is much more difficult to find. When reporting with wage data, be sure to identify for which population groups these numbers are relevant. Without explicitly explaining this in a report, a decision maker or reader is left to make his or her own conclusions.

¹⁸ Available online at

http://www.fews.net/docs/Publications/MT%20Guidance_Price%20Adjustment%20for%20Inflation_No%203_En.pdf

In addition to looking at household level employment and wages, it is possible to gauge the labor market opportunities by looking at the vitality of the employment source or market itself. When export markets are depressed, labor demand and wages tend to fall in that sector and by extension other unskilled labor markets that act as alternatives sources of employment. Monitoring these markets is particularly relevant to households dependent on migratory, casual, and seasonal labor. If an analyst knows where and which households rely on seasonal labor in a particular sector and s(he) has an indication of the current and mid-term health of that sector, s(he) can predict decreased income for a particular area, potential hardship, and lack of food access contributing to food insecurity. In order to make these links, it is necessary to understand, even at a basic level, labor market networks, flows, and seasonality. Even anecdotal accounts are useful for reporting, although supplementing with actual data is preferred.

Here are some questions to help target monitoring of labor market, wages, income, and labor opportunities of a particular geographic area:

- How are wages and income changing? Why?
- Are people able to find work? What are the current employment opportunities?
- Are normal casual and migratory labor opportunities available?
- If labor opportunities are suppressed in one area, will migratory laborers have opportunities for work elsewhere?
- Are wage rates and employment opportunities declining (or rising)? Is this abnormal? Will the trend continue?
- What is the employment situation expected to look like in the next month? What about later in the season?
- Are there currently any specific events that may contribute to suppressed wages, income, or labor opportunities in the near future?

Example: Surplus labor opportunities in north and south Nigeria

This analyst was able to compare labor opportunities this year with labor opportunities in the past, helping to make prediction about food security for the households with labor supply.

The onset of the growing season in the South and land preparation in the North provide ample opportunity for poor households with surplus labor to earn additional income to take advantage of lower-cost substitute staples and purchase additional food reserves. Poor households are likely to earn more this year for agricultural labor than both last year and an average year as agricultural wage rates have increased. Current daily agricultural wage rates in Oyo, Imoh and Abia states in the South are twice the average and 200 NGN above last year's rates. The rise is less significant in the North, where a laborer earns 500 NGN this year versus 400 NGN last year in the states of Borno and Yobe.

Source: Nigeria Food Security Update, March 2009, FEWS NET

5.5 Purchasing power and terms of trade

Food prices and wages/income are indicators often analyzed independently. But, for an additional level of understanding about the food security impact on households, the two should be monitored and analyzed together. Wages and income translate into the amount of money available for purchases. The price of food represents the amount of wages and income necessary in order to acquire that good. Looking at the two simultaneously helps determine the exchange value of income for staple foods.

Purchasing power is a measurement of the relative value of money in terms of the quality and quantity of goods and services it can buy. It represents the ability of a household to acquire goods and services based on its access to money or other forms of wealth. For example, if food prices are going up but wages are remaining stable, food is becoming relatively more expensive (decreased purchasing power). Moreover, if wages are increasing and food prices staying the same, households are able to (but might not) purchase more food (increased purchasing power).

Some households may rely on the sale of livestock, cash crops, or cereals as their income source. In this case, the producer price of these goods should be monitored in order to say something about the purchasing power of these households.

Sources of income can be considered assets – some liquid and some less liquid. Creating a ratio of the asset price to the staple food price is a crude but simple way to calculate purchasing power. This ratio is called terms of trade, the rate at which one good or service can be exchanged for another and is typically expressed as a ratio. It helps explain the purchasing power of specific population groups in specific geographic areas using the asset type of and staple food preferred by the household of interest. The four types of terms of trade most commonly used include:

- **Cereal price to cereal price:** Also called relative prices, this ratio provides an indication of how expensive one cereal is in relation to another. If comparing nominal market prices, it may shed light on how households may substitute between goods. This is a comparison of two retail prices – the price of millet compared to rice, for example. Additionally, the purchasing power of farmers can be assessed by creating a ratio of the producer price of one cereal to the nominal retail price of another cereal. Producer prices are used for the asset and consumer prices for the consumption good.
- **Livestock price to cereal price:** Comparing livestock selling prices versus cereal prices is an indicator of purchasing power for pastoralists selling livestock and purchasing cereals. Be sure to create the ratio based on the type of livestock typically sold and preferred cereal based on consumption patterns of the population group of focus.
- **Wage rate to cereal price:** This ratio provides an indication of how much of a given commodity a household with a particular wage is able to purchase. Make sure the wage rate is specific to the population of interest and select the cereal prices based on actual consumption preferences.
- **Cash crop price to cereal price:** For those households relying on the sale of cash crops for income, the ratio of the terms of trade can be constructed with the local cash crop selling price in order to assess the purchasing power of these households. Cash crop prices should be selected based on the price producers receive for their crop and cereal prices should match what is purchased at the market, i.e., consumer prices.

For more information on how to calculate terms of trade and what it means for food security, refer to → **FEWS NET Market Guidance #6: Terms of Trade and Food Security.**¹⁹

Here are some questions to help conceptualize purchasing power and terms of trade for food security analysis:

- What ratio would be most significant to the population of interest (i.e., which asset and which commodity should be chosen for the ratio)?
- To what populations or groups of people are these terms of trade important?
- What is the general movement of terms of trade?
- How does this trend compare to years in the past?
- What does this say about access to food?
- What do terms of trade say about purchasing power for particular population groups (e.g. pastoralists, producers)?

Example: Terms of trade in Somalia

Here is an example of how an analyst used staple food prices alongside wage data to show how changes in terms of trade in one particular area of the country.

In Sorghum Belt markets, sorghum prices have increased by 37 percent over the last six months (from Ssh 1,448/kg in January to Ssh 1,980/kg in June 2007), and the price in June was 25 percent greater than the five-year average. There has not been a proportional increase in wages, which has caused terms of trade between daily wages and cereals to plummet in most regions in the south.

Source: Somalia Food Security Update, July 2007, FEWS NET

¹⁹ Forthcoming. Visit the Markets and Trade section of the FEWS NET website to check on its status.
<http://www.fews.net/Pages/markettrade.aspx?loc=3&l=en>

6. MARKET RESPONSE AND FOOD SECURITY IMPLICATIONS

Estimating how food insecure households and food suppliers will react to market changes is central to assessing current and future food security conditions as well as designing responses and interventions. With an accurate and complete understanding of the current market supply and demand situation of a particular place, an analyst is able to make better predictions about how current conditions will change with the onset of a particular event or shock. An influx of supply given the start of a local harvest, for example, may relieve food prices, making staple foods more accessible for the poorest households. Or, an increase in demand for maize from a new local brewery may push up prices for households. Understanding the baseline (“normal”) and current situation is critical to making predictions about the next few months.

Markets are dynamic and ever-changing places, making it critically important to monitor diligently. Estimating market response may require a variety of different types of data and, subsequently, market analysis. Once an analyst is able to determine the likely response, the next step is to determine the effect on household food security. Will markets be able to compensate for a shortfall in supply? Will poor households in the surrounding area switch their demand to other commodities as a result of high prices? Be sure to follow one event all the way through to the impacts at the household level. For example, start with a production shortfall, and trace it to decreased supply in a particular market, increased prices in that market, to reduced consumption by certain households. Without thinking all of the way through to food security impacts on households, market analysis is incomplete, the food security relevance has not been registered and decision makers are unable to respond with appropriate programs or interventions.

Response comes in the form of both supply and demand. The food security community tends to focus on supply response, but demand response should be considered as well. Supply and demand are components of the market, and both influence the outcome of markets. Accounting for both supply and demand response will help better conceptualize and estimate future food security scenarios. Likewise, certain events might affect both supply and demand (e.g., food aid or cash transfer programming by donors or governments), and make a distinction between the two necessary so that the chain of actions (actions and reactions; market responses and coping strategies) can be fully accounted for.

6.1 Supply and Market response

Supply response typically refers to a production response. When producer prices for cowpeas are good one season, farmers react and plant more cowpeas and/or apply more fertilizer in anticipation of better returns. Supply response is tied to the agricultural season. Market response, on the other hand, is more dynamic, and not limited to changes in local production and agricultural season. The level of supply in a market can change in response to price changes or specific shocks or events. In addition, governments use policy to create incentives (or disincentives) to increase (decrease) the supply in the market. Some key factors that affect market and supply response include:

- **Transport of supply:** If the difference in prices between locations is large enough to cover transport, handling and all other costs (e.g., transactions costs), as well as provide some margin of profit, there is an incentive to move commodities from one location to the other. This will have an effect on local market supply, and; consequently, prices, potentially changing the ability of households to access food.
- **Incentives to store:** Similarly, differences in price over the season or calendar year can create an incentive (a sufficient price differential) for traders to purchase, store, and later release stocks onto the market in times of relative scarcity when prices are higher (or times of higher profit potential). This will affect the seasonality of market supply and household access to food.
- **Production (supply) response:** In the longer term (an agricultural season), producers may respond to specific incentives to produce more (or less) of a particular commodity. Some reasons for a change in incentives include high returns, producer price floors, input subsidies, or other government interventions that make production more or less attractive.
- **Food aid programming:** Another component of supply response is food aid programming. In many places, the food aid pipeline is mostly regular. In other places, only irregular shocks elicit a food aid response. Understanding the food aid response, then the likely market response (i.e., how will the local market be affected by an influx of food aid) is an important component of early warning analysis.

Here are some questions to help conceptualize possible supply response:

- Will traders who have stocks of commodities available in one location or market move them to another market that is experiencing scarcity or rising prices?
- Is there an incentive to store food now in order to sell later?
- Will producers respond to current market conditions or government policies? If so, what will be the response and what is the timeline? When will the response have an effect on market supply?
- What is the seasonal timeline for food aid distribution in a given place? How will distribution be different this year?
- How will markets respond to an influx of food aid?
- Will an influx of food aid bring prices down or drive them up further?
- What will be the food gap after donor response is accounted for?

Example: Donor response to food insecurity in Ethiopia

In Ethiopia, government and donor response is a critical component of supply and local food availability. Here, the analyst clearly articulates the expected response and what more is necessary for food security throughout the country.

In order to address the emerging disaster, the government has taken the initiative to coordinate the resource mobilization and response process. To this end, an updated humanitarian requirements document was released on June 12, 2008 by Ethiopia's Disaster Prevention and Preparedness Agency (DPPA) and its main humanitarian partners. According to the document, 4.6 million people require immediate emergency food assistance for the June to November 2008 period. There are also non-food emergency needs in the affected regions. To address these, no less than 421 million US dollars are needed through November 2008. Of this amount, however, only approximately 23 percent is currently available and assistance is needed to cover the balance, estimated at over 325 million dollars.

There has been an improvement in the relief cereal pipeline in July. The cereal pipeline, which earlier faced a 100 percent shortfall for July, can now meet 58 percent of the requirements for July with a shortfall of 42 percent. The cereal pipeline shortages, however, will be 51 percent in August and 100 percent in September. There will be a significant improvement in October when the shortfall drops to 17 percent, but it then rises again to 65 percent in November, assuming no increase from the ongoing *belg/gu* season needs assessment. In addition, uncommitted stock levels in the Emergency Food Security Reserve are very low, at approximately 57,000 MT as of July 9, limiting the possibility of borrowing from this food source.

Source: Ethiopia Food Security Update, June 2008, FEWS NET

6.1.1 Marketing margin and price arbitrage analysis

Analysis of marketing margins is essential to understanding market incentives and potential supply response. Marketing margins refer to the difference between the price paid by consumers and that obtained by producers (although margins can be calculated between any two levels of the market, e.g., wholesale and retail). Margin analysis helps evaluate whether increased costs of transportation will make transporting commodities from one location to another prohibitive. Margins also shed light on trader incentives to move food or other commodities from one location to another or hold on to stocks from one time period and another. An analysis of the marketing margin and cost components illustrates at what points along a market or supply chain costs and profits are significant.

Figuring out the costs of marketing requires breaking down the different cost components. These might include: grading expenses, packing expenses, transfer costs (transport, insurance and handling), storage costs, financial transaction costs (communication expenses, banking charges, commission and exchange rate related charges), market taxes or subsidies (e.g. sales tax or sales rebates), seller's benefit margin and product losses.

For more information on (1) the data necessary to calculate marketing margins, (2) the actual calculations, and (3) the food security utility, refer to **→FEWS NET Market Response Training.**²⁰

²⁰ Forthcoming. Visit the Markets and Trade section of the FEWS NET website to check on its status.

<http://www.fews.net/Pages/markettrade.aspx?loc=3&l=en>

Questions to consider when performing margins and arbitrage analysis include:

- How is the final price of a commodity distributed across participants at different stages along the market chain?
- Between which locations (markets) might commodities move given the right incentives? (consulting market network maps are a very useful place to start.)
- What are all of the marketing costs involved in moving a commodity between two places? (Consult a variety of market participants.)
- Given the marketing costs, is there incentive to move the product?
- If there are adequate incentives to move commodities, how much is expected to move?
- Are there certain disadvantages to moving commodities that should be noted?
- How will bringing in additional commodities to a particular location or market affect prices and supply in the destination market (supply response)?
- How will this affect supply in the market or origin?
- What will the increase or decrease in supply mean for the future market situation? How will prices change as a result?
- Are margins sufficient to allow for storing commodities for sale at a later date?
- What are the food security implications of the margin structure (various component shares)?

It is possible to gain extremely valuable insights from market participants, especially through a process of triangulation of opinions and perspectives. Market participants, those that earn a living from market-related activities, often have an abundance of information about the current status and expected future conditions of markets. Market participants include producers, traders, millers, transporters, retailers, and consumers. Each market participant can provide a slightly different perspective on how a current situation might evolve. Given their stake in the market, these participants are normally monitoring conditions closely and are able to provide very helpful insights.

6.1.2 Import and export parity price analysis

Import and export parity prices are used to assess the incentives to trade as well as the incentives to produce where local producers are in competition with producers and suppliers from outside the country or across the border. Parity price analysis is an important tool for understanding how market supply may respond to changes in a larger market space (namely international markets). Parity prices are used to compare prices of a commodity in two different locations, when the two locations are in different countries.

There are two types of parity price analysis: import and export. The type of analysis should be chosen based on the direction of flow of the commodity:

- Import parity price (IPP) – the value of a unit of product bought from a foreign country, valued at a geographic location of interest in the importing country.
- Export parity price (XPP) – the value of a product sold at a specific location in a foreign country, but valued from a specific location in the exporting country.

For more information on (1) how to calculate parity prices and (2) their utility in food security and early warning analysis, refer to → **FEWS NET Market Guidance #1: Import/Export Parity Price Analysis.**²¹

Some questions for consideration when analyzing import and export parity prices include:

- What two locations might serve as logical points between which to compare prices? Are these two markets normally connected by trade? Are they connected by trade only when there are stresses or there has been a shock affecting commodity availability, cost and flows?
- What is the cost associated with transporting/trading commodities between these locations?
- What is the final market under consideration and what are the key markets in that market chain that support market flows?

²¹ Available online at

http://www.fews.net/docs/Publications/MT%20Guidance_Import%20Export%20Parity%20Price%20Analysis_No%201_En.pdf

- Is the analysis being done from the perspective of the importer (e.g., the country is an importer of rice) or exporter (e.g., the country is an exporter of cotton, tobacco or maize)?
- Is there an incentive (or disincentive) to move food between two locations?
- Is there an incentive (or disincentive) for agricultural production given competition from international or cross border trade?

6.2 Demand response

All market outcomes are a result of supply and demand interaction. Food security analysis tends to focus on the implications of the outcome of that interaction – prices. However, it is equally important for a food security analyst to understand the forces that are determining that price and use this knowledge to anticipate prices and food security outcomes.

- Cross commodity substitution: Households have preferences for the type of foods they consume. Understanding those preferences (utilizing livelihoods information) sheds light on how changes in relative prices or a shock may affect household food access. If households are indifferent about eating maize or millet, and there are substantial supplies of millet in the market, and maize prices are rising, households will probably switch from buying maize to buying millet. On the other hand, if households strongly prefer maize over other cereals and maize is in short supply, households may forgo buying other goods in order to continue buying maize despite the high price, or they may purchase less maize and reduce the size of their meals. Determining preferences can add useful input into the analysis of substitution between commodities in the event of changing market conditions.
- Elasticity of demand: The elasticity of demand is defined as the percentage change in quantity demanded relative to the percentage change in the price. Because basic food commodities are necessities, especially for poor households, the demand for these commodities tends to be inelastic, meaning that an increase in demand will result in a larger price increase and an increase in prices will result in a limited reduction in demand for maize.
- Cash transfers enabling effective demand: In addition to food aid programming (which tends to increase supply), cash transfer programs stimulate the effective demand of those households that otherwise have limited or no access to the market. This increases overall market demand and will likely lead to an increase in prices if market supplies stay constant.

Some questions to help determine the demand response include:

- How will households change their consumption patterns based on a change in relative prices or a price shock?
- To what extent can sellers pass on cost increases to consumers?
- How will this change in demand affect food security at the household level?
- At what price level will households substitute away from their staple cereal? Is there a threshold level?
- Will cash transfer programs stimulate demand? What will be the effect of a rise in demand in a particular area?
- Will a change in demand cause an additional supply response? If so, what type and how will this affect food security?

For more information on elasticities, → **Bonnard "Markets Assessment and Analysis."**²²

²² Bonnard, Patricia (2008) "Markets Assessment and Analysis." In *FAO Food Security Information for Action Distance Learning Module*. www.foodsec.org/DL. The learner's notes are available at www.fews.net

Example: High prices forcing households to substitute (switch demand) in Guatemala

This analyst in Guatemala used data from a survey conducted with partners to describe how households are responding to increased food prices by shifting their demand. While not quantitative elasticity analysis, the qualitative evidence helped the analyst make similar observations and projections for food security.

This year, international staple food price hikes have attracted much attention. Even though international and national prices might be pushed up in the longer term, nominal maize prices in Guatemala City in June 2008 are below their June 2007 level. Rice and beans prices though, are considerably higher than at this time last year. Rice is imported, and prices respond to international market variations. Bean price hikes are common after the harvest period and are exacerbated this year by speculation by traders, who are increasing their storage capacity in an effort to control market prices. MFEWS does not expect significant impacts on food security in the short run.

A qualitative survey conducted by WFP and MFEWS in April 2008 showed that there is no crisis impact of the staple foods' price hikes on food security yet. Generally, households still purchase and consume as they normally do this time of the year, although some changes were detected in different areas:

- Maize is being substituted for maize flour and blends in some areas.
- Households reported to have reduced the quantity or quality of chicken, meat, or sausages consumed. These products are normally only purchased once every fortnight.
- Some households reported having reduced expenditures on clothes or transportation.

Source: Guatemala Food Security Update, May and June 2008, MFEWS

6.2.1 Complements, substitutes, and cross commodity effects

Food security analysis requires an understanding of what people in particular areas prefer to eat. Information extracted from Livelihoods products is generally very useful in creating a picture of the consumption patterns of different population groups in different geographic areas or zones. Understanding preferences (as opposed to patterns) provides important information on how consumers make choices between different commodities with different prices.

In many places, poor households rely on essentially one staple food (e.g., rice in Liberia). In other places, households typically consume more than one staple food (e.g., sorghum and millet in West Africa) and they will substitute between the two commodities depending on how strong their relative preferences are and how the prices of the two commodities vary in relation to each other (i.e., their relative prices). Understanding consumer preferences helps to assess how households will adjust to different market conditions and whether there is a threat to their food security.

Normally, substitute commodities are monitored alongside staple foods, unless the price per unit of a substitute commodity is difficult to accurately and consistently measure as is the case with cassava, yams and other roots and tubers. When the price of one staple commodity rises, consumers are likely to decrease purchases of that commodity in favor of the now less expensive substitute commodity. Both high prices and poor production or market supply are typical reasons for shifting demand between commodities towards cheaper or more readily available cereals. Shifting demand and preferences of commodities then may influence market behavior and how much of a commodity is available at a local market. Capturing this type of behavior is important for understanding food security impacts of price changes and is a good reason for monitoring prices of more than one commodity in a given market. The commodities should be carefully selected to reflect preferences and seasonal availability.

Here is a list of questions to help consider substitute and complementary goods within the context of demand response:

- How are households choosing their foods based on production performance and relative prices in the market?
- Are households resorting to crops they normally would not use or that are associated with coping for food security?
- How will a shift in demand of certain foods further prompt supply response?

6.2.2 Elasticity

Elasticity, in general, refers to the percentage change in one thing relative to the percentage change in another. In reference to markets, analysts normally refer to both the elasticity of supply and the elasticity of demand. Knowing how elastic demand is important for assessing changes in market conditions and the impact on food security, for example a fall in production, rise in prices, etc affect on demand once households have made adjustments.

Elasticity of demand – is the percentage change in quantity demanded relative to the percentage change in the price. The change in quantity demanded related to the price of the commodity, is the “*own price elasticity*” of demand. The change in quantity demanded as related to the price of another commodity, is the “*cross price elasticity*” of demand.

Understanding elasticities is helpful for predicting response, both supply and demand, to shocks that will affect market prices. An analyst should strive to understand how a particular event will impact prices, which will then impact the supply and demand of a given commodity, then the response at the market level. All types of market participants – consumers/households, traders, sellers, producers – will play a part in the elasticity level of a particular commodity, making it important for an analyst to understand the preferences at each level.

While a useful calculation, insufficient data will make it very difficult to describe elasticity levels accurately. However, anecdotal and qualitative information should still be used to make sense of elasticity and associated market response (both supply and demand).

Here are some questions to help frame analysis of supply and demand elasticities:

- How do households make choices about which foods they will procure?
- How are high food prices affecting household consumption now?
- Are there substitutes that households consume during times of relative scarcity of others? If so, what are they?
- How quickly do traders move supply between locations when prices change (elasticity of supply)?
- How competitive is the selling and trading environment in a particular market?
- How often is newly produced or fresh stock released onto the market to stabilize prices?

7. BEST PRACTICES IN REPORTING ON MARKETS

The previous sections have gone through a basic market framework, primary components of the market, standard methods of monitoring and analyzing markets and how to best present market information. For a reporting guidance, considerable space has been dedicated to the market baseline and market analysis. This is because it isn't the reporting on markets that is critical. It is the understanding how markets operate and influence food security that matters. Reporting should focus on food security outcomes with some clear and concise explanation of important market determinants.

Markets analysis for food security and early warning should focus on food security implications and provide some indication of market expectations or future conditions. Reports should contain the output of thoughtful analysis and convey market messages that have clear links to food security outcomes. The information should be presented so that decision makers can readily use it and decide on a course of action. Market analysis should also inform decision makers of when NOT to take an action and leave the markets to respond. The market analysis presented should be short, informative, convincing and relevant to food security and early warning.

There is standard market information that is useful to decision makers and responders. First, reports should provide regular updates of supply conditions, including estimates of market supplies, stock positions and prices of key commodities and their substitutes. This information should be disaggregated geographically and illustrate conditions for populations typically vulnerable to food insecurity. Second, reports should provide regular updates on demand conditions such as which households have options for fulfilling their food needs and sufficient coping capacities (responses) and what are the current buying behaviors of industries and other sources of derived demand for food commodities.

When anomalies are identified, e.g., an atypical rise in the price of a key staple, reports should provide readers with the best indication of likely market responses, market constraints, government and humanitarian agencies' responses and the potential impact on vulnerability and food insecurity. The presentation of this information should be disaggregated geographically and by population group. The provision of some indication of longer term responses and outcomes should be attempted.

All of the general rules for food security reporting apply also to market reporting or reporting about markets in the context of food security. However, there are specific best practices with relation to markets that should not be overlooked. Below is a list of several important things to keep in mind when reporting and writing about markets. For a more complete "checklist" to use when writing or reviewing a market report or market section of a food security report, see Annex 5 of this guidance.

7.1 Careful use of market concepts and terms

Like that of many other disciplines, markets and trade terminology is very specific. It is important to use market concepts and terms correctly when reporting so as not to confuse or misdirect readers. Using correct terminology is especially important when other food security and market analysts are part or all of the audience of reports. Accurately explaining and using terms also helps provide legitimacy to reporting.

FEWS NET has created its own glossary of markets and trade terms and definitions. It is a compilation of generic concepts and terms from guidances and trainings produced by the project, but can be used by any analyst interested in markets. For more information, refer to the [→FEWS NET Markets and Trade Glossary](#).²³

7.2 Disaggregating the analysis

Disaggregation refers to dividing into constituent parts. Analysis and reporting should always be disaggregated geographically and if possible by population group. In food security analysis, disaggregation is distinguishing responses, effects, impacts and outcomes across different geographic areas, entities (e.g., markets) or population groups (e.g., wealth, income, ethnic or other socio-economic groups). While availability and food balance sheets tend to be discussed at the national level, good food security analysis requires disaggregating observations and conclusions to the meso and micro levels.

Because a food security analysts' focus is normally country or regional-level reporting, the tendency is to generalize across the space being covered. However, disaggregation beyond country or regional-level is important for many reasons, some of which include:

- Provides a focus for programming and response;
- Helps an analyst with ongoing monitoring of a shock, hazard, or event;
- Helps prevent the impacts or disincentives of "over-response;" and
- Helps prevent inclusion errors related to food aid programming.

When tracing out the food security impacts of a shock or event, it is important to identify and clearly explain who exactly is being affected and in what location. When referring to markets, this can be done at a variety of different levels: geographically or related to a specific town or district, spatially across market networks, temporally, across populations, across wealth groups, or by type of market participant.

Here are some questions to consider to be sure analysis and reporting have been sufficiently disaggregated:

- Which markets are exhibiting what trends or behaviors? Rarely is every market in a country behaving the same.
- Which geographic areas of a country or region are most negatively affected market shortfalls or by distortions in the markets?

²³ Available online at http://www.fews.net/docs/Publications/FEWS%20NET%20MT%20Glossary_June%202009.pdf.

- Are there households in some areas where there are no real substitutes for the commodity experiencing an abnormal or excessive price rise?
- Do households in some areas have plenty of income generating activities so that a price increase does not affect them as much? Can households in this area expand their income-earning activities and afford to pay for food as prices increase? Do they have other successful coping strategies?
- What are the different impacts of market trends on producers, traders, millers, and consumers?

Example: The impact of high prices across different markets in Niger

Here, the food security analyst disaggregates the effects of high market prices across geographic locations in Niger.

Dysfunctional markets and soaring grain prices are contributing to food insecurity in areas such as Ouallam, Loga, Tillabery and N'Guigmi . In some cases, prices are running well above last year's figures for March and the five-year average. In most cases, the market situation is reminiscent of conditions in March 2005.

This price pressure has led to increasing food access problems. The hardest hit households are concentrated in the eastern part of the country (Gouré department and virtually the entire Diffa region), the Northwest (the Tillabery region, Loga department and northern Douchi in the Dosso region) and structurally deficit urban areas. The Agadez region is beset by the same level of food access problems, although, in this case, it is attributable mainly to armed conflict in the area which is curtailing access to markets and truck farming areas.

Source: Niger Food Security Update, March 2008, FEWS NET

7.3 Seasonality

Seasonality refers to the times of year when specific events occur. Like disaggregation, seasonality is an important aspect of market analysis and reporting. Considering and referencing seasonality helps both the analyst and his/her readers determine when events are anomalous or normal, and for how long they are expected to endure. When reporting, an analyst should include enough contextual information to help a reader determine how bad particular events or conditions actually are (e.g., if prices are always high at this time of year, it should not be reason to worry), how long they are expected to last, and are they inclined to induce a response or is some form of intervention required. Creating and utilizing seasonal monitoring calendars is an excellent first step to considering seasonality (see Annex 4).

Seasonality is important for many reasons, including:

- Helps identify which markets, geographic areas, and people will be affected and for how long;
- Helps identify which variables to monitor and indicators to use;
- Helps decision makers decide for how long a particular response should be employed; and
- Helps local readers frame events within those specific local agricultural and marketing seasons.

Here are some questions to think about in order to be sure seasonality has been taken into account:

- Are current events following the seasonal pattern?
- Are these events abnormal?
- Have specific events (e.g., high prices, harvest, rainfall, etc.) started late? Have they started earlier than normal?
- What does this mean for food security?

Example: Seasonality of price increases and traders in Burkina Faso

Understanding normal market seasonality in Burkina Faso helped this analyst to understand impacts on prices and make predictions about the next few months.

The current rise in prices could be attributable to the earlier than usual presence of grain traders from certain neighboring countries on domestic markets and the inclination on the part of farmers to hoard their inventories, looking to take advantage of the normal upswing in prices which generally begins sometime in January.

Moreover, the earlier than usual presence of grain traders from neighboring countries (Togo, Ivory Coast, and Ghana) on markets in large collection centers, surprising local traders, may also be responsible for the rise in prices and poor grain availability on domestic markets. The brisk domestic grain trade between grain producing and grain-deficit areas of the country over the period between October and December has since slowed in the face of declining grain availability on domestic markets. Likewise, after peaking during this same period, foreign trade flows between Burkina Faso and its neighboring countries have also slowed. Trade is generally brisk to normal up until March or April and, in some cases, even into May.

Source: Burkina Faso Food Security Update, December 2008 and January 2009, FEWS NET

7.4 Proper context – explaining why certain markets and commodities are important

When reporting, consider that readers often have less information than the writer. When reporting on markets, this generally means explaining why particular markets and commodities are included in the analysis and text. Why are they important to the analysis and/or findings? When including information on specific markets, be sure to give the name and reason for including it. If one particular market is constantly being mentioned in a report, the reader will want to know why this is the case – why is this market particularly important. Having an understanding of a market network is helpful when providing sufficient context.

Here are some questions that will help an analyst frame the importance of a specific market or network:

- Who is affected by conditions in that market?
- Where is it geographically located?
- What other markets or areas are connected or linked?
- Does it source a specific area?
- Does it receive its stocks from somewhere in particular?
- Is it located in a production or deficit area?
- What does demand look like?
- Is this market indicative of conditions in a broader region?

When including information on specific commodities, be sure to include good reason for this as well. Do not assume that readers know why commodities are important to the livelihoods (e.g., consumption, production, trading, etc.) of specific population groups.

Here are some questions that will help an analyst frame the importance of a specific commodity in reporting:

- Why are certain commodities monitored as opposed to others?
- Are the commodities important to all population groups in all parts of the country, to the population in areas where these two markets are located?
- Are certain commodities more important to one population or region and not another?
- Are there other commodities that are important in these areas/markets that should be considered as well?

Example: The most important commodities and markets for food security in Guatemala

This analyst from Guatemala explains why she follows particular markets and commodities in normal price reporting.

Maize is the main source of calories and protein in the Guatemalan diet. White maize is more heavily consumed than yellow maize, but the latter is preferred in some regions and used as poultry feed. Every Guatemalan household consumes black beans: as a protein source it is a particularly valuable complement to cereals in regions where households have limited access to animal products. Consumption habits are strongly linked to tradition and culture. Rice is mainly consumed in urban and peri-urban, but some rural households consume it as well. Guatemala is highly dependent on imported rice. The market in Guatemala City is the largest in the country and feeds the highest concentration of the population.

Source: Guatemala Price Bulletin, FEWS NET

7.5 Think beyond the borders – providing a regional and cross-border context

One unique characteristic of markets is their spatial reach. Moreover, most market analysis is not confined to district, provincial or even national borders as market networks often have cross-border and/or regional linkages. Remembering the extent of market networks and thinking about events across borders is incredibly important when analyzing and reporting on markets for food security. The events taking place in a neighboring country (within markets and at the policy level) may have a significant impact on events and conditions within the country of interest. Additionally, if current market events within a country of focus will likely have obvious effects in other countries, this should be reported as well.

Here are some questions to help consider the importance of regional and cross-border issues and events when analyzing and reporting on markets:

- How do regional production trends affect the country of focus? Are there large catchment areas in other countries that should be considered?
- Are there large or important cross-border markets that are important to monitor?
- Are there any ports in other countries that source the country of concern? How will events at this port affect conditions in your country?
- Does trade with a neighboring country account for a significant amount of national supply?
- How do government policies in other countries affect conditions in the country of focus?
- What about currency or other financial or macroeconomic issues elsewhere in the region?

Example: Djibouti's importance in East Africa

Here, the analyst explains the importance of a particular country on regional food security, making direct links to the countries that could be affected.

As an important trade hub for East Africa, and the transit point for more than 90 percent of Ethiopia's food imports, Djibouti plays an important role in the region. Therefore, its current food insecurity, and this situation's possible contribution to political unrest, should be considered a regional priority. It should also be noted that a lack of coordination and transparency is hindering the provision of assistance by the donor community.

Source: Djibouti Food Security Update, August 2008, FEWS NET

7.6 Best practices when including graphs in reports

Graphs are a convenient way to present a large amount of data at once and describe trends in a visual way. Graphs should never be used as a replacement to good and thoughtful analysis, instead a prop used to explain a specific situation, event, or trend.

There are several things to keep in mind when creating **all graphs** for use in food security and market reports. These suggestions help make graphs complete, comprehensive, and clear.

- Always label the axes and provide units.
- Include a title that explains the information presented in the graph.
- If reporting in a specific currency, include this information. This is especially important for cross-border points or regional reporting.²⁴
- Do not include too much information. Too many lines are confusing to readers. Include what is relevant but not superfluous.
- In general, graphing an indicator with respect to time should be done using a line graph. Comparing indicators without a time comparison can be done with other types of graphs (e.g., bar graphs, pie charts, etc.).
- Be conscious of scale. Try not to stretch information out (use a very small scale) or visually compact it too much. Stretching information out along an axis can make small changes look very big, possibly exaggerating changes and conveying the wrong message.
- When using numbers, start the axis at 0, unless the scale suggests otherwise.
- Graphs should never go without explanation. Always be sure to comment on the graphs you include within the text of your report. Otherwise, your reviewers will consider them unnecessary.
- Make sure that the text in reports and graphs are consistent. Your graphs should never illustrate something that your text does not reference or explain.
- Choose colors that are pleasing to the eye, not abrasive. Too much color is distracting.
- Always note the source of your data.

Price graphs are the preferred tool for presentation of price data since they provide information on current and past levels, price changes and trends. When looking at price trends for comparability, there are specific things to keep in mind. These include:

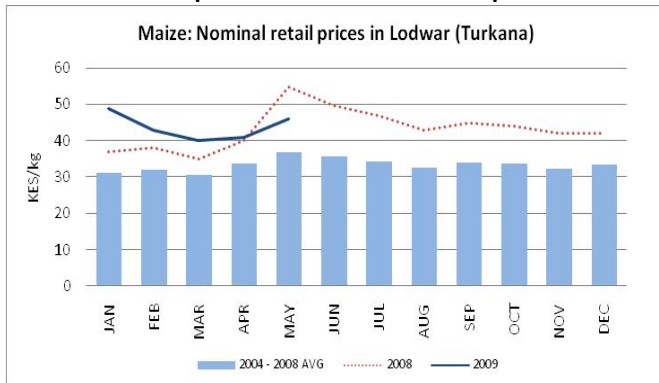
- Always include the name of the market referenced. Within the text of your report, also explain why you chose this market as a reference market. Also, state whether it is retail, wholesale, or assembly. This helps provide context.
- Refrain from using national average prices. They eliminate all of the variation across markets and areas of greater vulnerability to food insecurity.
- Do not average prices over different markets. It is better to pick a good reference market (or series of reference markets) than to construct average prices. The prices mean very little if they are averages across a geographic area, and averaging can also mask important difference in behavior across markets.
- State whether these are nominal or real prices. They can tell very different stories, so being clear about what is displayed is important.
- If you are making calculations or doing some adjustment to prices, be sure to include an explanation as to why and how you did this. This can be done as a footnote or directly below the graph.
- The x-axis should show at least one year at a time (12 months) and be labeled accordingly. If the goal is to show trends over a longer period of time, multiple years of data can be used, just be sure to label accordingly.
- It is easier to compare prices in a given month across different years vertically (i.e., with two lines, one for each year) than horizontally (i.e., over an axis that extends out for more than one year)
- If presenting monthly price information, consider starting with the onset of the agricultural or marketing season in the country or market of focus. Doing so helps readers with local context quickly relate to the information being presented.
- When possible, compare the current year to an average. FEWS NET uses a five-year historic average for comparison given the availability of data. This allows readers and analysts to identify anomalies easily.
- Like the historic average, including a reference year is also useful for readers. FEWS NET country representatives chose reference years for their graphs based on a “bad” year for consumers. Reference years provide easy comparability.

²⁴ When reporting currencies, FEWS NET uses the ISO 4217 codes. http://www.iso.org/iso/support/currency_codes_list-1.htm

- Report and graph the same set of commodities and markets over time. This helps users keep track of behavior over time and provides a reliable place to find this information.

FEWS NET has a standard way to present price graphs, which is illustrated in the Price Bulletin, Price Annex, and occasionally in monthly reports and presentations (see Graphic 3). While not the only way to present price data, it is a useful way to compare the current year’s price trends against a historic average and reference year.

Graphic 3: FEWS NET Price Graph



Components of the FEWS NET price graph:

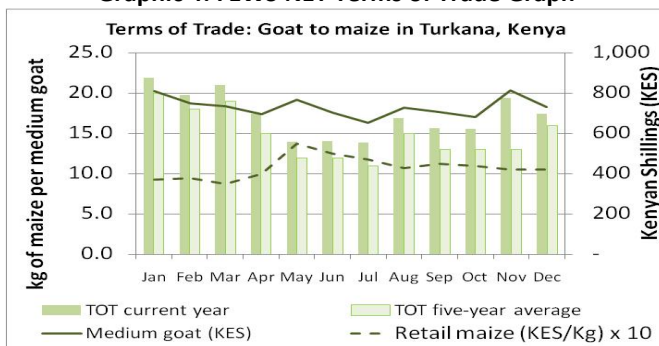
- **Current year price trend:** The **dark blue solid line** shows the current progression of final and official average monthly prices.
- **Five year average:** The **light blue bars** show the five-year historic average of nominal prices. In countries or markets where five years of data are not available, a shorter average has been used, but noted.
- **Reference year price trend:** The **red dotted line** shows the price trend in a reference year chosen by the analyst, normally a bad year for consumers (not to be confused with a bad production year).

When analyzing the purchasing power of households and the exchange value of their assets such as livestock, **terms of trade (TOT) graphs** are a common tool used in reports. Because the indicator being plotted is a composite or calculated indicator, the interpretation of the graphs can be more complicated. A few things to keep in mind when creating terms of trade graphs for food security reports include:

- Clearly denote the two parts of the ratio: the asset and the commodity. This should be stated in the title of the graph and labeled on any trend lines or axes relevant.
- Include the terms of trade, price of the asset, and price of the commodity on the same graph. This helps the reader understand how the movement of the individual prices translates into the movement in terms of trade and/or purchasing power.
- Where available, include a historic terms of trade average alongside the current terms of trade trends as a comparison. This helps identify anomalies in the current conditions.
- State the level of the market or prices (e.g., wholesale, producer prices, retail prices, etc.) used for both the asset and the commodity, when applicable (wage rates do not have a market level).
- Include all necessary units and currency types, as is the case for all graph types.

FEWS NET has a recommended graph for reporting terms of trade in monthly Food Security Updates and other food security or market reports (see Graphic 4). Given that that amount of historic data available may be limited, the exact components of the graphs may be altered to account for specific situations and to tell specific food security relevant stories.

Graphic 4: FEWS NET Terms of Trade Graph



Components of the FEWS NET terms of trade graph:

- **Current year terms of trade trend:** The **dark green bars** show the progression of the terms of trade ratio over the current year or season.
- **Historic average terms of trade trend:** The **light green bars** show the historic terms of trade average over the past five years, where available.
- **Current year price of asset:** The **green solid line** shows the price trend for the chosen asset (e.g., producer cereal price, livestock, wage, cash crop price, etc.).
- **Current year price of commodity:** The **green dotted line** shows the price trend of the chosen staple food commodity.

8. CONCLUSION

The objective of this guidance was to provide food security analysts with a guide to reporting on markets in a food security and early warning context. It included information on (1) food security reporting and analysis and why it is important to include markets in this analysis, (2) the components of the market, (3) monitoring markets, (4) assessing the potential for markets to respond, and (5) best practices in reporting on markets.

Markets are an integral component to a thorough and complete food security analysis. Markets function as a place for farmers to sell their output (food or cash crops) or their services for those who are self employed, a source of inputs for farmers and a source of food for households that rely on purchases of food for at least some of their requirements. Markets provide employment opportunities and serve as a mechanism of allocating labor. Understanding the markets and market networks, (the structure, conduct, and performance of markets) helps to understand current conditions and assess expectations of the future, providing important insights on food security and early warning.

Markets should be monitored regularly against a good knowledge base of how markets operate in the given context. Several types of analyses can be performed with the regular inflow of data information (e.g., margin and parity price analysis) to help understand current conditions and predict potential market response. The challenge for most analysts is determining what type of markets analysis and information is most important and how to apply standard market analysis in data poor environments.

For a food security analyst, market analysis and reporting should always be performed with a food security and early warning lens. All market analysis undertaken and results included in reports or briefings should have a clear relation to food security and food security impacts at the household level. The key is to use market data and information in a concise but complete way to answer the questions and meet the needs of decision makers. For most, this means determining the level of food insecurity, disaggregating by geographic area and population group, and estimating the potential for markets to respond.

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ANNEX 1: Market indicators for food security analysis

Indicator by type	Monitor regularly?	Monitor infrequently? For the knowledge base?
Macro or national level indicators		
Inflation rate	X	
Consumer price index	X	
Exchange rate	X	
Minimum wage	X	
Key Policies		
Export/import bans		X
Import/export quotas		X
Import/export taxes on key commodities (percent)		X
Price controls (yes/no and \$/unit)		X
Import/export policies of neighboring countries		X
Availability/supply		
Cereal imports (total metric tons and by cereal)	X	
Cereal exports (total metric tons and by cereal)	X	
Cereal production (total metric tons and by cereal)	X	
Public cereal stocks (metric tons)	X	
Commercial stocks (metric tons)	X	
Consumption requirements (metric tons)		X
Import parity prices		X
Export parity prices		X
Supply elasticity		X
Demand elasticity		X
Local/sub-regional level indicators		
Informal cross-border flows (total metric tons and by cereal)	X	
Farm gate prices for key commodities (\$/unit)	X	
Wholesale prices for key commodities (\$/unit)	X	
Retail prices for cereals (\$/unit)	X	
Transport costs (selected routes) – different seasons	X	X
Road conditions – different seasons		X
Distance/time between markets, catchment areas (km and hours)		X
Price of fuel (\$/unit)	X	
Informal fees (approximate amount)		X
Public and commercial stocks (metric tons)	X	
Storage costs (\$/bag or metric ton)		X
Casual labor wage rate (\$/day or hour)	X	
Livestock prices (\$/herd by species and type: bull, cow, etc.)	X	
Basic input prices, e.g., fertilizer (\$/unit or ha)	X	
Supply elasticity		X
Demand elasticity		X
Market Structure Indicators		
Number and type of sellers and buyers in a market	X	X
Percent of volume traded by largest market participants (trader concentration)		X
Cereal storage capacity (metric tons)		X

Indicator by type	Monitor regularly?	Monitor infrequently? For the knowledge base?
Veterinary services (yes/no and fees)		X
Access to credit/financing (yes/no and interest rate)		X
Market associations (yes/no)		X
Market Conduct Indicators		
Key catchment areas		X
Alternative catchment areas		X
Market participant price expectations (\$/unit at x time)	X	
Market participant margin expectations (at x time)	X	
Commercial stocking (metric tons)	X	
Large buyer purchasing plans (kgs/metric ton and when)	X	X
Government purchasing and selling plans (kgs/metric ton and when)	X	X
Market Performance Indicators		
Consumer prices for key commodities (\$/unit)	X	
Wholesale prices for key commodities (\$/unit)	X	
Farmgate prices for key commodities (\$/unit)	X	
Terms of trade (livestock v. commodity, wage v. commodity, commodity v. commodity)	X	
Margins and distribution shares (% share to participants)	X	X
Seasonality of supply (annual variation)		X
Seasonal variation in prices of key commodities (maximum difference, coefficient of variation)	X	X
Seasonal variation in supplies of key commodities	X	
Commodity quality measures	X	X
Spatial distribution of key commodities	X	X
Seasonal variations in terms of trade (maximum difference, coefficient of variation)	X	
Market Center Food Security Proxy Indicators (Signs of Distress)		
Distress sellers – ethnic/wealth groups, origin, gender	X	
Number and type of distress sellers	X	
Number and type of buyers	X	
Indicator animals – number of breeders	X	
Variety of commodities for sale	X	
Quality of commodities sold	X	
Size of transactions (kgs/MT/numbers)	X	

Source: Bonnard, Patricia (2008) "Markets Assessment and Analysis." In FAO Food Security Information for Action Distance Learning Module. www.foodsec.org/DL. The learner's notes are available at www.fews.net

ANNEX 2: Market indicators for early warning

Markets Monitoring and Early Warning Questions	Useful Indicators
What does the supply situation look like within the market catchments – locally, regionally, and globally?	<ul style="list-style-type: none"> • Volume of commodities in the market network • Change in volumes over time
Is there enough food in the markets?	<ul style="list-style-type: none"> • Volume of commodities in the market and other markets within the commodity networks • Change in volumes over time
What is happening to food stocks?	<ul style="list-style-type: none"> • Volume of commodities in public and private stocks • Flows – direction and magnitude
Are livestock prices abnormally low and declining? Is this anomalous? Will this trend continue?	<ul style="list-style-type: none"> • Current and average livestock prices • Current and average terms of trade
Are cereal prices abnormally high and rising? Is this anomalous? Will this trend continue?	<ul style="list-style-type: none"> • Current and average cereal prices • Current and average terms of trade
How will demand respond to increasing food prices?	<ul style="list-style-type: none"> • Elasticity of demand • Prices of substitute commodities • Relative prices • Wage rates and income data
How will supply respond to increasing food prices?	<ul style="list-style-type: none"> • Elasticity of supply • Relative prices in different markets • Stocks • Marketing costs and margins • Market integration • Parity prices
What are prices likely to be next month? What about later in the season?	<ul style="list-style-type: none"> • Price trends • Expectations of market participants
Are wage rates and employment opportunities declining? Is this abnormal? Will this trend continue?	<ul style="list-style-type: none"> • Current and average wage rates • Unemployment rates • Current and expected performance of markets as sources of employment (labor opportunities)
What do we expect the employment situation to look like in a month? What about later in the season?	<ul style="list-style-type: none"> • Current and average wage rates • Unemployment rates • Current and expected performance of markets as sources of employment (labor opportunities)
Have there been any important events or changes locally or within the region that could affect the market?	<ul style="list-style-type: none"> • Price or exchange rate policies • Fuel and transport costs • Civil unrest • New businesses that may compete for food (e.g., poultry for grain as feed) • Institutional purchases that may complete for food (e.g., strategic grain reserves, WFP)
Are any typical behaviors of stress or food insecurity being observed in the markets?	<ul style="list-style-type: none"> • Early sales (e.g., farmers selling green maize, livestock coming onto the market earlier in the season) • Rising number of people selling certain goods (e.g., charcoal, fuel wood, gathered commodities) • Smaller or altered units of measure at markets • More farmers acting as petty traders • Increased number of children working in the market • Larger number of idle casual day laborers

Source: Bonnard, Patricia (2008) "Markets Assessment and Analysis." In FAO Food Security Information for Action Distance Learning Module. www.foodsec.org/DL. The learner's notes are available at www.fews.net

ANNEX 3: Useful formulas for market analysis

Supply = \sum Production net seed, feed and losses; net imports, private stocks, public stocks, food aid

Market Demand = \sum Effective household demand, derived demand, institutional demand (e.g., from humanitarian or government programs)

Terms of trade = $\frac{\text{price of asset}}{\text{price of commodity}}$

Livestock to cereal: $\frac{\text{price of livestock/unit}}{\text{price of staple food/unit}}$

Wage to cereal: $\frac{\text{wage rate/unit}}{\text{price of staple food/unit}}$

Food crop to food crop: $\frac{\text{price of one cereal/unit}}{\text{price of another cereal/unit}}$

Cash crop to cereal: $\frac{\text{price of cash crop/unit}}{\text{price of staple food/unit}}$

Real prices = $(\text{CPI}_{\text{base year}}/\text{CPI}_{\text{current year}}) * \text{nominal price}_{\text{current year}}$

Real prices = $\text{Nominal price} / (1 + \text{inflation rate})$

Inflation = $[(\text{Current period CPI}) - (\text{previous period CPI})] / (\text{previous period CPI})$

Marketing margins or price spread = $(\text{selling price} - \text{buying price})$

Marketing margin expressed as share = $(\text{selling price} - \text{buying price}) / \text{buying price}$

Elasticity of demand = $\text{percent change in quantity demanded} / \text{percent change in price}$

Elasticity of supply = $\text{percent change in quantity supplied} / \text{percent change in price}$



ANNEX 4: Example of a monitoring calendar

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Markets									Price rises		Price peak	
	Transportation shortages											
	Transportation bottlenecks										Peak transport costs	
								Peak cross border trade				
Climate	Rains (South)									Livestock sales		
	Rains (North)									Rains (South)		
	Floods										Rains (North)	
Hunger season	Hunger season (South)									Hunger season (South)		
	Hunger season (North)										Hunger season (North)	
Food production	Green harvest		Harvest									
				Second season begins				Second season harvest				
									Land preparation			
										Planting (seed shortage)		
Cash crop production		Cashew harvest (North)								Livestock birthing season		
								Tobacco harvest		Cashew harvest (South)		
									Tea harvest			
Labor	Peak labor demand							Peak labor demand				
										Labor migration		
										Remittances		
Regional issues			Peak prices (Malawi)									
					Peak prices (Zambia)							
Programmin g			Appeal					Appeal				
							Food import planning					
						SADC meetings						
Monitoring				Vulnerability assessment								
		FSN monitoring								FSN monitoring		
Reporting						VAC reporting and dissemination						
						FSN symposium						

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ANNEX 5: Checklist for reporting on markets

Market Item – did you consider the following?	Yes/No
Basic understanding of supply and demand	
Have you considered all aspects of supply – production, formal and informal cross border flows, stocks, etc?	
Have you disaggregated supply to the appropriate level – the supply of food in X province as opposed to nationally?	
Have you considered available stocks and current shock management behaviors (e.g., restocking, releasing stocks, etc)?	
Have you considered how supply and demand typically respond to changes in market conditions, and how their responses might affect prices?	
Are there known structure and/or conduct characteristics of markets that suggest a certain market outcome (see S-C-P guidance for more detail)?	
Have you considered the supply and demand conditions in other areas (either within the country or the region) that typically compete for same food resources?	
Have you considered derive demand (industrial demand) and how it affects market prices?	
Are there government or donor programs in place that create incentives (e.g., improved seed or producer floor prices) or disincentives for production and commodity trade (e.g., excise taxes) and what are the effects on supply?	
Are there cross border flows despite government controls on cross border flows (e.g., are bans effective or not)?	
Could food aid create disincentives for farmers the following agricultural season and what is the implication on future supply of food?	
If there is a supply shock, have you considered the likelihood that market participants will respond and compensate for production reductions with increased non-production based supplies (e.g., stocks, trade, etc)?	
Have you considered markets critical to food security - food markets, labor markets, credit and input markets, cash crop markets, livestock markets, international markets etc? Staple food markets are not the only markets that should be monitored for food security analysis.	
Have you considered what are typical supply stressors and shocks?	
Basic monitoring of markets	
When monitoring prices, have you considered trends, seasonal patterns and past behavior?	
Do you talk to market participants periodically as part of your monitoring plan or process?	
Have you looked at the differences in prices between markets and marketing costs in order to assess the incentives for moving commodities from one market to another?	
Have you assessed parity prices to assess the incentives for trade (inflows or outflows)?	
Do you periodically evaluate private and institutional stocks and stock changes?	
Are you monitoring supply stressors and shocks?	
Following a shock, are you monitoring the recovery of the market?	
Use of markets terminology and concepts	
Have you used the correct markets and trade terms and concepts (check FEWS NET glossary and guidance materials)?	
Have you stated and explained calculations briefly when performing analysis? Alternatively, have you footnoted them?	
Identification of market environment (individual markets and market networks)	
Did you note the specific market - market name and/or city? When the city/town name is	

Market Item – did you consider the following?	Yes/No
different from the market name, it is best to provide both for clarification.	
It is clear what level or type of marketing you are talking about (producer, wholesale, assembly, retail)?	
Is it clear why this market is important to monitor or discuss, why it is relevant to the food security story and/or why it was chosen as a reference?	
Did you explain important linkages within market network (where applicable), e.g., capital cities tend to derive supplies from interior locations and hence there are important linkages to interior markets?	
Did you consider market events and trends for nearby countries (cross-border or regional) that may have an impact on local market conditions?	
Have you be clear about why commodities you mention are monitored and relevant to food security?	
Have you considered what is happening between substitute commodities?	
<i>General good practice related to analysis and reporting</i>	
Does the story note how the market phenomena relate to food security and vulnerability to food security?	
Have you adequately justified the conclusions of your analysis?	
Are you reporting only the analysis that is necessary and well founded? Have you avoided including long lists of small changes in market conditions over a short time frame?	
Do not report on the same thing each month? So you think about market dynamics and seasonality in the same way as any other food security theme?	
Have you considered seasonality of events and trends (e.g., production, marketing, trade, flows, policy, prices etc.)? Have you noted where the current behavior is anomalous or not?	
Have you geographically disaggregated the analysis and food security impacts?	
<i>Policies and impacts on markets and food security</i>	
Have you considered changes in policies and programs relevant to market performance and food security (e.g., trade bans, price controls)?	
Have you explained what the policy is and what its stated objective is?	
Have you noted whether this is a long-standing or newly enacted policy?	
Have you established what is the geographic area the policy will affect (consider direct and indirect effects).	
Have you established which population groups the policy will affect (consider direct and indirect effects).	
Have you established what the market impacts will be (direct and indirect) and food security outcome?	
<i>Basic price reporting and price analysis</i>	
Have you noted the level of market (wholesale, assembly, retail, etc.).	
Have you noted the unit in which price is given (should be same as unit purchased) and currency in which purchased (especially important for cross-border market coverage).	
Have you noted for what specific geographic areas the price is relevant (do not report average national prices).	
Have you identified the specific population groups (market participants, household type) for which the price information is relevant?	
Have you related current prices for a given month to a five-year average price for that same month (and a reference year, if applicable).	
Have you determined if there are any anomalies in price trends and predict food security impacts.	
Have you considered inflation when prices are exceptionally high or elevated; have you adjusted prices where necessary and stated which type of prices (nominal or retail) are being reported and why?	
<i>Price graphs</i>	
Have you stated from which level of the market the prices are derived (retail, wholesale,	

Market Item – did you consider the following?	Yes/No
assembly, etc).	
Have you noted whether prices are nominal or real in title?	
Have you Included the name of the market from which the data are derived? Have you explained why this market was chosen as a reference market?	
Have you labeled all axis of the graph and included all units?	
Have considered starting x-axis with the onset (month) of the agricultural or marketing season in the country or market of focus?	
Have you plotted one full year of prices (no more than 12 months at a time) so as to provide the reader with some sense of the trend and seasonal pattern? When extending the graph out for more than one year (several years on the x-axis), have you considered the effect inflation and how it may be distort your conclusions.	
Have you compared the current year to an average when possible? FEWS NET uses a five-year historic average for comparison given the availability of data.	
Have you compared the current year to a reference year when appropriate? FEWS NET country representatives chose reference years for their graphs based on a “bad” year for consumers.	
Do you report and graph the same set of commodities and markets over time so that the reader can follow the progress of the season?	
Terms of trade graphs (purchasing power and exchange value)	
Have you clearly identified the two parts of the TOT ratio - the asset and the commodity?	
Have you Included the terms of trade, price of the asset, and price of the commodity on the same graph to better illustrate which price(s) is(are) contributing to the change in the terms of trade?	
Have you labeled the axis correctly?	
Have you indicated the level of the market or prices (e.g., wholesale, producer prices, retail prices, etc.) used for both the asset and the commodity?	
All graphs (including price and terms of trade graphs)	
Have you labeled the axes and noted the units?	
Have you included a title that explains the information presented in the graph?	
Have you noted the currency when reporting cash units?	
Have you included too much information in one small graphic? Are there too many lines and is it thus confusing? Have you included only what is relevant?	
Have you considered scale the graphic? Are the points you wish to illustrate clear given the scale of the graphic? A small scale can make small changes look very big, possibly exaggerating changes. A large scale can hide significant changes.	
Does the original have a value other than zero? Make sure you have a good reason to make the origin anything other than zero.	
Have you provided some narrative to accompany graphs? Always be sure to comment on the graphs you include within the text of your report.	
Do your graphs tell the same story as the text? Are the two consistent?	
Have you chosen colors that are pleasing to the eye, not abrasive? Too much color is distracting.	
Have you included the source of your data? Are you made all necessary attributions?	

ANNEX 6: GLOSSARY

Asset – is anything of value that is owned by a household, individual, or company. Assets normally act as a store of value that can be later exchanged for cash or another asset. They can be both tangible (e.g., goods or cash) or intangible (e.g., services or rights).

Barter – is the exchange of goods or services without involving money or currency.

Complementary good (complement) – a commodity which is consumed in combination with another commodity. When demand for one commodity rises, demand for the other will rise as well.

Consumer price index (CPI) – an index of consumer prices which measures the change in prices associated with a typical market basket of goods and services over time. The CPI expresses current prices in terms of prices during the same period in a previous year (base or reference year), to show inflation or changes in purchasing power.

Derived demand – is demand for a commodity to be used as an input to another productive activity (e.g., the demand for maize as feed for poultry production).

Disaggregation – refers to dividing into constituent parts. In food security analysis, disaggregation is distinguishing responses, effects, impacts and outcomes across different geographic areas, entities (e.g., markets) or population groups (e.g., wealth, income, ethnic or other socio-economic groups).

Early warning – refers to providing sufficient lead time between prognosis and actual occurrences of food shortages or surpluses as to enable decision makers (government and donors) to respond with necessary interventions.

Effective demand – is the desire to buy together with the ability pay for as good or service. Those who have a desire to buy but cannot pay the price or cost are said to have limited or no effective demand

Elasticity – is the measure of a percentage change of one thing relative to a percentage change in another. For example, the price elasticity of demand is the percentage change in quantity demanded relative to the percentage change in the price.

Exchange value – is the current value of a product, commodity, or service exchanged or traded. The value can be represented as either a price or a quantity of something else that is considered equivalent and for which it is traded. All commodities have an exchange value, which normally changes relative to supply and demand conditions and over time.

Export parity price (XPP) – is the monetary value of a product sold at a specific location in a foreign country, but valued from a specific location in the exporting country.

Food price index – is a price index where only food items appearing in the consumer basket are included in the calculation of the index.

Food security – occurs when all people, at all times, have physical and economic access to sufficient food to meet their dietary needs in order to lead a healthy and productive life

Import parity price (IPP) – is the monetary value of a unit of product bought from a foreign country, valued at a geographic location of interest in the importing country.

Inflation – is an overall rise in the prices of good and services in an economy. There is an inverse relationship between the prices of goods and services and the value of money in an economy: other things being equal, as prices rise over time, a given amount of money will be able to purchase a fewer and fewer goods and services.

Market – is where buyers and sellers come together to trade. Markets can be viewed as social arrangements that allow buyers and sellers to discover information or carry out a voluntary exchange of goods or services. Markets are normally

physical locations, but not always. Transactions can occur on the phone, over the internet, through intermediaries, etc. Commodities (e.g., crops and food), livestock and labor can be exchanged through markets. For the purpose of these lessons, the focus is primarily on markets where physical goods are traded.

Market demand – to the amount of a particular good that buyers want to purchase at a given price.

Market supply – refers to the amount of a commodity that sellers are offering at a given price.

Marketing margin – is typically the difference between the price paid by consumers and that obtained by producers. It is also called the farm-retail price spread. Margins can be calculated all along the market chain and each margin reflects the value added at that level of the market chain.

Price – is the cost or value of a good or service expressed in monetary terms. It is the financial cost paid when one buys a unit of a specific product or service. Prices, in the purest sense, indicate value that has been added to a particular commodity. This value added can be changes in the form (e.g., production or milling), place (e.g., transportation), or time (e.g., storage) of a commodity. Price signals can carry information about cost of production, transportation, storage, perceptions and desires as well as, in some instances, distortions.

Purchasing power – is a measurement of the relative value of money in terms of the quality and quantity of goods and services it can buy. It represents the ability of a household to acquire goods and services based on its access to money or other forms of wealth.

Real prices – are prices that have been adjusted for inflation. Real prices hold the value of currency constant, and allow you to compare the exchange value of a good or service in different time periods.

Response – refers to actions taken to address food insecurity and can take the form of policies or programs (e.g., manipulation of strategic grain reserves to manage prices or supplies, food distribution).

Seasonality – refers to the times of year when specific events occur.

Spatial arbitrage – is taking advantage of the price differential across locations or markets. The differential must exceed all costs of in moving the commodity from one location or market to another (costs of the inter-spatial transfer). A simple measure of potential spatial arbitrage is the difference between the prices observed for the same product in two different locations.

Substitute good – is a commodity that can replace another in consumption or production such as millet for sorghum. When the price of one commodity rises, consumers will decrease their consumption of that commodity and increase consumption of the substitute commodity.

Temporal arbitrage (seasonal arbitrage) – is taking advantage of the price differential over time, usually over the agricultural season. The differential must exceed all costs associated with handling and storing the commodity over time (costs of inter-temporal transfer). A simple measure of potential temporal arbitrage is the difference between the prices observed for the same product in two different time points.

Terms of trade – is the rate at which one good or service can be exchanged for another and is typically expressed as a ratio.