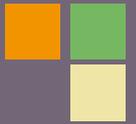




Seasonality Revisited

Perspectives on Seasonal Poverty



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**Food Affordability:
Dealing with Seasonal Variation
of Purchasing Power**

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This paper explores the two main reasons that explain why access to food changes by season: the variability of the cost of food and the variability of available incomes. Firstly, this paper looks at how much money is required to ensure that basic dietary needs are met. The second part describes the components of the cost of an adequate diet (local availability of food and local prices) through a methodology developed by Save the Children. The third part uses data from recent field surveys carried out by Save the Children to illustrate the variation of income available for food purchase. Finally, this paper proposes some implications for decision-makers resulting from this more nuanced understanding of variable access to food.

This report compiles data from several livelihoods studies, including Household Economic Analyses (HEA) and Cost of the Diet studies, carried out in Kenya, Ethiopia, Niger, Burkina Faso, and Myanmar. Further research and improvement of methodologies would be required to complete this analysis and gain a more thorough understanding of the seasonal patterns of food affordability.

Introduction

The current economic recession has made purchasing power a topic of great interest in western societies. The prospect of being able to consume a few percent less than in the recent past makes headlines, even though we are still able to afford far more than our most basic needs.

In the developing world the variation of purchasing power is on a completely different scale. The poorest people of the world not only struggle with very low incomes, they also have to cope with large variations in what they can afford for basic survival. Moreover, the reduction in their purchasing power is not just a matter of a few percent; it can be halved between seasons.

The recent global events affecting the price of food commodities and the economic downturn have illustrated how dramatically the poorest can be affected by changes in the economic situation. It is estimated that more than 130 million people were pushed into poverty in 2008 because of soaring food and fuel prices, and an extra 100 million people are expected to be living on less than 2 US\$ a day this year as a result of the global economic crisis. Between 4 and 10 million children are estimated by Save the Children to have become malnourished as a result.

The current global situation has in many places reinforced the seasonal problems faced by the poorest population in developing countries. Large seasonal variations of purchasing power and therefore of access to food hinder the ability of families to afford an appropriate diet throughout the year. To tackle efficiently the problem of hunger we should therefore carefully consider how much the poorest rely on seasonal changes in local markets and the cash economy for their survival and well-being. These parameters have often been overlooked as these groups are typically believed to be small-scale farmers relying on a more or less food sufficient economy, a view which is now understood to be less often the case.

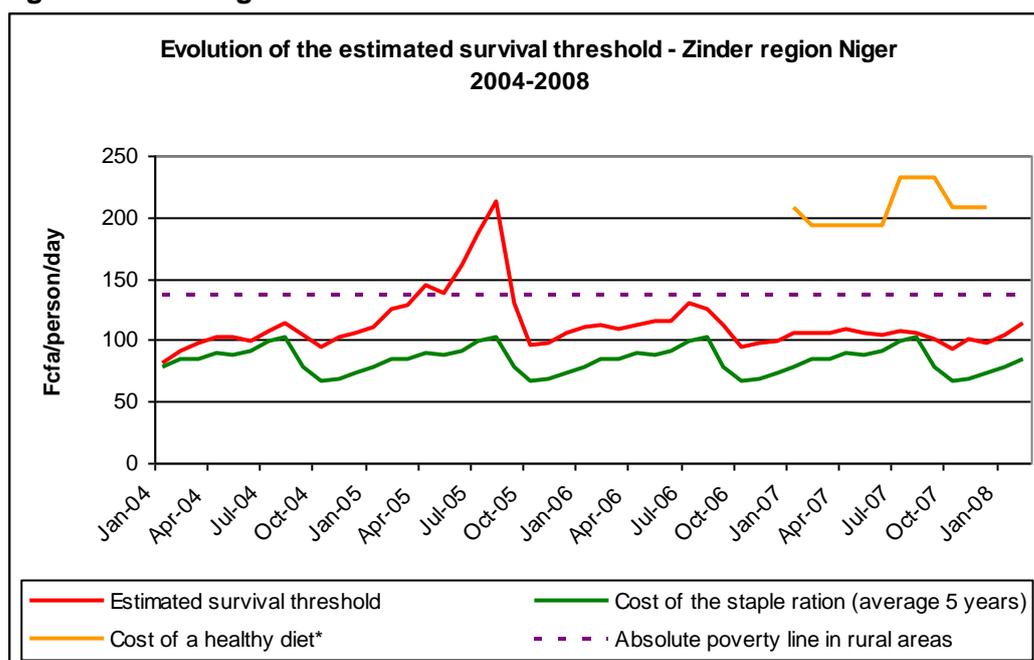
1. Purchasing power: how much is needed throughout the year?

Survival threshold: a curve evolving through the seasons

To know how much income is required to access food, we need to establish a threshold. The most commonly used indicator to express poverty and difficulty in accessing food is an income of 1 US\$ a day (recently raised by the World Bank to 1.25 US\$ a day). This poverty line is, however, inadequate in expressing the affordability of food. You can not purchase the same quantity and quality of food in India or Mali for 1 US\$ a day. In the same way, 1 US\$ does not give the same access to food throughout the year.

The World Bank has developed another indicator that is less commonly used, at least to communicate on hunger: the absolute poverty line. This poverty line is set on a yearly basis by country and represents what households require in order to meet their basic needs. The absolute poverty line gives us a better idea of what is needed for surviving, but still it is a static line. In reality the threshold for basic needs is a moving curve that evolves to reflect changes in the price of staple foods (in red, Fig.1). The threshold to access the cheapest *healthy* diet (curve in orange) also fluctuates seasonally according to market trends and local availability of nutritious food.

Fig 1: An evolving survival threshold



* the cost of the diet has been calculated in the neighbouring region of Maradi in the same livelihood zone

This case example compares the annual variation of the five-year average cost of a staple ration with the variation of the 'survival cost' (staple food cost + other basic expenditures estimated at 10 Fcfa pppd) from 2004 to 2008 in Southern Niger (Zinder). Over the four years, this survival threshold varied from less than 100 Fcfa per person per day at the harvest season (October) to over 200 Fcfa at the peak of the worst lean season (August 05). This was due to the price of millet varying by about 50% in average between these two seasons. Beyond this regular seasonal variation, additional shocks can exacerbate the seasonal trends dramatically, as was the case during the 2005 lean season in the case example above (Fig.1).

The importance of seasonal changes to the rural cash economy

The importance of purchasing power when assessing the food situation will vary by season and by wealth-groups depending on the household's capacity to secure food, whether through their own production, or as gifts, in-kind remittances etc. However, Save the Children's field research has highlighted that the poorest households in developing countries rely heavily on markets (i.e. on cash economy) throughout the year for their food due to their very limited capacity to produce food.

The example below (Fig. 2), illustrates the seasonal change in the poorest wealth group's level of dependency on markets for food at three different seasons: after the harvest, before the hunger gap and during the hunger gap. Unsurprisingly, we can observe an increasing dependency on the market while approaching the lean season. These data and complementary field surveys have confirmed that in this agricultural area there are only three months of the year (just after the harvest) during which the poorest households can rely on their own production as a main food source, and even then it only covers a third of their need. Most of the year these households are largely dependent on their capacity to purchase food at the market, and this dependency on purchased food increases as they move beyond the harvest period.

Fig. 2. Seasonal variation of food sources in rain fed agricultural livelihoods zone of Southern Niger (Tessaoua and Kantche districts) – 2007-08

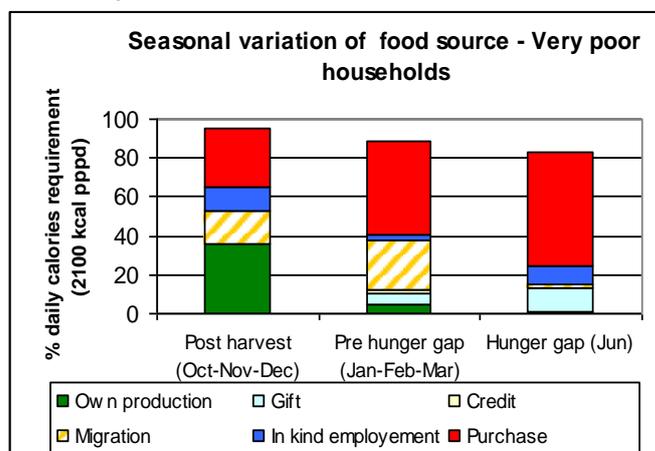


Fig. 2 also illustrates the difficulty with which the poorest households access enough food. Their purchasing power does not allow them to fulfil their most basic needs and the extent to which they meet their daily energy requirement decreases from 98% in the post harvest season, to 89% in the pre-hunger gap and to 83% at the beginning of the lean season.

A cash transfer project piloted in the same area has demonstrated that when the purchasing power of these households increases through additional cash availability, they can fulfil their basic food energy needs and also increase the diversity of their diet.

The Niger case study is not an isolated example. Similar field research using the Household Economic Analysis methodology has demonstrated that very poor households rely heavily on purchasing power to meet their energy needs, and that in general the importance of financial access to food increases as the seasons move beyond the harvest period.

2. The seasonal variation of the cost of an adequate diet

The cost of an energy-sufficient food ration provides a reasonable estimate of the income required for survival, but in order to remain healthy and to prevent malnutrition a diet that provides the full range of macronutrients (carbohydrates, protein and fat) and micronutrients (vitamins and minerals) is necessary.

Save the Children UK has developed a new methodology to calculate the minimum amount of money a family will have to spend to meet its full nutritional requirements using locally available food. Named 'Cost of the Diet', this method has proven to be ground breaking because it is the only tool currently available that can:

- Calculate the minimum cost of a suitable diet for an individual child and the whole family
- Take into account seasonal variations in food price and availability when costing the diet
- Identify 'problem nutrients' which maybe difficult to meet from a locally available diet.

Box 1 – Save the Children's Cost of the Diet (CoD) approach at a glance

Cost of the Diet came about as a response to research undertaken by Save the Children which demonstrated that the impact of traditional nutrition education programmes had been limited because of the economic constraints facing many households in low-income countries. In order to understand better the gap between the lowest cost of a diet and household income, the lowest cost of a nutritionally adequate diet is looked at in conjunction with HEA income data from the same survey area and conclusions can be made about seasonal affordability.

In order to do this, monthly food price and availability data are collected from market traders and community group discussions for all locally available foods. The weight of units is measured in order to calculate a price per 100g and any seasonal change in the weight of the unit (for example a change in the number of pieces of fruit that are included in a portion) can be included.

In the simplest form of analysis (Tier 1) physiological diets which will meet nutritional requirements are calculated in order to identify whether a nutritionally adequate diet is achievable from locally available foods and how much it costs.

By collecting local food consumption patterns, specifically for 12 – 23 month old children, food pattern constraints can be set and a diet which more realistically resembles what is usually eaten is selected. These results, from Tier 2, demonstrate whether a good quality diet is still available when eaten in realistic amounts, how much it costs and if it is not available what will be the likely patterns of nutrient deficiency.

The importance of seasonal availability of nutritious foods in determining the cost of the healthy diet

A core determinant of a household's ability to access a sufficiently diverse diet is whether there are good quality foods available which will provide ample micro- and macro-nutrients to meet individual requirements. The change in seasonal availability of foods and the impact that this has on accessing a balanced diet is not just a result of the availability of locally harvested foods but also indirect factors such as seasonal access to markets affecting the transportation of foods from other areas.

A CoD study in North East Kenya showed that in the rainy seasons there were on average 38% fewer food items available to purchase in the local market than in the dry season (Table 1). When the CoD analysis was conducted this lack of diversity of

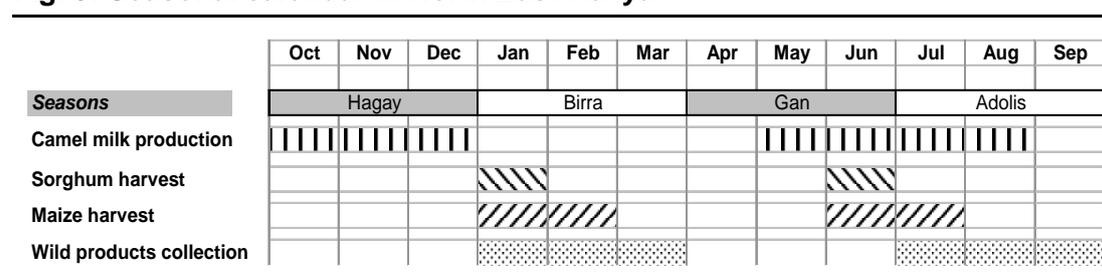
available foods resulted in a nutritionally adequate diet no longer being achievable. There were no longer any fruits, vegetables and pulses available which resulted in iron and folate requirements not being met. To compound this, the cost of staples available in all seasons, maize, rice, wheat flour and potatoes increased.

Table 1: Food Prices and Availability in Two Seasons in North East Kenya

Food Item	Adolis (2 nd Dry season)	Hagay (2 nd rainy season)
Maize flour	4	6
Rice	5	5.50
Sorghum	1.20	N/A
Wheat Flour	4	5
Potato Irish	5	7
Kidney Bean	5	N/A
Cabbage	4	N/A
Tomato	5.41	N/A
Onion	8.70	N/A
Garlic	37.04	N/A
Lemon	17.86	N/A
Milk, Camel	4.69	3.13
Milk, Cow	6.25	4.69
Milk, Goat	N/A	4.69

The seasonal calendar (Fig. 3) demonstrates that during the time when staples are most expensive in Hagay and Gan (rainy seasons), there is a high milk yield which drives down the market price of milk and, if included in the diet, can make significant contribution to the overall nutrient content.

Fig. 3: Seasonal calendar in North East Kenya



At times when there is a high milk yield but other food items are in short supply or expensive, it is crucial for households to consume milk to maintain a nutritionally adequate diet. Milk can be supplied from a household's own herds as well as being purchased. However, a CoD study in Legambo, Ethiopia found that the poorest families had no access to 'free' milk (that is milk produced by their own herds) and were therefore unable to meet their nutrient requirements in the seasons where the cost of other food items in the diet were most expensive.

Crucially in the Kenya case study, wild or 'free' foods were not included, although we know that households from these communities consume leafy green vegetables which can be collected. Further investigation is needed to draw concrete conclusions about the impact such free foods have, however it is reasonable to assume that

consumption of these foods, which are high in iron and folate, would have a positive impact.

In Myanmar, where the same analysis of availability and cost was carried out and free foods were included, the study highlighted the importance of seasonal access to free foods, their contribution to meeting nutrient requirements, and the impact that this has on the cost of the diet. In the rainy season when free tamarind and gourd leaves cannot be collected, the diet was 32% more expensive than in summer when they were available.

The delicate seasonal balance of the availability of free, wild and purchased foods is vulnerable to any shock which may influence the availability or cost of food types or access to the markets. Through CoD analysis it is clear that in each study location there are key food items or types which are relied heavily upon to meet nutritional requirements, such as cereals, pulses, leafy vegetables, and milk. Access to these is therefore essential and their prominence in meeting requirements leaves them vulnerable to shocks such as drought or sharp increase in price rises.

Pastoralist communities have previously shown resilience against normal seasonal changes in food availability¹ and short term food insecurity, through traditional coping strategies such as milk sharing and movement to access better pasture. However longer term food insecurity as a result of prolonged drought and increased settlement has led to poor access to good pasture, resulting in livestock loss and decreasing herd size and therefore less milk production. A lack of free milk available within the community is compounded by the increase in milk prices on the market as a result of generally lower milk yield. As was seen in Table 1, in a season when diversity is severely limited milk provides essential nutrients especially for the most vulnerable within the household: infants and young children.

The contribution of market trends to the seasonal cost of a diet

The CoD study in South Wollo, Ethiopia found that as a result of changes in availability and prices the cost of the cheapest diet which meets all micro- and macro-nutrient requirements can increase by up to 125% for a 12–23 month old child from one season to another. The season when the diet is cheapest is following the main harvest (*Belg*), whilst the most expensive is in the months leading up to the main harvest, traditionally known as the cereal hunger gap.

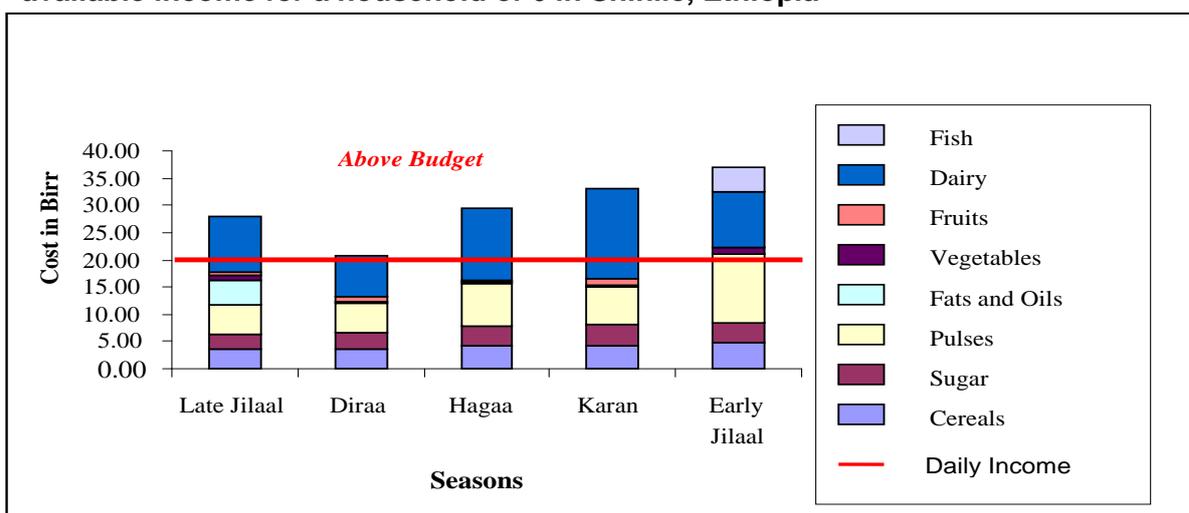
Households are particularly vulnerable to the effect of seasonal price changes in staple foods. In Shinile, a pastoral area of Ethiopia, *injera* is eaten daily and therefore any seasonal fluctuation in the price of sorghum and wheat, the main ingredients, will have a negative impact on the money available to be spent on more diverse food items. In the reference year January 2008 to January 2009 the price of sorghum went up on average 22.97% between *jilaal*, the end of the dry season just following the local harvesting of sorghum, and the second *karaan*, the long rainy season; the price of wheat went up by an average of 23.4%. The seasons when the price of wheat and sorghum is most expensive are also the times of year when households are most reliant on purchasing cereals from the market.

Figure 4 demonstrates that in the early *jilaal* (dry) the cost of a diet is 79% more expensive than in the *Diraa* (rainy) season which reflects the overall increase in cost of most food items between these seasons. Cereals and sugar are eaten on a daily basis. The results shown in figure 4 are taken from analysis where the inclusion of

¹ **Milk Matters**, Sadler K, Kerven C, Calo M and Manske M, November 2008.

these was forced, in order to reflect a more realistic cost. The red line shows a daily income figure taken as an average across the whole year and demonstrates that achieving an appropriately diverse diet which reflects the usual dietary practices of most households would be largely unaffordable. This study would need to be further refined by calculating seasonal changes in incomes to determine more precisely seasonal affordability.

Fig. 4: Cost of the cheapest diet (on the basis of local availability – cultural preference not considered thought forced inclusion of cereals and sugar) vs available income for a household of 6 in Shinile, Ethiopia



Being well informed of the seasonal variation in the availability and affordability of a nutritionally adequate diet and building this into an effective ongoing monitoring system can provide essential data to inform effective programming and policy decisions.

As the CoD assessment tool continues to be developed and the Tier 2 approach is used, the results can then be used to highlight potential patterns of limiting nutrients and how this changes across seasons. Interventions, such as micronutrient fortification, plumpy d'oz or sprinkles, can be targeted to have an impact in the season where dietary diversity is most difficult to achieve.

3. The seasonal variation of the available incomes at the household level

The affordability of the diet is not solely determined by food prices, it is as much a matter of income being available to purchase it. And again, the poorest of the developing world are not only challenged by the variations in the cost of their diet, they also face great uncertainty in the level of income they can secure throughout the year.

Why are income sources of the poorest communities so insecure throughout the year?

The poorest of the developing world often rely on multiple sources of income as they lack a single economic activity that offers them a secure livelihood. These activities vary throughout the year according to local and as well as more distant economic opportunities: casual agricultural labour, animal herding during pastoral migrations, activities such as brick-making, etc.

Identifying periods of high or low employment is therefore very important in understanding whether households can afford an appropriate diet. This knowledge also challenges the commonly held belief that in rural areas the hunger gap largely reflects the agricultural calendar. The food security of the rural poor is in fact often determined to a lesser degree by the level of food stock that can be produced directly by small-scale farmers, but rather by their success in securing casual wages. The pattern of wages can be quite distinct from the agricultural calendar (Box 2).

Box 2 – Shifting the hunger gap period due to employment opportunities – a case study from Kantche district, Niger

Due to scarce natural resources, increasing pressure on land and low employment opportunities from January to June, the livelihoods of the rural population of Kantche district in Niger are increasingly dependent on the Nigerian economy, especially during these months. Young men from all wealth groups, but particularly from the poorest groups, migrate for several months of the year (the length of migration varies according to the food and economic situation locally) to large towns in Northern Nigeria to seek casual labour. These sources of employment are essential to ensure that they can cover their basic needs. In 2008, the competition for employment increased due to the excess supply of labour as more people from the sub-region began looking for additional income in response to widespread price rises. At the same time, the casual work on offer decreased due to economic difficulties such as high prices of food and fuel. As a result, many Nigerien migrants failed to get adequate incomes from March to June. It was only at the beginning of the rainy season, which normally corresponds to the beginning of the lean season, that they started getting income through local agricultural work, which allowed them to cope slightly better with the difficult food situation. For them the usual pre-hunger period was in fact harsher than the hunger gap itself that preceded the harvest.

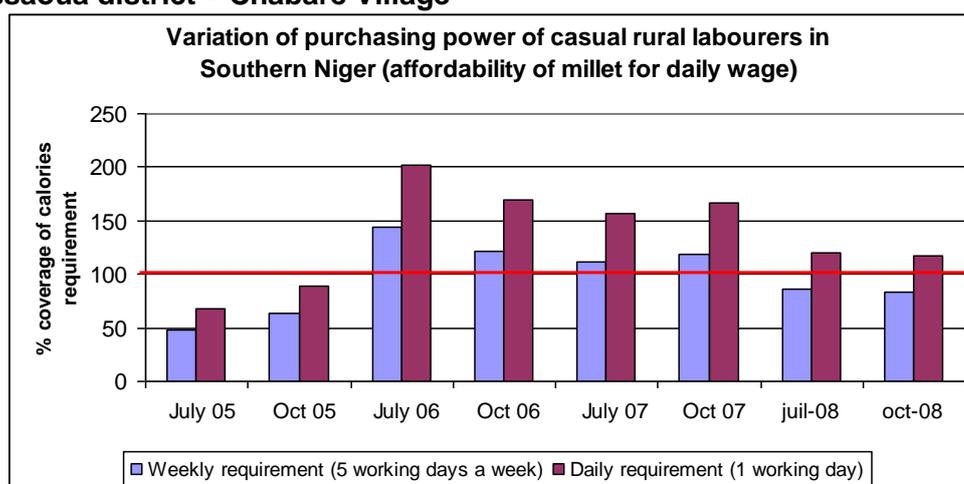
When the cost of staple foods rise, some adaptations in the level or type of remuneration can be observed, such as: increases in the length of the working day, changes in the amount of remuneration, payment in kind rather than in cash. To some extent therefore there are some mechanisms that mitigate the seasonal economic hardships. Overall, however, when the cost of food is the highest, the availability and sometimes the level of remuneration of casual work tends to be lower than usual. Unregulated labour markets tend to work against those supplying the labour.

The following example (Fig.5) illustrates the purchasing power (for the staple food product, millet) of the casual labourers in the Southern Niger from 2005 to 2008 at two different seasons: the lean season (July) and the harvest season (October).

Normally the daily labour wage is estimated to cover at least the basic food needs of a typical household. This example shows that throughout this period the amount of food that could be purchased by the same amount of work fluctuated fourfold. During the 2005 and 2008 hunger gaps the daily wage was not enough to satisfy the most basic needs.

This study also highlighted the limited availability of causal work for rural labourers, who cannot find paid work every day. In this area, in times of crisis (such as in 2005), a typical family of two working parents and five children was unable to secure enough income to provide for the family's calorific requirements, much less other basic needs.

Fig. 5 – Variation of purchasing power of casual labourers in Southern Niger, Tessaoua district – Chabaré Village



The low purchasing power permitted by the level of remuneration and high food prices force the poorest households to use coping strategies that often have detrimental long-term consequences (child labour, harvest and sale of wild wood, sale of productive assets, etc). In the short-term, they have to reduce the food ration to a level that compromises their health and particularly the health of their children.

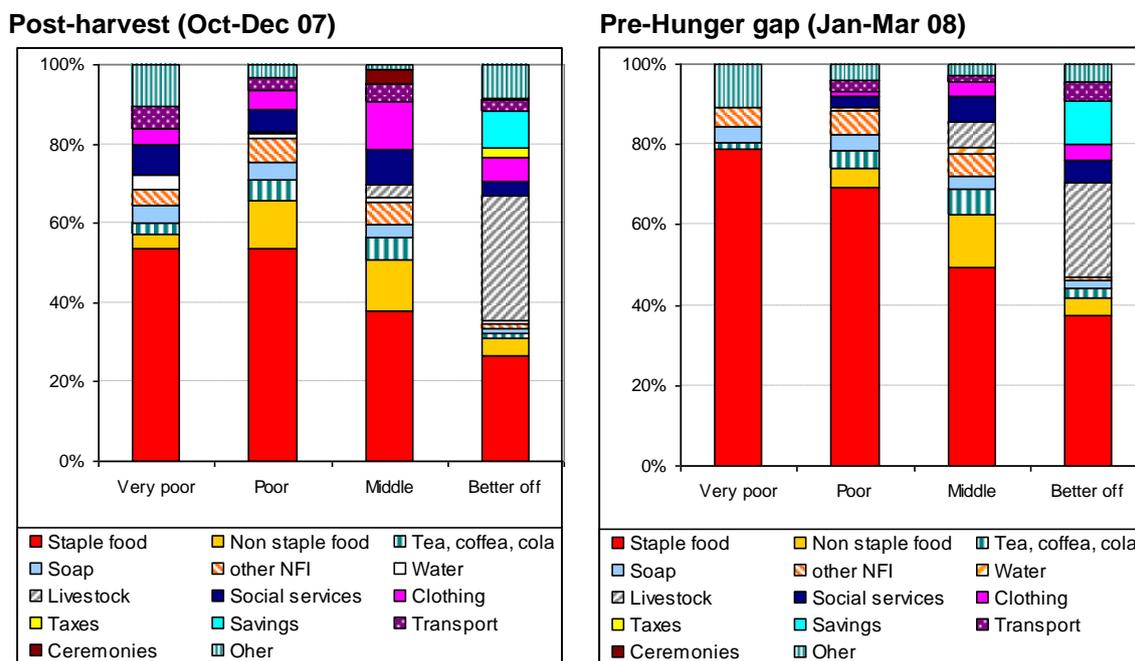
Flexibility in expenditures: prioritising food purchase

People in the developing world, regardless of wealth, require cash for purchases other than food, such as services and livelihoods activities. But a characteristic of the poorest rural population is that their expenditure patterns evolve throughout the year. Purchasing staple food items is by far the priority in a poor household's budget. When cash is scarce and/or prices of staple items are high, other expenditures will be reduced. Therefore the change in the proportion of the household's budget spent on purchasing food is a fairly good indicator of its wealth and food security status. This indicator needs to be carefully interpreted according to the seasons.

The following case example (Fig. 6) shows the expenditure patterns of different wealth groups in Kaya region in Burkina Faso, just after the harvest and then during the three following months.

For the poorest groups (Very poor and Poor) in the post harvest period, the purchase of staple food items (mainly cereals) represented 54% of the total household budget, which allowed households also to invest in social services (health, education), clothing, etc. However, three months later staple food purchases represented almost 80% of the total expenditures, a much heavier burden on the household's budget. These households had already stopped any expenditure on non-staple food items and social services, both of which made them more vulnerable to malnutrition and poor health. This situation is all the more concerning since the expenditure patterns observed in the pre-hunger gap are normally those found in the peak of the lean season.

Fig. 6. Expenditure patterns of different wealth groups in post harvest and pre-hunger gap period in rain-fed area of Kaya region, Burkina Faso, 2007-08



The case study above also highlights the pressure that food purchase places on the budgets of different wealth groups. For the better off, food expenditure does take a larger proportion of the household budget as the harvest period recedes, but this still represents less than 40% of total expenditure during the pre-hunger gap period. This provides them with a margin for adapting their budgets during the coming hunger-gap months, for example by reducing livelihood activities, without suffering from food shortages. Poorer households lack this margin in their budgets because of their limited purchasing power, and as a result they have very variable access to food throughout the year. Most of the year they cannot afford a healthy diet that fulfils their macro and micronutrient needs; as a result they are at risk of chronic malnutrition and related health difficulties. At some times of the year the gap between their income and the cost of food does not allow them even to provide for their energy needs, which exposes them and particularly their children to acute malnutrition. And yet this financial barrier to a healthy diet is still poorly taken into consideration when designing responses to hunger and malnutrition.

4. Implications of the seasonal changes to food affordability for decision makers

Timely and appropriate monitoring of hunger

Understanding the gap in food affordability and how it changes across the year can help identify periods when households are particularly vulnerable as result of food availability, price change, income fluctuations, or a combination of all of these. This understanding is essential to ensure effective monitoring of hunger and appropriate responses to it.

However, the affordability of food throughout the year is insufficiently taken into consideration in Early Warning Systems. A systematic approach is required to measure and understand these factors that affect food access by poor families

throughout the seasons and also to understand the nature of food-related crises that typically occur on a seasonal basis and to anticipate them. Save the Children has recently developed a Hunger Monitoring System which combines measurement of selected indicators including economic access to food and the nutritional situation, to provide a clear grasp of the impact and causes of local and international shocks that affect families in developing countries.

**Box 3 – Save the Children’s Hunger Monitoring System:
Some indicators to measure food affordability**

- Monthly market retail price of kg of main staple foods
- Daily wage for unskilled labour : price of kg of staple food
- Price of livestock : price of kg of staple food
- Daily cost of diet by season for a standard household
- Total annual cost of diet as a proportion of total annual income (and daily income) of a typical poor household
- % household income spent on food purchases
- % of households whose food access meets or exceeds minimum food energy needs (2100 kcals per person per day, seasonally and annually)
- % of households whose income level meets the survival threshold (minimum food energy needs and minimum non-food needs).

Appropriate response to hunger

A better understanding of the seasonal fluctuations in accessing food and the importance of a household’s income in doing so will enable more effective and appropriate policy and programming responses to be designed. These responses might include social protection measures such as strengthening the regulation of the labour market as well as interventions such as cash transfers, aiming to allow the poorest to maintain a purchasing power that at least guarantees them the ability to afford a decent diet. Development of milk and agricultural sectors can also significantly contribute to improve the nutritional status of populations, if they are designed with specific objectives to support the poorest and take into consideration their economic constraints. Micronutrients supplementation can also be more effectively used to fill the gap between needs and what is affordable/ available in seasons when a diverse diet is more difficult to achieve.