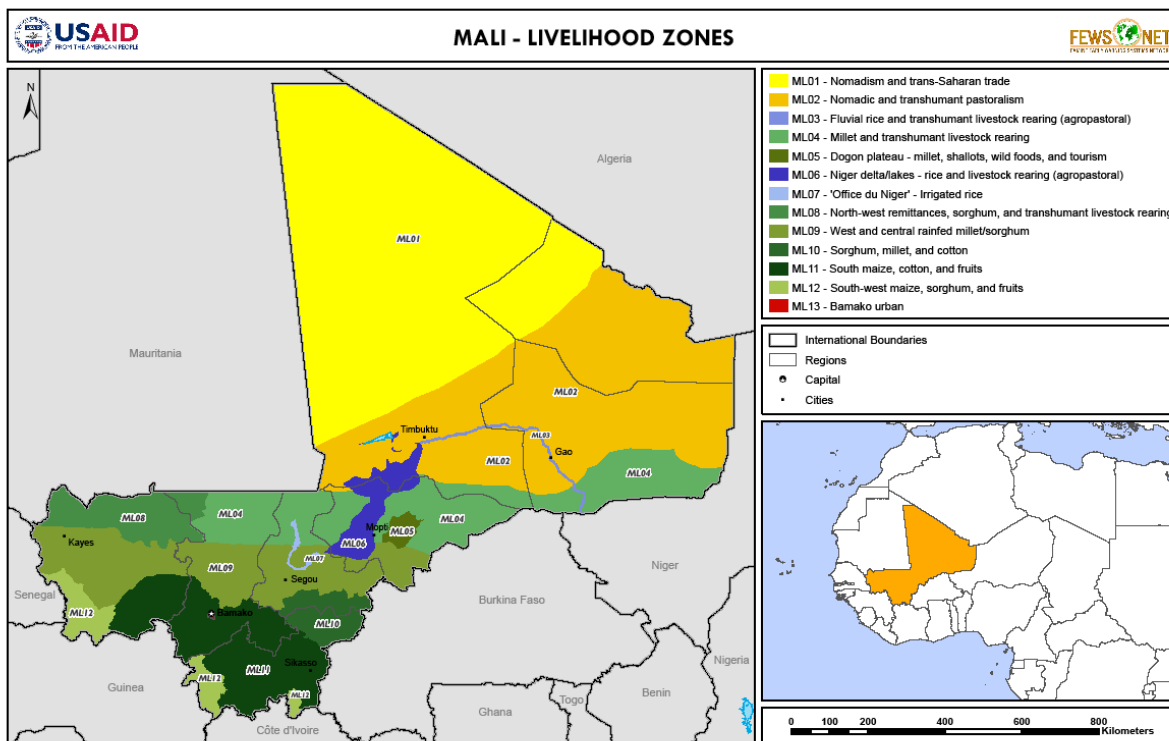




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# LIVELIHOOD ZONING AND PROFILING REPORT: MALI

**A SPECIAL REPORT BY  
THE FAMINE EARLY WARNING SYSTEMS NETWORK**

January 2010

This publication was prepared by Sam Dixon and Julius Holt of FEG Consulting under the United States Agency for International Development Famine Early Warning Systems Network (FEWS NET) Indefinite Quantity Contract, AFP-I-00-05-00027-00.

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## Introduction

The livelihood profiles that follow document how rural populations live in Burkina Faso. A **livelihood** is the sum of ways in which households obtain the bare necessities, how they make ends meet from year to year, and how they survive (or fail to survive) through difficult times.

There is increasing interest in using livelihoods analysis as the “lens” through which to view a number of problems. These problems range from emergency response to disaster mitigation to longer-term development. This interest rests upon two basic observations:

- 1) Information about a given area or community can only be properly interpreted if it is put into the context of how people live.
- 2) Interventions can only be designed in ways appropriate to local circumstances if the planner knows about local livelihoods and whether or not a proposed intervention will build upon or undermine existing strategies.

Two main products are offered here:

<b>National Livelihood Zone Map</b>	The map shows the division of the country into homogenous zones defined according to a livelihoods framework.
<b>Livelihood Zone Profiles</b>	The profile describes the major characteristics of each zone, including a brief differentiation of different wealth groups. There is some emphasis on hazards and the relative capacity of different types of households in different places to withstand them.

In compiling these profiles, a balance has been struck between accessibility and level of detail. The aim has been to present sufficient information to allow a rounded and balanced view of livelihoods nationally. The profiles provide a rapid introduction to livelihoods in the country; they do not offer localized detail.

This document is divided into three main sections:

1. **Introduction** — includes four sub-sections:
  - **Uses of the Profiles**—describes three main ways the profiles can be used.
  - **Key Concepts**—defines the key concepts used in livelihoods-based analysis and briefly presents the analytical framework that helped define the key information to be included in these profiles.
  - **What is in a Livelihood Profile**—describes the layout and content of each profile.
  - **Methodology**—describes the methods used to develop the map and profiles.
2. **National Overview**—National livelihood zone map, together with a national overview of livelihoods in Burkina Faso.
3. **Livelihood Zone Profiles**—Profiles for each zone.

## Uses of the Profiles

The livelihood zoning and profiles presented here offer an analysis of rural livelihoods and food security based on a geographical basis. The country is divided into homogenous zones according to a livelihoods framework. A brief description of each zone is provided, including an analysis of the position of different wealth groups within the zone. It is envisaged that this product will be useful on three levels, as follows:

### 1. An Introductory Guide to Livelihoods and Food Security in the Country

The profiles pack considerable information and analysis into a few pages of presentation. They should therefore form a useful briefing for a newcomer who needs to get a quick grasp of the livelihoods and food security conditions around the country. The geographical divisions are relatively large – as far as this is consistent with ground realities – so that the reader can take in the general pattern and the basic differences between areas and populations without being overwhelmed by too much detail.

Development planners can also benefit from using the livelihood profiles. One objective of development is to reduce people's vulnerability to hazard and to increase their capacity to cope. An important first step is to understand who is vulnerable, to which hazards, and why. Likewise, efforts to reduce poverty require an understanding of how the poorest households survive in different areas of the country and the reasons for their poverty.

### 2. Early Warning and Response Planning

Local food security is often incorrectly equated with agricultural production outcomes compared to the food needs of the local population. Hence, a chronic or temporary production deficit against local food requirement is immediately translated as chronic or temporary food insecurity. Consequently, most early warning and food security monitoring systems draw heavily from two information sources: (i) crop and/or livestock production data, and (ii) market price information.

This is almost never the whole story. A full account of the “food economy” addresses both food availability– that is, what food people produce – and food access – what cash people earn to purchase food. Data on casual employment, wild foods, charity from relatives or the sale of handicrafts may be equally important to the livelihood story as data on crop or livestock production, and knowledge of the relative importance of these can guide the design of more appropriate monitoring systems and better rapid emergency assessments.

Using a livelihoods framework, we can inquire into household capacity to cope with stress, especially failed crop or livestock production; and we can appreciate household activities at different periods in the yearly cycle. All of which feeds directly into our analysis of need, helping to answer key questions, such as: which areas and what types of household are likely to cope should a hazard strike, and which will need assistance? What types of intervention will be most appropriate, and when and for how long should they be implemented?

Thus for instance one could point to the position of poor households in a given geographical area who are highly dependent on urban employment. If urban employment declines, their labor will be less in demand; can they find alternative income elsewhere – and will they be competing with people from other zones in these activities?

National officers working within their national early warning system have an immense knowledge of their countries. The livelihoods approach helps to provide a framework for the full use of that knowledge, as well as adding a new level of information to it.

### 3. Policy Development

Disaster management has been the main impetus to the spread of early warning systems. The rationale in early warning is to improve the efficiency in the scale and timing of emergency food aid. However, increasingly planners are looking at alternatives to food aid in early emergency intervention – and this often requires changes in policy and practice. A case in point is the stabilization of market prices for basic foods. Livelihoods analysis can expose the likely effects of such interventions on different households' capacity to survive a crisis. The analysis can also recommend the optimum timing for the intervention.

Livelihood analysis can also be applied to other policy changes. For example, if the government taxes on kerosene were reduced, or charges made for government veterinary drugs, what would be the impact on households? More generally, a livelihood analysis offers a more secure footing for poverty alleviation measures – and represents a movement from a response to symptoms of food insecurity to a treatment of the causes. It allows one to look at the story which lies behind national statistics.

#### Key Concepts

The terms **risk**, **hazard**, **vulnerability** and **need** are frequently used in ways that can be confusing in the context of food security. Their established meaning for the purposes of disaster management – and the sense in which they are used here – is perhaps best explained with an example (see below).

#### *Defining Risk, Hazard, Vulnerability and Need*

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- Drought is a major **hazard** affecting crop and livestock production in many countries.
  - Poor households are more **vulnerable** to (less able to cope with) drought than better-off households; they have fewer reserves of food or cash to fall back on and fewer options for generating additional income.
  - Poor households living in drought-prone areas of the country are more **at risk** than other households because they are both exposed to and vulnerable to the drought hazard.
  - Once a drought strikes, the poor are the most **in need** of assistance.
- 

To be at risk of food insecurity, you must both be exposed to a hazard as well as be vulnerable to that hazard, as in the case of poor households in the drought-prone areas of the country in the above example. Because vulnerability is so closely linked to hazard, it follows that there is no general state of vulnerability. People can only be vulnerable *to something*. For example, farmers cultivating along a river margin may be vulnerable to flood (which is likely to wash away their crops) but may not be vulnerable to drought (since they can irrigate their crops using water from the river).

Once a hazard has struck, it no longer makes sense to talk about vulnerable groups. Put simply, people are **vulnerable before the event**, (since this refers to their ability to cope should a hazard strike). They are **in need after the event** (i.e., once they have been affected by and have been unable to cope with the hazard). Going back to the drought example, the poor are vulnerable to drought before the rains fail, but once they have lost their crops or livestock, they are in need of assistance.

One of the most widely used livelihoods-based approaches for analyzing food security is the **food** or **household economy** approach, first developed by Save the Children UK in the 1990s<sup>1</sup>. The basic principle underlying the approach states that:

*An analysis of local livelihoods is essential for a proper understanding of the impact – at household level – of hazards such as drought, conflict or market dislocation.*

Total crop failure may, for example, leave one group of households destitute because the failed crop is their only source of staple food. Another group, by contrast, may be able to cope because they have alternative food and income sources. These alternative sources – such as livestock to sell or relatives elsewhere who can assist - can make up the production shortfall. Thus, effective hazard impact assessments must be based upon a livelihood analysis. The food economy analytical framework sets out the type of analysis required to understand the impact of a hazard on food security and local livelihoods, and has been used to help define the key information to be included in the profiles.

The objective of a food economy analysis is to investigate the effects of a hazard on *future* access to food and income so that decisions can be taken about the most appropriate types of intervention to implement. The rationale behind the approach is that a good understanding of how people have survived in the past provides a sound basis for projecting into the future. Three types of information are combined: (i) information on baseline access to food/cash income, (ii) information on hazard (i.e., events affecting access to food/cash income, such as drought, conflict or market dislocation), and (iii) information on household-level response strategies (i.e., the sources of food and income that people turn to when exposed to a hazard). The approach can be summarized as follows:

**The Livelihood Zone Map:** Patterns of livelihood clearly vary from one area to another, which is why the preparation of a **livelihood zone map** can be a useful first step for many types of livelihoods-based analysis. Local factors such as climate, soil, access to markets, etc. all influence livelihood patterns. For example, people living in a fertile highland area generally have very different options from those living in a semi-arid lowland area. In highland areas, people can generally pursue an agricultural pattern of livelihood, while in the lowlands, they can grow few crops and will be either pastoralists or agro-pastoralists. Those living in a coastal or lakeside zone will follow a livelihood based upon fishing or combining fishing with other activities, and so on.

Agro-ecology is only one aspect of geography which determines patterns of livelihood, however. Another is market access, since this affects the ability of people to sell their production (crops, livestock, or other items) and the price obtained for it. Since patterns of livelihood depend so much upon geography, it makes sense to divide a country or a region into a number of **livelihood zones**. These we can define as areas within which people share broadly the same pattern of livelihood (i.e., broadly the same production system - agriculture or pastoralism, for example – as well as broadly the same patterns of trade/exchange).

Livelihood zone boundaries do not always follow administrative boundaries. It is, for example, quite common to find different patterns of livelihood within a single administrative unit (e.g. pastoralists living alongside agriculturalists, or agro-pastoralists alongside fishing communities). However, because resource allocation and service provision decisions are made on the basis of administrative areas, not livelihood zones, it is important that livelihood zone boundaries should wherever possible follow lower level administrative boundaries.

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<sup>1</sup> See “The Household Economy Approach,” Seaman J., Clarke P., Boudreau T., Holt J., Save the Children UK, 2000.

**The Wealth Breakdown:** Geography is clearly not the only thing that determines the pattern of livelihood. Geography tends to define the different livelihood *options*, but the extent to which people exploit these options depends upon a number of factors, of which *wealth* is generally the most important. It is obvious, for example, that better-off households owning larger farms will in general produce more crops and be more food secure than their poorer neighbors. Land is just one aspect of wealth, however, and wealth groups are typically defined in terms of their land holdings, livestock holdings, capital, education, skill, labor availability and/or social capital. Defining the different wealth groups in each zone is the second step in a food economy analysis, the output from which is a **wealth breakdown**.

**The Food Economy Baseline**<sup>2</sup>: Having grouped households according to where they live and their wealth, the next step is to generate **food economy baseline** information for typical households in each group for a defined reference or baseline year. This involves investigating the different sources of food and cash income and their relative contribution to the household budget over the year as a whole. It also involves developing a **seasonal calendar** of activities to see how access to food and cash income varies throughout the year. These types of information are critical in terms of understanding how households living at different levels of wealth and in different zones will be affected by a particular hazard. It follows, for example, that households that depend heavily upon local livestock production will be affected quite differently by drought compared to those that have relatives living and working in the capital city from whom they receive regularly assistance or remittances.

***Hazard:*** Food economy baseline data provide a starting point for investigating the effect that a hazard will have on livelihoods and household food security. Hazards may either be natural (e.g. drought or flood) or man-made (e.g. conflict or market dislocation). The consequences of a hazard will vary according to the hazard itself and according to the local pattern of livelihood. A drought may result in a loss of crop and livestock production, loss of crop and livestock sales income, loss of farm-based employment, etc., posing a threat to households that are heavily dependent upon crop or livestock production or upon local agricultural labor. Insecurity, on the other hand, may be associated with the theft of crops or livestock, reduced access to certain areas (markets, wells, grazing areas or fields) and disruptions to trade and transportation, all of which will pose a threat to groups living in, moving through or trading with the insecure area.

***Response:*** When exposed to a hazard, most households will do their utmost to try and deal with its effects. If the hazard tends to reduce their access to certain sources of food and/or cash income, they may try and expand other sources, or they may turn to new or little-used sources. Common response strategies<sup>3</sup> in certain settings might include an increase in the collection of wild foods, an increase in the sale of livestock, or temporary out-migrating in search of employment. Where these strategies are effective, they can significantly reduce vulnerability to a range of hazards. It has to be borne in mind, however, that response strategies may have long-term as well as short-term effects, some of which may ultimately undermine local livelihoods,

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<sup>2</sup> Note that the information provided in the profiles does not constitute a full food economy baseline. A full baseline provides quantitative information on the *amount* of food accessed and the *amounts* of cash income generated from different sources for at least three main wealth groups within a livelihood zone. The livelihood profiles, in contrast, include information on the *proportional contribution* of different sources of food and cash income to the whole. Put simply, the unit of measurement for a livelihood profile is percentage of total. The national livelihood zone map and livelihood profiles are designed as a stand-alone product (see section on Uses of the Profiles), but they are also intended as an intermediate step towards the development of a full food economy baseline.

<sup>3</sup> The term “response strategy” is preferred to “coping strategy” for two reasons. Firstly, the term “coping strategy” is often used to refer to regular components of everyday livelihood (e.g. firewood sale), which, strictly speaking, are only coping strategies when intensified in response to a hazard. Secondly, “coping” can be taken to imply that the strategy in question is cost-free, which is not always the case.

e.g. the sale of productive assets, the unsustainable sale of livestock, in increase in the sale of firewood where this has negative environmental effects, and so on.

### What is in a Livelihood Profile ?

The profiles are divided into a number of sections:

**Main Conclusions and Implications** summarizes the main findings from the zone. This section also provides insights that will inform the planning of various types of intervention, including emergency response, disaster mitigation and development programming.

**Zone Description** offers a general description of local livelihood patterns (crop production, livestock rearing, off-farm income generation, etc.).

**Markets** contains basic information on the marketing of local production and on any importation of staple food into the zone.

**Seasonal Calendar** sets out the timing of key activities during the year. This is useful in a variety of ways, e.g. to judge the likely impact of a hazard according to its timing during the year, or to assess whether a particular activity is being undertaken at the normal time in the current year.

This is followed by five sections that provide the **core information on the “food economy”** of the zone (see preceding section):

The **Wealth Breakdown** section describes three main wealth groups (“poor,” “middle” and “better-off”), explaining the differences between these groups and how this affects potential access to food and cash income<sup>4</sup>.

The **Sources of Food** and **Sources of Cash** sections examine patterns of food and cash income at each level of wealth, relating those to the characteristics of each group.

The section on **Hazards** provides information on the different types of hazard that affect the zone, differentiated by wealth group where this is appropriate.

**Response Strategies** describes the various strategies available to different types of household in the zone, together with a judgment of the likely effectiveness of these.

Early warning involves identifying and interpreting key events that indicate that a severe food shortage or famine may be developing. The final section, **Indicators of Imminent Crisis**, draws upon the classification of early warning indicators proposed by Fred Cuny<sup>5</sup>. This section provides information on the key indicators and their likely timing by zone, based upon an understanding of local livelihoods and local patterns of response to food shortage<sup>6</sup>.

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<sup>4</sup> It is important to bear in mind for this analysis that we are thinking of wealth in relative (and local) terms. Statistical data may indicate that 80% or even 90% of the population in a particular area lives below the national poverty line, but this is measuring poverty on a national, absolute scale. In a livelihoods analysis, we are interested in understanding some of the differences between different groups within the community and the reasons for these – in which case it is not particularly useful to lump 80% or 90% of the population together into one group.

<sup>5</sup> “Famine, Conflict and Response: A Basic Guide,” Cuny F.C. and Hill R.B. Kumarian Press, 1999, pp 33-42.

<sup>6</sup> Fred Cuny identified two types of early warning indicators, those that provide advance warning of a famine (indicators of imminent crisis) and those that confirm the existence of famine (indicators of famine). The latter group includes indicators such as distress sales of productive assets (e.g. plough oxen),

## Methodology

A national livelihoods re-zoning workshop was held by FEWS NET in Bamako from 17-18 November 2009. The map presented here is a revised version of a map created in 2003 and represents the consensus reached at the workshop, which was attended by FEWS NET and its partners in government, the UN and NGOs. Several changes were made to the original map, including the additions of zones 8 and 12 and adjustments to several zone boundaries. These revisions were verified during fieldwork which took place from 23 November to 9 December 2009. Three teams each completed three zones. Due to insecurity it was not possible to visit zones 1, 2 and 3. Profiles for zones 2 and 3 have been prepared using information from a recent OXFAM GB study conducted in each of these zones. In addition, information from recent Save the Children UK studies in zones 10 and 11 has been used to compliment the information collected during the FEWS NET mission.

The fieldwork involved three levels of interviews. First, regional level interviews were held in Kayes, Koulikoro, Mopti, Segou and Sikasso regions. Information was collected on the main characteristics of each zone falling with the region. This included information on agro-ecology and markets as well as on the main food crops, cash crops and income sources of better-off and poor households.

Second, interviews were held with the heads of technical services at the 'cercle' level, including agricultural and livestock experts. One 'cercle' was visited per zone;<sup>7</sup> the 'cercles' were selected during the national level training workshop and were chosen, because they were deemed to be more or less 'typical' of their zone. The first part of the interview concerned general information about the zone, including the main crops, characteristics and activities of the zone. In the second part of the interview informants were asked to divide households into four wealth groups ('very poor', 'poor', 'middle' and 'better-off') according to local definitions and perceptions of wealth. Information on each wealth group was collected, including typical household size, land and crops cultivated, livestock holding, other asset holding, main income sources and the percentage of households falling into each wealth group. Once an asset profile had been built up for each wealth group, informants were asked to use proportional piling techniques to quantify the relative importance of the typical food and income sources for all wealth groups. Finally, a seasonal calendar was prepared, showing the timings of the main crop, livestock and other activities in the zone.

Third, interviews were held at village level, with the head of the village, his advisors and other key informants (for example school teachers). One village was visited per zone. Villages were chosen in discussion with 'cercle' level officials, who had participated in the 'cercle' interview; the main criterion was that villages should be more or less typical of the zone. At village level a shortened wealth breakdown was completed as well as the proportional piling of typical food and income sources. Information on the seasonal performance of recent years, on hazards and on coping strategies was also collected.

Throughout the above process, interviewers were active in following up on inconsistencies and carrying out cross-checks at all levels. After the fieldwork two days of analysis was held at the FEWS NET office in Bamako. Teams compiled and finalized their results in discussion with an international consultant. In a plenary session all teams presented and discussed their results. The

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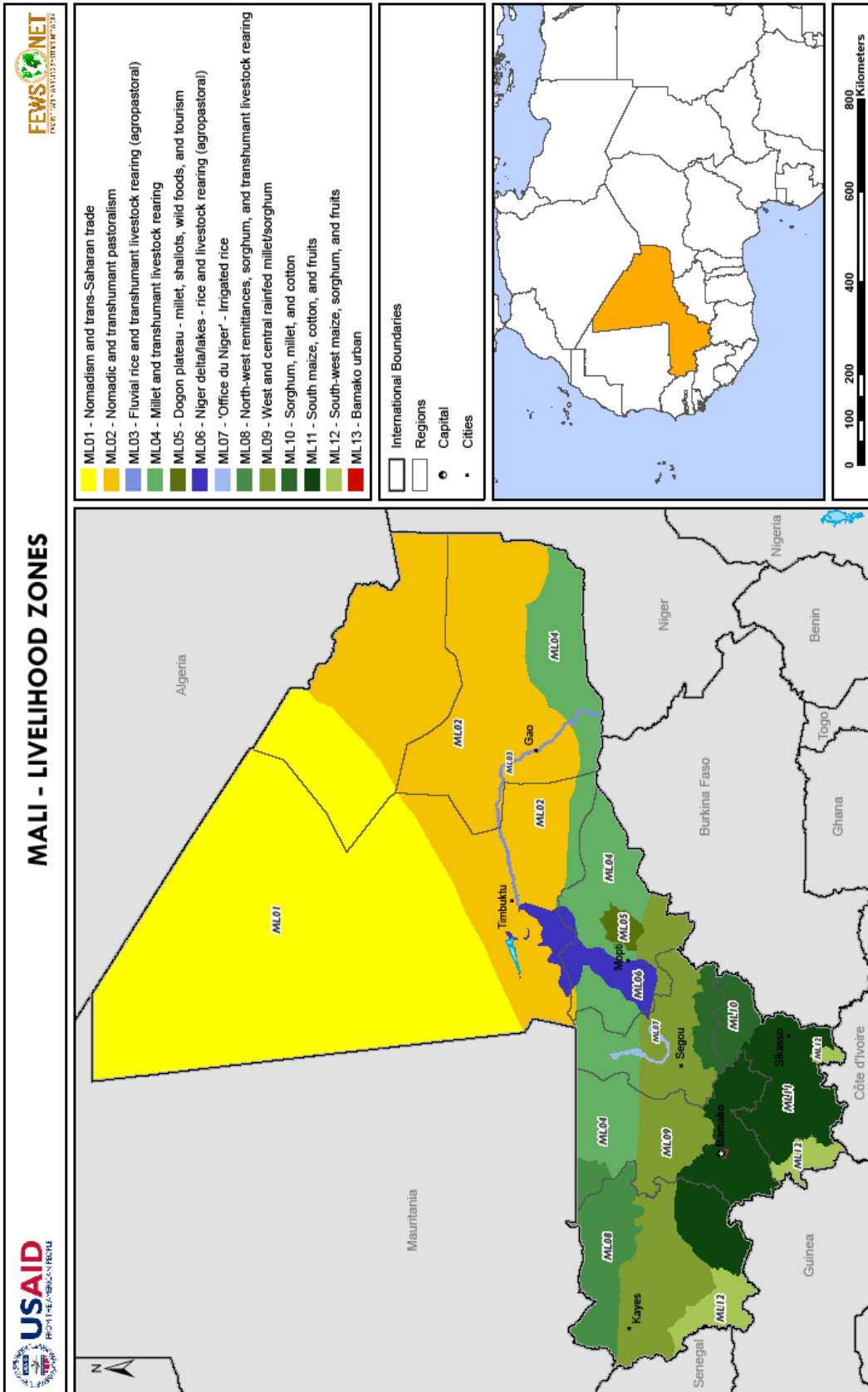
consumption of seeds, increased malnutrition and increased mortality. Indicators of famine are not generally context-specific (i.e., a single list could be prepared that would apply to all livelihood zones). They are also of little use in predicting or preventing severe food shortage or famine. For these reasons, they have not been included in the livelihood profiles.

<sup>7</sup> Two 'cercles' and two villages were visited in two different parts of zone 12.

information presented here thus represents the consensus of FEWS NET Mali and its government partners.

The main unit of economic analysis for this assessment was the household or 'exploitation'. This is the main unit of consumption and production; household members eat meals from the same pot and share their assets, income and expenditure. A household may include the head of household, his brothers, his wife or wives and his children. The overwhelming tendency in rural Mali is for household size to increase with wealth; that is, the better-off have larger households than the poor. Households or 'exploitations' (particularly the larger ones) often contain smaller economic units. Some activities, for example, market gardening are carried out at this level; the income from these activities is not shared with the rest of the household ('exploitation'). Despite this complication, the household ('exploitation') is the principal productive unit and officials, key informants and peasants alike think in these terms. Any income earned by smaller economic units within the household has been included as part of the income of the household as a whole.

The information presented in the profiles shows typical consumption and income patterns for households at different levels of wealth within each livelihood zone. This can tell us who will be impacted by a shock and where, but it cannot tell us the degree of impact or whether that impact will translate into food insecurity.



# Mali Livelihoods Profile

## National Overview

### Introduction

Rainfall is by far the most decisive factor in determining differences between livelihood zones. It helps to explain the degree of dependence on livestock herding and the uses to which arable land can be put. Malian livelihood zones run gamut in rainfall terms, from the desert zone in the far north with under 200mm precipitation per year (if it rains at all) to the much lush zones in the south with between 1000 and 1300mm of rainfall.

In very broad terms we can see a correspondence between zones and isohyets as we pan down the country. Zone 2 does not receive enough rainfall to support rainfed agriculture and is defined by nomadic and transhumant pastoralism with a low population density. The higher precipitation in zone 4 -the wide Sahelian band- allows the cultivation of millet and cowpeas. However, the low and unreliable rainfall means that agriculture alone is a risky business and helps to explain why transhumant livestock rearing is a principal characteristic of the zone. In many ways zone 9 represents a transition from the north to the south; there is a decreasing dependence on livestock and an increasingly diverse range of food and cash crops. Millet is dominant in the north of the zone, sorghum in the south; cotton and maize are also cultivated. The three southern-most zones (10,11,12) are highly productive and it is possible for households to allocate a greater proportion of their land to cash crops. The range of crops is also more diverse, particularly in zone 11.

Rainfall is the principal factor in determining whether a year is good or bad. Looking at how informants in each zone classified recent years in terms of food security is instructive. Although the exercise is subjective, the pattern in the northern zones is one of peaks and troughs (i.e. good years followed by bad); in the Sahel good years are crucial, since they allow households to prepare for and to recover from the bad ones. In the southern zones, with a higher and more reliable rainfall, there is less variation between years.

However, rainfall does not give us the full picture; a glance at the livelihoods map shows that zones do not simply follow isohyets. Geomorphology and relief affect local soil composition and productive potential. The great Niger river is crucial in defining at least three of the livelihood zones. The delta (zone 6) is a vast flood plain that is inundated for five months of the year; flooding is also caused by another factor - the very low slope of the ground, which allows the waters to spread out. This creates a major resource in terms of pasture and allows households to cultivate rice and sorghum this far north. The river also defines the livelihoods of households living along its banks (zone 3) from the north of the delta to the international border between Mali and Niger, where irrigated rice is a particular feature. In a still more direct way, Bozo fishermen (zone 6a), who operate along the length of the river, are dependent on it for survival. Finally the Office du Niger (zone 7) is a managed irrigation scheme dependent on water from this river. This zone is unusual, since it is also manmade - an area of the Sahel reclaimed by irrigation canals and dams.

Cultural, historical and ethnic factors may also play a role. Most notably, in zone 8 the Soninke are well-known for their dependence on remittances from family members, living and working abroad (often in France). Arguably, food security in this zone depends more on the regular

receipt of remittances than on the vagaries of rainfall. The geographical location of a zone can be important. The position of zone 9 means that it dominates the north-south commercial axis of grain trade towards the deficit north and livestock trade and seasonal migration towards the south. Zone 2 is linked to Algeria by the long tradition of trans-Saharan trade. It is not surprising therefore that these two zones are among those where trade contributes the most to income.

Differences do not just occur between zones; within each zone, in any community there are important differences in wealth between households, although they share the same livelihood context of ecology and geography. These differences are important in determining a household's food security as well as its ability to respond to a shock, and the way in which it will do so. There are several factors that determine wealth, and their relative prominence to some extent determines the nature of a zone. But the two cardinal factors are livestock and land. Across the country wealthier households have larger livestock holdings. Livestock are a significant source of income, an important way of saving and investing ('banques sur pattes') and a safeguard against a bad year. The most valuable species are camels (only in zones 1,2 and 4) and cattle; ownership of just one of these animals can bring a considerable degree of economic security. In the majority of zones it is only the middle and better-off who own cattle or camels.

The ability to cultivate land is a key determinant of wealth in all but zone 2 (and perhaps zone 8). This may depend on land availability, as in zone 7, where population density and pressure on irrigated land are high. Additionally, it is dependent on the ability to work the land; across the country middle and better-off households have more able-bodied members than the poor and very poor. To varying degrees they also employ members of the poorest households as agricultural laborers. Wealthy households are also those who can afford agricultural and livestock inputs; and are those who own productive assets - often carts, plows and plow oxen - although the nature of productive assets differs from zone to zone.

Finally, the livelihood zones are *not* discrete entities sufficient in themselves. They interact both with each other and with neighboring countries in a number of ways. Transhumant livestock herders move their animals towards southern zones during the dry season to take advantage of pastures there. Migrant laborers also travel to other zones, urban centers and neighboring countries in search of work. Every year, for example, laborers from zone 6 move to zone 4 for the millet harvest; following this, laborers from zones 4 and 5 travel to the delta (zone 6) to work on the rice harvest. Trade is one of the most important links between zones. The surplus-producing southern zones provide cereals to the deficit north as well as exporting cash crops to other zones and abroad. Livestock from the north is traded in the south of the country as well as abroad (e.g. Algeria and Niger). This underlines another point: food security can be affected by external events, notably changes in price on the international market. In recent years, for example, low cotton prices have adversely affected livelihoods in the cotton-producing zones

## **Geography and Climate**

As is evident from the previous discussion the geography and climate of Mali vary considerably from north to south. Differences in rainfall account for variations in vegetation from the desert in the north, through the bushes and shrubs of the sahel to the savannah and forests of the south. The country's main water courses are the Niger and Senegal rivers. There are many other permanent and seasonal rivers, which provide water for irrigation and livestock, fertile soil on their banks and opportunities for fishing.

The country has considerable natural resources in terms of wild foods and products. In zone 3 for example households consumed cram cram grains (*Cenchrus biflorus*) and wild fonio (*Panicum laitum*). In many zones the sale of wild products is an important income source. In zone 4, for example, households sell gum arabic and wild dates. Other products found in the country

include shea nuts, néré, tamarinds, zaban (*Saba senegalensis*), baobab fruits and leaves, jujube (*Ziziphus Mauritania*), several kinds of edible leaf and honey.

## Sources of Food

The graph on the following page summarizes the differing sources of food by wealth group in all livelihood zones.<sup>8</sup> At the most general level, there is a north-south trend; as we move towards the south households depend more on their own production and less on the market. Thus we can see a difference between zones 3 and 4 in the north, which produce a deficit, import staple foods and are food insecure, and zones 10, 11 and 12 in the south, which produce a surplus, export cereals and are food secure.

However, a more striking finding is the degree to which households in *all* zones rely on the market for their food needs. This reminds us that we are dealing with a cash based economy. Even in the south, the very poor and poor depend heavily on the market and must use their cash income to purchase their food. Thus the graph reveals something about the structure of poverty in Mali. The most significant difference is between the two upper and lower wealth groups and can be seen most clearly in the concentration of red (purchase) on the left hand side of the graph and green (own production) on the right.

We can also learn something about the relationships between wealth groups. In all zones the poorest households receive payment in-kind for work carried out for the middle and better-off. Under this type of arrangement wealthier households normally pay laborers using grain from their own harvests; zone 2 is distinctive in that there is payment in-kind in bought grain, but no agricultural production. In all zones the poor and very poor receive some of their annual food requirement from a combination of loans and gifts in-kind, given by the middle and better-off. Loans are commonly taken during the hard hunger months when poor households are most dependent on the market and staple food prices are high. They are repaid after the harvest when the economic situation of these households has improved. The general trend across zones is for the very poor to depend more on these sources than the poor. One exception is zone 8 in the north-east where this category is large for both groups. This has to do with the importance of remittances, the benefits of which are partially received by the poorest households in the form of food gifts. The contribution of loans and gifts in-kind tells us something about the degree and nature of poverty in Mali. The graphs illustrate how dependent the poorest are on the wealthier groups in order merely to survive and meet their food needs. A seasonal perspective demonstrates that this dependence is cyclical -highest during the hunger season, lowest during and after the harvest, only to increase again towards the end of the consumption year.

Returning to the differences between wealth groups, a less acute distinction, but nevertheless important, is between the Poor and the Very Poor. Although both depend heavily on the market, the Poor generally get distinctly more from their own fields than the Very Poor. In many cases 'own production' contributes twice as much to poor than it does to very poor households. The Poor also possess distinctly more livestock, however modest their holdings remain (the Very Poor often possess no more than a little poultry). It is arguable that this serves to make the Poor part of the traditional farming community, while the Very Poor group may represent the beginnings of a kind of rural proletariat.

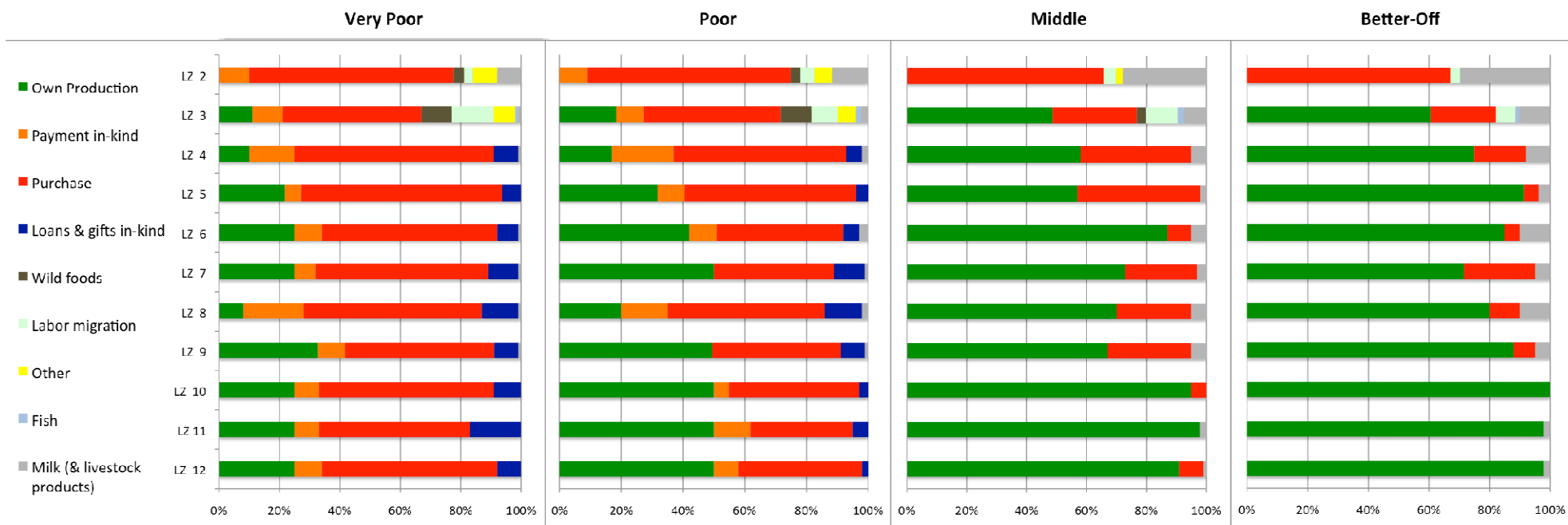
In broad terms, milk consumption decreases as we look from north to south. It is by far the highest in pastoral zone 2, where a poor household consumes more milk than typical middle and better-off households in all other zones. Within each zone it is the wealthier households who

<sup>8</sup> The categories for zones 2 and 3 are slightly different from those used for other zones. Due to civil insecurity in these areas FEWS NET was not able to carry out fieldwork there and the graphs for these zones come from recent HEA baseline studies by OXFAM GB, which are able to classify food sources in a more detailed manner than is possible in a rapid profiling assessment.

consume more than the poorer households. Levels of milk consumption are closely tied to the size of livestock holding. Less milk is consumed by households in the Office du Niger and Dogon plateau zones (7 and 5) than in the large sahelian band (zone 4) because of lower livestock holdings. The north-south logic is also partly to do with the greater numbers of livestock in the north. However, middle and better-off households in the southern zones own enough animals to consume more milk than they do. The second part of the north-south explanation lies in dietary habits; households in the south do not generally consume sheep and goats' milk, unlike their northern counterparts. Informants also insist that milk consumption generally (including cows' milk) is not really part of the dietary habits of households in these areas. In those zones where milk is consumed in larger quantities, it provides a significant boost to the quality of households' diets. The very poor and poor may also benefit from receiving gifts in milk.

Zone 2 should be mentioned separately. While it fits with the general cross-country trends it is the only purely pastoral zone (excluding zone 1). It is noteworthy that milk consumption is not higher than 30% of the annual food requirement for wealthier households. The inhabitants of the zone primarily consume cereals purchased on the market. They are consequently vulnerable to poor terms of trade between the price of millet (the main staple) and the price of livestock. As with pastoralists and their milk, we might expect Bozo fishermen (zone 6a) to consume large quantities of fish. However, it contributes even less to their food needs than milk does to pastoralists. Fish is sold or exchanged for cereals. Poverty means having to make the choice of basic energy food, to the detriment of the quality and palatability of the diet.

## Sources of Food<sup>9</sup>



<sup>9</sup> LZ stands for 'Livelihood zone'.

## Cash Sources

The graph on the following page summarizes the differing sources of cash by wealth group in all livelihood zones. In broad terms, the middle and better-off receive the majority of their income from their own production, whether it be crop sales or livestock sales. Glancing from north to south we can see the decreasing importance of livestock and the increasing importance of crops. There are some exceptions to this trend. Zones 5 and 7 for example are principally dependent on crops (market gardening and rice cultivation respectively), despite being towards the north of the country. Most notable, however, is the remittance-based economy of zone 8, where livestock sales are relatively unimportant despite the large holdings there.

Petty trade and trade is dominated by middle and better-off households, because it is these groups that have the capital to invest in trading. It is interesting that trade is most important in the two most livestock-dependent zones (2 and 4). The movement inherent in nomadic and transhumant livestock rearing lends itself to trade. This may also be one of the few ways in which wealthier pastoral households are able to diversify their livelihoods.

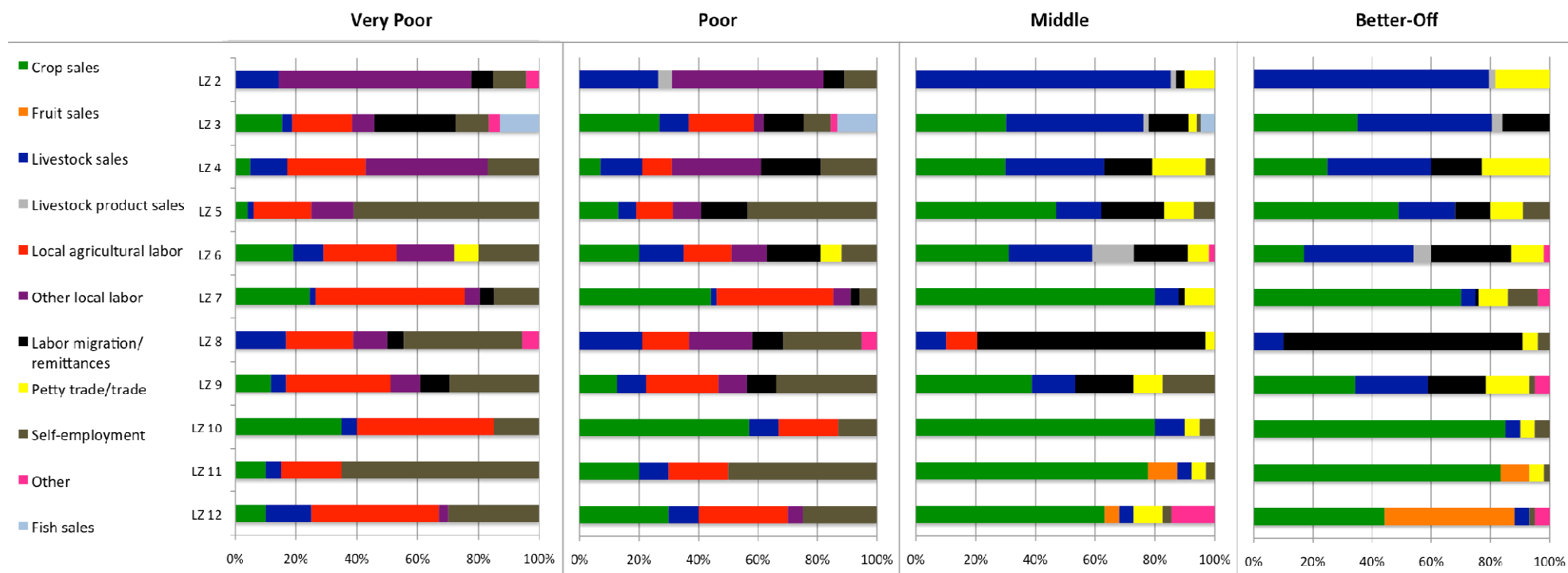
In contrast, the poor and very poor earn their money from labor and self-employment. Since they require this cash for basic food and other essentials of life, this means that a significant proportion of the rural population could not survive without working for others or providing services. Local labor is divided into two categories. First, agricultural labor involves clearing and preparing fields and sowing, weeding and harvesting crops. Its peak period is often during and after the rains and it is most important in primarily agricultural zones (notice, for example, zones 7 and 12, where more labor is required than in food deficit zone 4). Second, other local labor takes place during the dry season, when there is little (or at least less) demand for agricultural labor. This often involves brick-making and construction. Self-employment consists of several activities. Firewood/charcoal and wild food/product sales are the most common, followed by handicrafts and hay/bourgou (*Echinochloa stagnina*) sales. Exactly what is sold depends on the nature of the zone; however, we can say that the very poor and poor primarily sell to middle and better-off households within the same zone. (An exception may be zone 12 where self-employment includes traditional goldmining).

The category 'labor migration/remittances' is important in many zones, although more so in the north of the country where livelihoods are more uncertain and opportunities for work within each zone are, in general, more restricted than in the south. The middle and better-off also receive income from this source. They are able to travel further and get more profitable jobs than the very poor and poor; indeed, for the better-off this category often consists of remittances from permanent migrants.

The extent of the difference between the two upper and lower wealth groups varies between zones. Notice the pastoral zone (2) where livestock is the only productive asset. Its ownership is concentrated among the middle and better off and this creates a sharp distinction between the laboring poor and very poor and the livestock-selling wealthier households. In zone 8 remittances cause a similar skewing of wealth, as do cash crops in the southern zones, since very poor and poor households are mostly excluded from these activities, by their high cost in inputs.

As in the sources of food section we should be aware of the differences between the poor and very poor. In zone 10, for example, the varying income structures suggest that poor households are farmers, while very poor households are laborers. In zones 4,5 and 6 the major difference between the poor and very poor is their ability to migrate for labor. Very poor households usually do not have enough able-bodied members for one to migrate in search of work.

## Sources of Cash<sup>10</sup>



<sup>10</sup> LZ stands for 'Livelihood Zone'.

## Risks

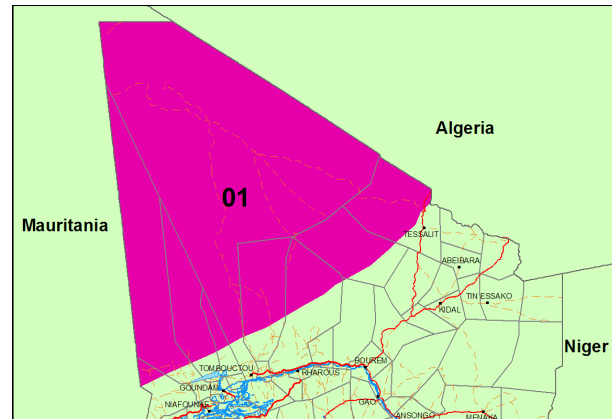
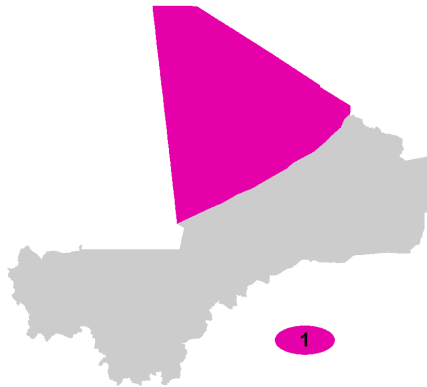
The comparison of cash sources across zones tells us something about risk and vulnerability. In those zones where rainfall is low and unreliable middle and better-off households spread the risk between crops and livestock (a combination of green and blue on the graph); if the income from one is reduced, the other can be relied on more. This is less necessary in the south where rainfall is both more reliable and more regular and it is not so risky for households to depend heavily on their crops. The same is true in zone 7 where cultivation is irrigated. There is also less need to spread the risk in zone 8, since annual income is not dependent on the caprice of the climate, but on remittances. The exception to all this is zone 2, where rainfall is low and unreliable, and where households depend almost exclusively on livestock. Livelihoods here are more risky than anywhere else in the country, although conversely the high value of livestock makes it a wealthy zone.

The very poor and poor have more diversified income patterns. This does not necessarily make them more resistant to shocks than wealthier households, because much of their income is paid by the middle and better-off. In fact, the diversification suggests that poor and very poor households must exploit any income-earning opportunity they can, just to survive. Loans and gifts, for example, are an important means of survival for poor and very poor farmers during the time of year when they nevertheless expect to be hungry. But living on such a margin makes them vulnerable to any disturbance in the system. For instance, if price hikes make wealthier people more cautious, resulting in a reduction in gifts and loans – perhaps even casual employment - then for poorer people it is a double shock: they receive less and they can purchase less at current prices.

# Mali Livelihood Profiles

## Zone 1 : Nomadism & trans-Saharan trade

### Zone Description



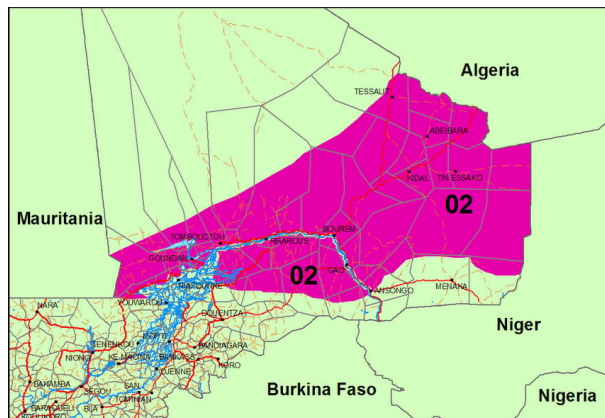
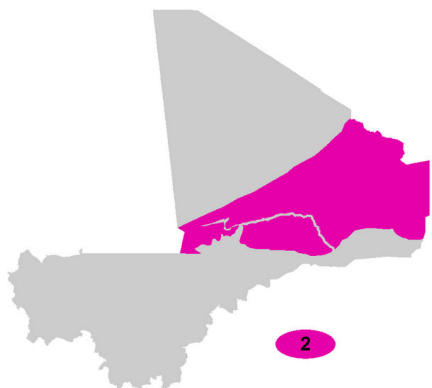
A full profile has not been prepared for this zone. No fieldwork was carried out here, due to insecurity in the area and time constraints.

This desert zone covers a vast expanse in the north of Mali. If it rains, rainfall is between 0 and 200mm per year over 75 days. Rain falls in isolated showers with surface moisture drying up before grasses can establish. The zone is extremely thinly populated and is characterized primarily by nomadic livestock rearing and trade to Algeria, involving both caravans of camels and motorized transport. Date palm (*Phoenix dactylifera*) grows in desert oases; there is also a small amount of market gardening, the principal crops being onions and tomatoes. The main species of animal are camels, goats and donkeys, with milk, camels' and goats' cheese and dried meat being the main livestock products. Water for both humans and livestock comes from boreholes and wells. This is also a salt curing area and there is some sale of handicrafts. Market access is very poor and hazards include a reduction in water availability, an increase in food prices and conflict. Insecurity in this area is currently particularly bad with the presence of *Al Qaeda in the Land of the Islamic Maghreb*.

# Mali Livelihod Profiles

## Zone 2: Nomadic and transhumant pastoralism<sup>11</sup>

### Zone Description



This is a huge pastoral zone that sprawls across the north of the country; it lies between the northernmost areas of rainfed cultivation and the southernmost parts of the Sahara desert and much of it is isolated from the rest of Mali. It has a north sahelian ecology, with sparse grass toward the edge of the desert. It covers parts of the regions of Gao, Tombouctou and Kidal; life is hard, the environment is inhospitable and population density is very low. With a rainfall of under 200mm per year pastoralism –both transhumant and nomadic- is the only viable livelihood. In normal and good years there are some seasonal lakes, around which it is possible to cultivate sorghum ('sorgho de decrue'); it is primarily the poorest households who do this and should not be considered typical of the zone. Wild fonio (*panicum laetum*) and wild watermelons (*citrullus colocynthis*) also grow; the former is gathered and consumed by the poorest households, the latter is a source of water for livestock.

The main species of livestock are camels, cattle, sheep and goats. There are fewer cattle towards the north of the zone, because they are not adapted to survive in this harsher environment and thus cattle ownership is unusually risky. Sheep are more valuable than goats, because they can be sold for a high price for the festival of Tabaski (Eid al-Adha). Middle and better-off households often consider goats in the same way as households in other zones think of poultry; they are a quick source of cash. Livestock herders migrate both northwards and southwards (towards the Gourma) every year when locally available pastures start to run out. Water for both humans and livestock comes from a combination of different sized wells, boreholes, seasonal lakes and rivers. During the dry season the drying up of water points can be a serious problem.

Pastoralism can be a contentious word, often associated either with pessimistic arguments about a way of life in inevitable decline, or with romantic notions of an unchanging way of life. Long-term trends are hard to determine. However, respondents in this zone spoke not of pastoralism in decline, but of a cycle of good years followed by bad. Herd sizes are built up slowly in the good years to overcome the difficulties of bad years. Respondents also spoke of change and adaptation. A type of sedentarisation is under way in the form of permanent sites with permanent buildings. However, this process is not linear.

<sup>11</sup>Due to insecurity in northern Mali, it was not possible for FEWS NET to conduct fieldwork in this zone. The information presented here belongs to OXFAM GB, who conducted extensive fieldwork in Tarkhint commune, which lies within this zone, in October 2009. Please see these profiles, published by OXFAM GB for more detailed information.

The droughts of 1973 and 1984, for example caused an acceleration of sedentarisation and the construction of schools, health centers and water points. Nonetheless households still depend fundamentally on their livestock, whether directly or indirectly and live by a kind of restricted nomadism in the region.

The lack of diversity involved in depending heavily on livestock, means that households are extremely vulnerable to hazards that threaten the size and value of their herds. When herds are decimated, there are few other activities in the zone to make up for the shock. Thus in bad years many people leave the zone in search of laboring opportunities elsewhere (e.g. Algeria and Libya); the money they earn can then be used to reconstitute the herds. There was a massive exodus of able-bodied household members as a result of both the 1973 and 1984 droughts. Despite these high risks, however, the value of livestock and the profitability of trade do present households with opportunities for considerable wealth.

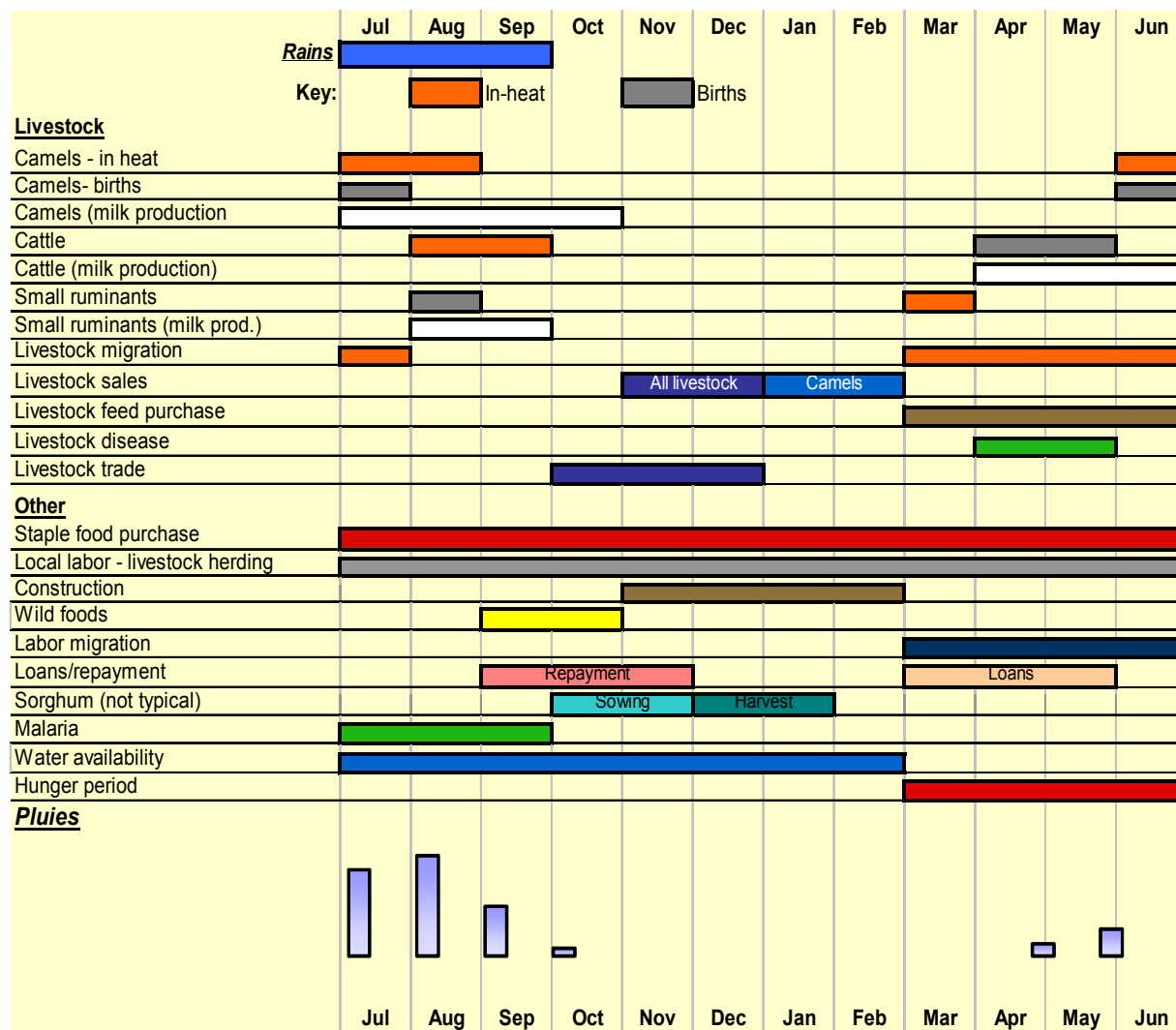
Trade is a secondary activity for most middle and better-off households, but is nonetheless very important. The most important natural valuable in the zone is pasture. In addition there are wild foods as well as salt cure areas, which benefit local animals. Local artisanal products are also sold, both locally and to traders coming from towns, such as Gao.

### **Markets**

Sand and dirt roads are most frequent in this region, with very few surfaced with bitumen; some areas become cut off during the rainy season. Market access in the zone is poor and herders may have to travel long distances to take their animals to market. In some cases large scale traders come to camps and sites with lorries to buy livestock. Parts of the zone do not have markets, but local 'boutiques' owned by large traders; these sell cereals, sugar, tea and other necessary materials. Shop-owners also provide loans. Sometimes households may buy their cereals in large towns such as Gao to take advantage of the lower prices there; labor migrants also often return with food.

There are two principal financial transactions in this zone: the sale of livestock and the purchase of cereals (primarily millet). Thus all households are very vulnerable to changes in the terms of trade between livestock and millet. However, it is middle and better-off households who have the means to sell livestock when the price is high and to buy cereal when the price is low. It is the very poor and poor who suffer most from bad terms of trade. During the hunger season and in the absence of any other options poorer households are forced to accept the very unfavorable terms offered by traders.

## Seasonal Calendar



The calendar above show the principal activities that make up the pastoral year in this zone. We can discern three main periods :

(1) The hot season between March and June is the most difficult period for livestock and the hunger period for households in the zone (especially for the poor and very poor). Animals are in bad condition because of the lack of both water and pasture at this time (those households who can afford it purchase fodder). This is the peak time of year for livestock disease and the time of higher livestock mortality. Consequently, the price of livestock is at its lowest, leading to bad terms of trade between livestock and cereals. Normally, it is the poorest households who suffer most from this since they are forced to sell their livestock at this time to buy staple foods. The very poor and poor also take out loans to tide them over until the hunger season ends; these are paid back from September-November when their situation has generally eased.

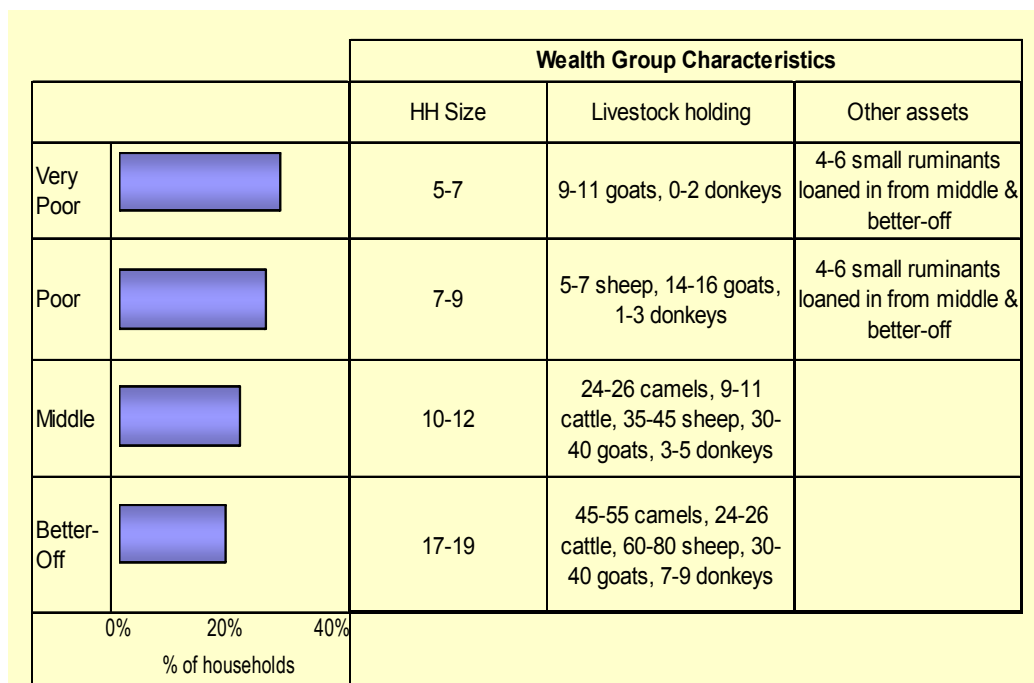
From around March to June households often split. The men in poorer households may migrate in search of casual employment ('exode'), for example in Algeria. However, this can only be considered

half-typical of poorer households in a normal year. More commonly, the month of March sees the 'grand départ' when those with large enough herds migrate in search of pastures. Locally available pasture has started to run out and it is necessary to travel further afield. The poor and very poor are much less likely to move their animals, both because their herd sizes are not large enough to warrant such movement, and because they are comprised mostly of goats. (The moving herd is made up of camels, cows and sheep; goats generally remain behind). While the animals are on migration, arrangements have to be made to cover the food and other cash needs of those household members remaining at the site. Grain may be bought in advance or as required. Some animals (as well as goats) may also be left behind, so that their sale can cover any unexpected need. It should lastly be noted that cows most often give birth before the onset of the main rains at a time of diminished pasture and water availability. These are difficult conditions for the newborn animals, who are consequently at increased risk of disease and death until pastures improve.

(2) During the rainy season from July to September the situation eases. Water availability starts to increase and herds return from transhumance from July. Because of the new births and improving livestock condition milk production is at its height during this season, giving rise to a considerable improvement in diet, by comparison with the preceding hunger months. There is also a geographical element to milk consumption; it is evident that when the livestock are on transhumance the household members remaining at the site do not benefit from any milk that is produced. The seasonal calendar shows only peak milk production; camels, for example, can lactate all year round. However, it should also be noted that not all milk is consumed; some, for example, is left for the newborn animals. At the end of these months wild foods (e.g. wild fonio) start to become available, benefitting the poorer households. However, these foods are only available during normal and good years. On the negative side this is also the peak period for malaria, but it is a much less serious problem here than in the zones further south.

(3) Animals are in peak condition during the cold season from October to February and the price of livestock is consequently high. Most livestock sales occur around this time. Local construction work is also available and wealthier households may pay members of poorer households to trek their animals to market. Finally, if conditions are good, some of the poorest households grow sorghum around the lakes in the zone; however, this is not typical for the majority of very poor and poor households. From February, pastures once again become increasingly scarce, the condition of livestock starts to deteriorate and households prepare for the 'grand départ' in March.

## Wealth Breakdown



*\*The balance between the number of camels, cattle and sheep owned varies across the zone. There are few cattle to the north of the zone, because the harsher environment makes it more difficult for cattle to survive. Consequently, households further north own more camels and sheep.*

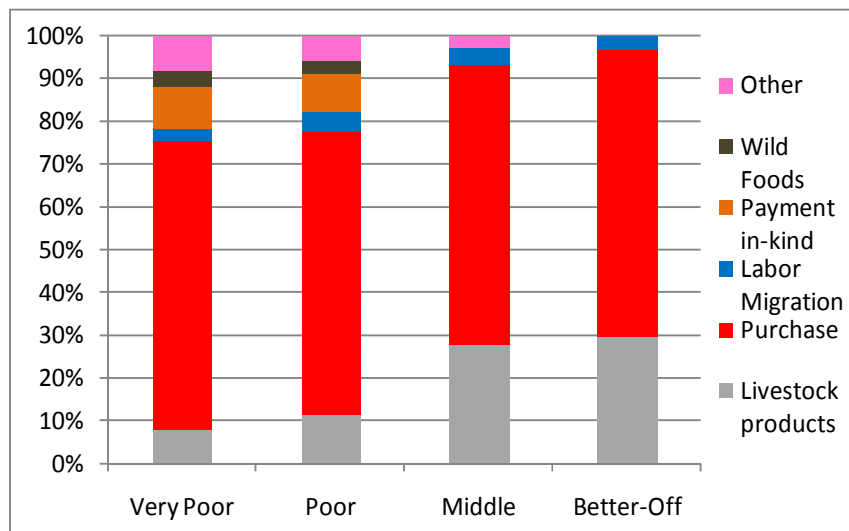
*\*\*Animals temporarily loaned out to poor and very poor household have been included in the figures for the number of livestock owned.*

The majority of households in this zone fall into the very poor and poor categories. Nevertheless the better-off group with 20% of households is large, compared to many other zones. In population terms (to take into account the larger household sizes of the middle and better-off) the majority of people (around 60%) are part of the middle and better-off groups. If the majority of people fell into the two poorest groups, the strongly developed system of solidarity in this zone would not be sustainable.

There is a striking difference between the two poorest and the two richest groups and we can see a strong concentration of wealth among the middle and better-off. This is principally due to the number of livestock owned, which is almost the only indicator/determinant of wealth in the zone. The poorest households own around ten to twenty small ruminants, while the better-off may own more than seventy large ruminants and more than one hundred small ruminants. ('More than' because interview participants had a tendency to underestimate their herd sizes). In effect, the very poor and poor do not own enough livestock to be called 'pastoralists' or to depend primarily on their own livestock. We might say that the very poor and poor make up a kind of 'pastoral proletariat' that depends on the laboring opportunities offered by the middle and the better-off.

## Sources of Food

The very poor and poor depend on several different sources of food, all of which are crucial if they are to meet their annual food requirement. They are extremely vulnerable to any shock that might reduce their access to food from any source.

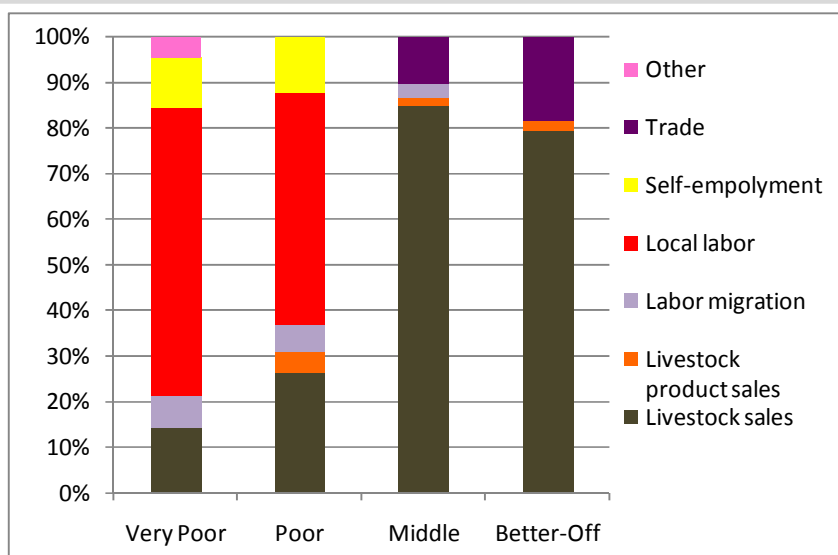


We should notice the importance of the market for all wealth groups. Households do not typically cultivate cereals and are not able to live exclusively off milk and other animal products, so they have to purchase staple foods. This is also typical of other pastoral populations in Africa. Apart from cereals, milk, meat and other animal products make a very important contribution to annual food requirement – around 30% for the middle and better-off. This serves to improve the quality of diet, most notably for children. Milk consumption in this zone is considerably higher than for all other zones in the country; a very poor household, for example, receives more of its food needs from milk than the majority of better-off households in the country. Milk consumption remains a central element of pastoral life

Payment in-kind (primarily in millet) is an important source of food for the very poor and poor. It essentially consists of the payment of shepherds, who receive all their meals when they are migrating with the herds. In other cases the shepherd may receive cereals before leaving on transhumance; he leaves part with his family and takes the rest with him. Wild foods (mostly wild fonio) also contribute to the food needs of the poorest households. All groups receive a small amount of their annual food from labor migration (although this should only be considered half-typical of the zone). Migrating household members may return home with food. Furthermore, the meals consumed by the migrant whilst he is away mean that there is one less mouth to feed at home. This 'saving' is also taken into account in the category 'labor migration'. When they migrate the poor and very poor generally perform casual labor, whilst the middle and better-off travel to engage in trade.

The 'other' category contains a mix of food eaten in school canteens and gifts in-kind. Not all sites in the zone have a school canteen and key informants said that it was primarily children from very poor, poor and middle households who benefitted. Without the gifts of the middle and better-off the poorest households would find it difficult to cover their food needs.

## Sources of Cash



The biggest difference between the two poorest and two wealthiest groups is the importance of livestock sales in terms of income. We can see that middle and better-off households live principally from the sale of their animals, which contributes around 80% of their total cash income. In contrast, only 26% and 14% of the poor and very poor's respective incomes comes from livestock sales.

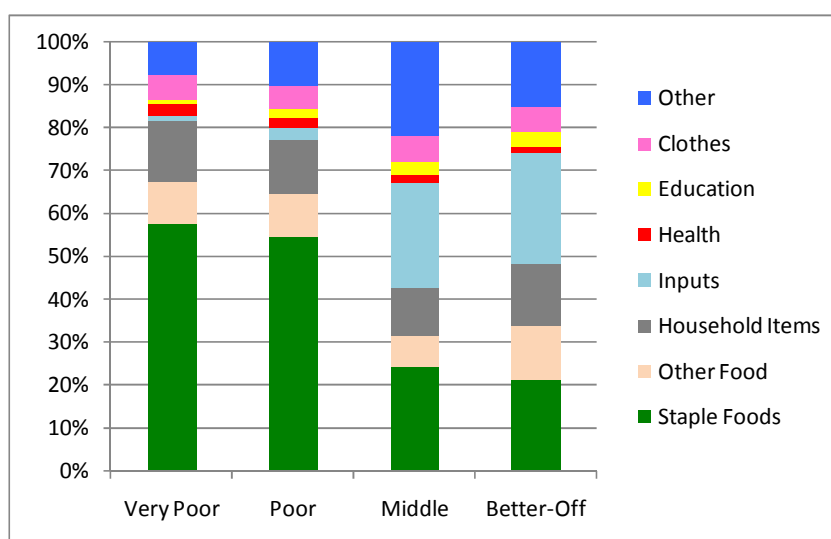
The difference between these two groups is also noteworthy; the poor are able to depend almost twice as much on their livestock than the very poor.

For middle and better-off households trade is the second most important source of income. This mostly involves livestock trade, although there are also a considerable amount of contraband goods traded. This is difficult to quantify, because households are naturally reluctant to discuss any such illegal trading. We can say, however, that traders returning from the north bring with them food and other items, such as carpets and cooking equipment. It should also be noted that trade is more important for the better-off than middle, since they have more capital to invest. For the super-rich group trade is even more important.

The principal source of income for the poorest groups is labor performed locally. It is this that allows them to continue living in the zone. As an example, better-off households employ shepherds from poorer households to look after their herds. The better-off household provides the shepherd with meals when he is migrating with livestock; in addition he is paid in sheep or in goats or in cash. Other types of local labor commonly undertaken by poorer households include watering animals, trekking livestock to market and the construction of and repairs to houses and wells. The very poor and poor are also paid by livestock traders (large-scale traders who come to the sites to buy directly from pastoralists) to load lorries with animals. Domestic work is most common for the very poor.

Self-employment includes the sale of handicrafts (for example tents and tanned animal skins) and the sale of firewood and charcoal. Firewood sales are more common for the poor, who own more donkeys to transport the wood. The 'other' category includes gifts and zakat, a Muslim charitable obligation.

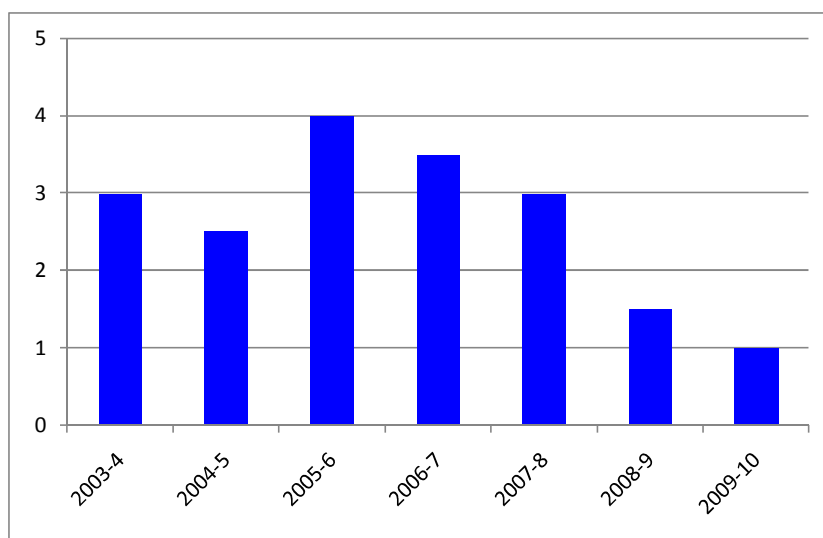
## Expenditure



The proportion of income spent on staple foods decreases with wealth, meaning that the middle and better-off have proportionally more money to spend on other items and to invest in production (e.g. livestock inputs and payment for labor), in trade and in the future, as far as the education of their children is concerned. It should be noted that wealthier households are not only able to spend proportionally more on such items, they spend considerably more in absolute terms too.

As we would expect, expenditure on livestock inputs – which is linked to the number of livestock owned – is proportionally more important for middle and better-off households. They make up around 25% of expenditure for the middle and better-off, compared to 3% for poor households and 1% for very poor households. There is no expenditure on water; water from wells is free; access is governed by local custom.

## Hazards



Informants were asked to classify each year in the last 6 according to its relative food security; 1 represented a very poor year for food security, 2 a poor year, 3 an acceptable year, 4 a good year and 5 an excellent year.

Differences between years in terms of food security are important, since it is the good and acceptable years that make up for the bad ones. In a pastoral zone we would expect herd sizes to increase in most

years, to be able to make up for significant losses in the bad ones. The histogram shows that not only was 2008-9 a difficult year, but that in the judgment of informants 2009-10 is even worse.

With regard to hazards in this zone the first thing to note is that livelihoods are not diversified and depend almost entirely on livestock. Even though their herds are relatively small the poor and very poor still rely on livestock, since it is the animals of the middle and better-off that allow them to employ and give gifts to the poorest households. In other words, all the eggs are in the same basket. To try to overcome this problem households build up their herds to reduce the impact of a shock. The following is a list of the principal hazards in this zone.

### **Livestock**

1. Insufficient rains/ lack of pasture. These hazards are evidently linked. When there is not enough pasture transhumance begins earlier and households may sell a number of animals to buy livestock feed.
2. Lack of water. This is a serious hazard for both humans and livestock. In bad years seasonal waterpoints dry up early.
3. Livestock diseases, for example anthrax, liver fascioliasis and contagious bovine pleuropneumonia.
4. Livestock rustling.

### **Markets**

1. Poor terms of trade between livestock and millet (a falling livestock price and a fast rising cereal price, being the worst combination). Areas of this zone are also quite isolated and cereals may not always be available on the market or in 'boutiques'.

### **Other**

1. Wild animals: jackals hunt and kill goats and sheep.
2. Crickets, which can destroy pastures.
3. Bushfires.
4. Conflict. There have been a number of conflicts in this zone in recent years. Crowding in southern pastures beyond the zone in a bad year forces animal sales and engenders conflict with settled populations over water and crop damage.

## **Response Strategies**

There are two types of coping strategies employed by households: reducing expenditure and/or increasing income. During a bad year all households reduce their expenditure on non-essential items and increase their expenditure on staple foods. For example households consume less rice in favor of millet, which is the cheapest staple. Wealthier households have a greater capacity to reduce their expenses in this way, since they buy more rice than the poor in a normal year. Milk production decreases in a bad year, because livestock are in worse condition; to overcome this problem households consume more cereal, but this reduces the quality of diet. Better-off households are able to buy powdered milk. With regard to other items, representatives of the very poor wealth group noted that they might reduce their purchase of sugar and tobacco by 25% and of clothes by 50%. Some households reduce the number of meals they eat per day; however, this strategy is dangerous if it is not limited to the very short term (a few weeks maximum).

The following is a list of coping strategies, employed by households at different levels of wealth to increase their income.

### **Very Poor and Poor**

- **Labor migration.** In a normal year labor migration can only be considered half-typical of the zone. It becomes much more important during a bad year, when members of almost all very poor and poor household migrate in search of labor opportunities. Households also increase the number of people as well as the number of months spent on migration. For example: two people might migrate for four months instead of one person for two months. They may go to towns such as Gao and Tombouctou or abroad, for example to Algeria. Informants said that even children may migrate, forcing them to leave school. (The team met a 16 year old boy who had left school this year (2009-10) to help his family). In very bad years all able-bodied household members leave sites to migrate either for labor or with livestock. Only the elderly and the poorest stay behind and move towards the large sites. Those households who are forced to remain behind, because they have no other options, are among those who suffer the most.
- **Increase in livestock sales.** Prices, however, are often lower, because of the poor condition of animals and the lack of demand on the market. Thus a typical very poor household sells three goats in a normal year (of eight owned at the beginning of the year); in a bad year they may sell as many as five. It is possible that the profit they receive from these five sales is less than their profit in a normal year. Households try to avoid selling an unsustainable number of livestock. Distress sales indicate a current crisis.
- Poor households increase their **sale of livestock products**, instead of consuming them.
- **Local labor.** Money received from local labor generally decreases. There is more competition, but the availability of labor opportunities decreases. Brick-making decreases because the water needed to make them is more scarce; furthermore middle and better-off households are less likely to undertake costly construction work in a bad year.
- **Self-employment.** Those tanning skins find themselves faced with more competition, less demand and a decrease in price in bad years. Thus income from this activity decreases. Firewood sales generally do not increase because demand does not increase in a bad year. Charcoal sales may be more profitable.
- **Trends in gift-giving and inter-group solidarity are difficult to judge in a bad year.** Gifts remain important, for example the poorest households eat more of their meals with the middle and better-off, as well as receiving more tea and sugar. Sometimes the children of poorer households are taken in-hand by the middle and better-off, and those who are forced to remain at the large sites depend heavily on gifts. However, bad years are also difficult for the middle and better-off; informants affirmed that many kinds of gifts would decrease, unless there were strong family links. Poor households also take out more in loans from the middle and better-off, who accept a longer period of repayment. The very poor are generally not credit-worthy. Finally, those with family member living abroad try to increase their income from remittances.

### **Middle and Better-Off**

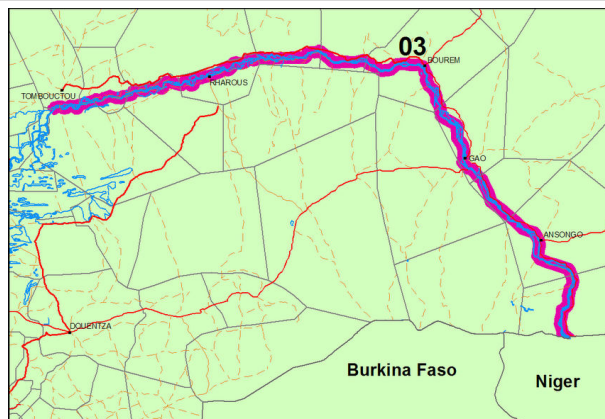
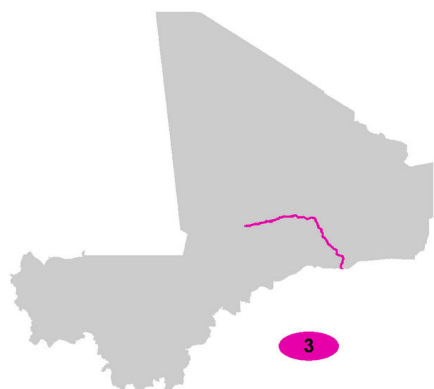
- They increase livestock sales to buy cereals and livestock feed to save the most valuable animals, especially reproductive females.
- They increase their livestock trade (for example 40 animals instead of 30) and more household members become involved in trade.

- They increase the number of people and the number of months spent migrating for labor.
- They increase the number of months livestock spend on transhumance, leaving earlier than normal.
- They take in children from other households and share their meals with very poor and poor households. There is considerable social pressure to provide food to the poorest groups.

# Mali Livelihood Profiles

## Zone 3 : Fluvial rice & transhumant livestock rearing (agro-pastoral)<sup>12</sup>

### Zone Description



This is an agro-pastoral zone, with a low population density, that extends along the banks of the Niger river from the north of the delta to the international border with Niger. Villages are situated along both banks (in the Haoussa to the north and the Gourma to the south) as well as on islands in the middle of the river. The majority of the population is sedentary, although there are also groups of Bozo semi-nomadic fisherfolk, who have very different livelihoods and are not included in this profile (see sub-zone 6a).

This is a food-insecure zone. Livelihoods are very diversified, particularly those of the poor and very poor; households depend on rice cultivation livestock rearing, market gardening, fishing and labor migration to differing degrees. This spreading of risks between different activities helps to mitigate the effects of a hazard and makes life less risky than in zone 2 where households depend almost exclusively on their livestock. However, inhabitants of the zone do not benefit from the same opportunities for considerable wealth that are associated with pastoral livelihoods.

The low annual rainfall of 150-200mm is insufficient for rainfed agriculture; it is the presence of the river which allows the cultivation of rice, bourgou and market gardening crops. Rice is the principal crop and is grown on the edges of the river. Unlike in the delta (zone 6) and the 'office du Niger' (zone 7) there is no modern infrastructure in this zone to control the volume of water let in to the rice fields. Peasants sow with the arrival of the first rains and the subsequent rise in the river level ('la crue') provides the remaining water necessary for rice cultivation. Traditional mud dykes protect the fields from excess flooding as the river level rises; however, both a particularly high river level and strong winds can break the dykes and destroy part of the harvest. Bourgou (*Echinochloa stagnina*) – a grass - is also cultivated on the edges of the river and is a very important livestock feed. The majority of the soil is sandy, but households in all wealth groups are able to grow market gardening crops, using river water for irrigation. These crops are principally tobacco, tomatoes, marrows and watermelons, although there is some variation within zone, in terms of the range of crops cultivated. Wild foods are also to be found in the

<sup>12</sup> Due to insecurity in northern Mali, it was not possible for FEWS NET to conduct fieldwork in this zone. The information presented here belongs to OXFAM GB, who conducted extensive fieldwork in Téméra commune, which lies within this zone, in October 2009. Please see these profiles, published by OXFAM GB for more detailed information.

zone; the most important are cram cram (*Cenchrus biflorus*) and wild fonio (*Panicum laetum*).

Livestock rearing is a major activity. The principal species in the zone are cattle, sheep and goats; of these, cattle are the most prized and it is only the middle and better-off households who benefit from the economic security provided by these 'banks on legs'. Livestock sales are an important source of income for the middle and better-off. Households in these groups also earn money from the sale of fattened sheep; these animals are not part of the main herd, but are often tethered in the household's compound and fed livestock feed.

Finally, members of households in all wealth groups typically migrate in search of labor for several months of the year. It was the famines of 1973-4 and 1984-5 (still the worst years in living memory) that triggered large-scale labor migration; today it is an essential source of food and income for inhabitants of this zone. The famines of the 1970s and 1980s also saw many households leave the zone permanently; they now send remittances to their relations still living along the river.

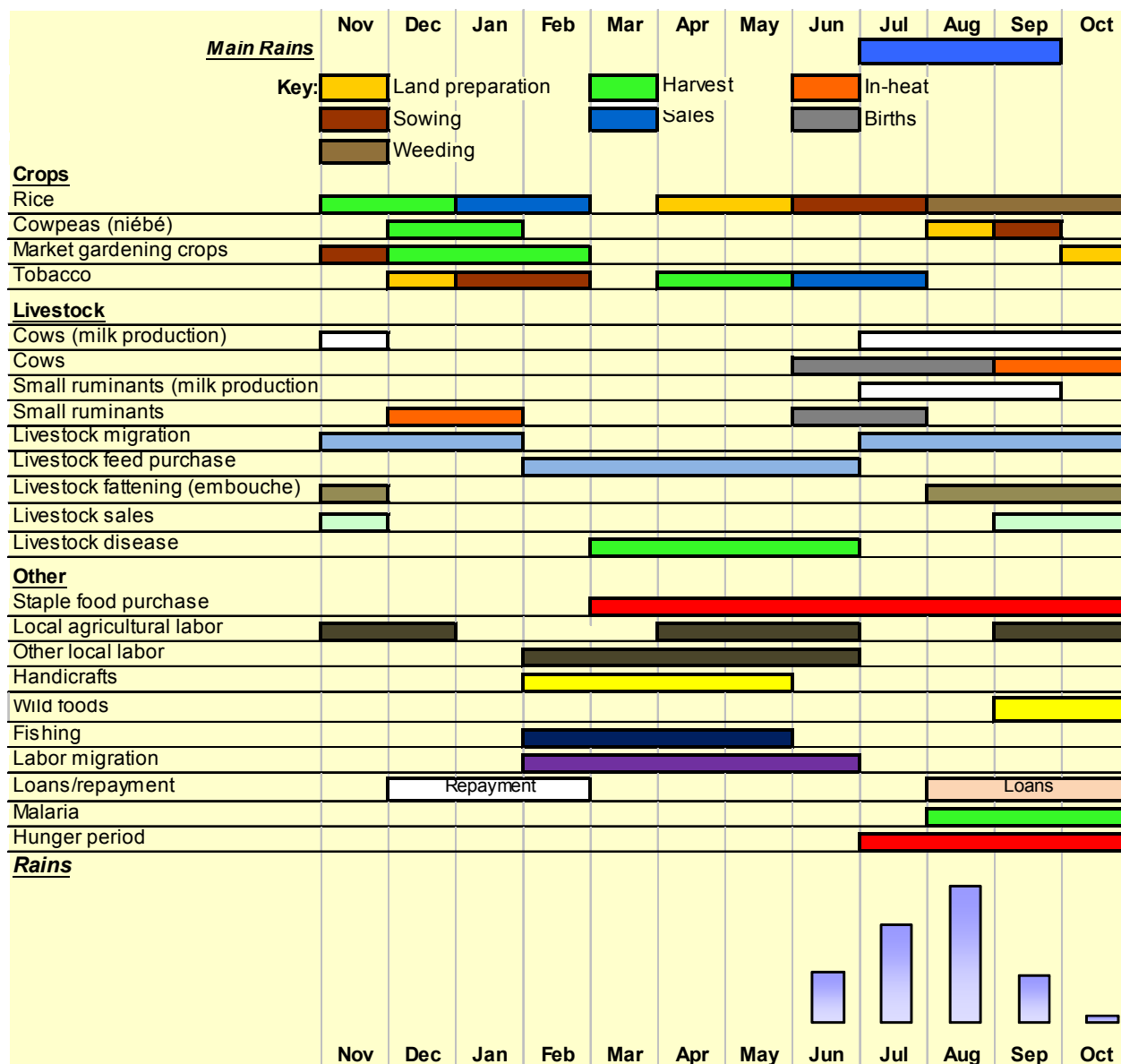
### **Markets**

Market access varies; communes in the middle section of the zone are fairly isolated as the river flows along the edge of the desert. During the rainy season, for example, it takes sometimes two to three days to travel by road from Téméra to Gao. Communes and villages at either end of the zone benefit from considerably better market access, because of their proximity to major towns such as Gao, Tombouctou and Ansongo. The river itself is also used for trade and is navigable between October and March.

Rice and livestock are the main products sold, although households also sell market gardening crops, bourgou and fish. Cattle are often destined for export, for example to markets in Nigeria and Ghana; meanwhile small ruminants are exported north towards the Algerian border, as well as being sold in local towns.

The market for grain is crucial, because all households depend on it to buy a significant proportion of their cereals. This helps to explain why rises in the prices of staple food since the beginning of 2008 have negatively affected households' food security. The price for livestock has also increased, with the high demand for meat coming from towns in Mali and from abroad; however, poor and very poor households have not benefitted from this rise because they have few livestock to sell.

## Seasonal Calendar



The seasonal calendar above shows the main agro-fluvial and livestock-related activities that make up the agropastoral year in this zone. We can discern three main periods :

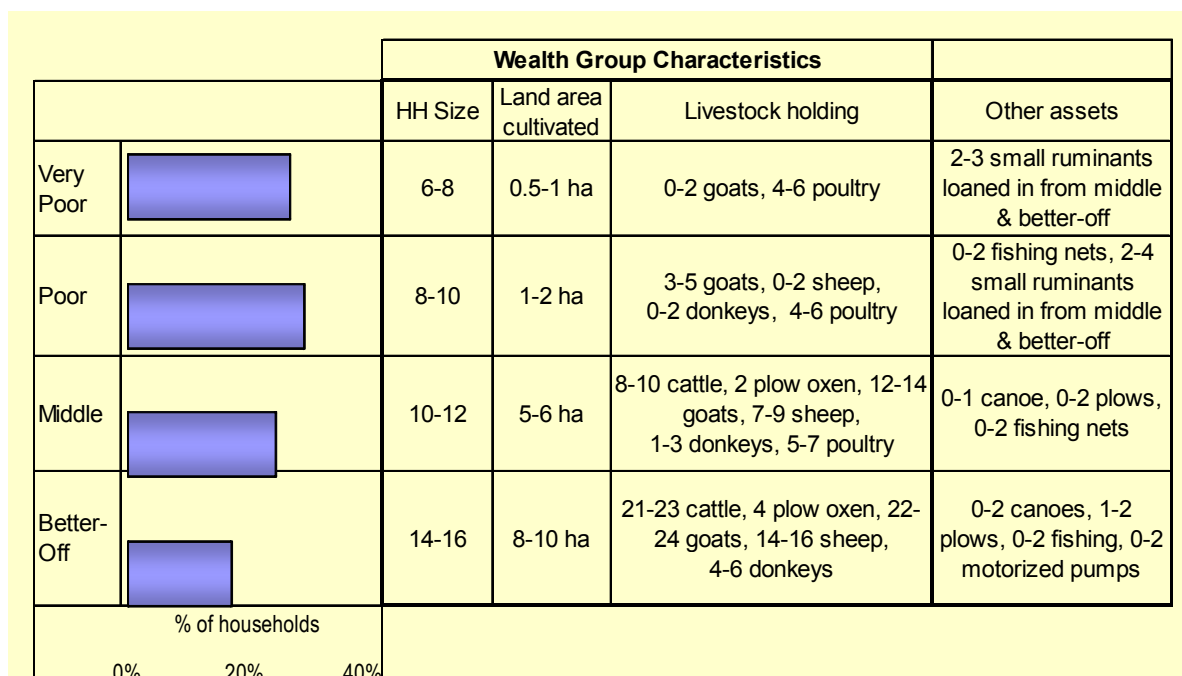
(1) The rainy season runs from July to September/October and coincides with the hunger period. This is a particularly difficult time for the very poor and poor whose stocks have long run out and who have limited access to cash to buy food. The poorest households commonly have to take loans (both in cash and in-kind) from the middle and better-off to tide them over until the rice harvest in November which effectively ends the hunger season. This is a time of tough physical activity for the very poor and poor who not only work in their own fields, but also perform labor – weeding and harvesting the fields of the middle and better-off. Furthermore, the rains bring a higher incidence of malaria, sometimes putting an active householder out of action and necessitating extra expenditure on medication at the leanest time of the year.

More positively, the oppressive heat of March to June has passed. The availability of wild food from September to October is crucial for the poorest households, who benefit from this free, but labor-intensive source of food. Milk production (and consumption) increases in these months and both livestock sales and prices are at their peak. It should be noted, however, that the very poor and poor are unable to take advantage of these higher prices. Necessity forces them to sell their livestock from May to July when the condition of animals is poor due to a lack of pasture.

(2) The cold season runs from November to February and is the time of the main rice harvest, as well as the start of the harvest of market gardening products. The timing of the rice harvest varies between wealth groups in that the middle and better-off are able to harvest before the very poor and poor. This is because they sow earlier as a result of their better access to plows, plow oxen and seed as well as motor-pumps, which are used to irrigate the rice and become particularly important if the rains are late. Following the harvest the poor can begin reimbursing their debts and are forced to sell part of their crop when grain prices are at their lowest.

(3) The hot season runs from March to June and is the most difficult period for livestock and the period with the highest incidence of livestock disease. Pasture is scarce and those who can buy livestock feed, particularly 'bourgou'. During this period households work for payment both in cash and in-kind; this includes agricultural labor, such as preparing the fields for the next season, as well as construction work (e.g. brick-making). This is also the time when fishing is most important and when women make mats and other handicrafts for their own use and for sale. Finally, members of all households typically migrate in search of work during these months. The very poor and poor generally find work in towns relatively close by, such as Gao and Ansongo, while the middle and better-off afford the transport costs to travel further afield, to Bamako, for example, or outside the country to Ghana, Guinea and Cote d'Ivoire.

### Wealth Breakdown



The wealth breakdown table shows that middle and better-off households make up just under 40% of households in the zone, with a significant proportion of households falling into the better-off category. The tendency for household size to increase with wealth means that the middle and better-off make up more than half of the total population.

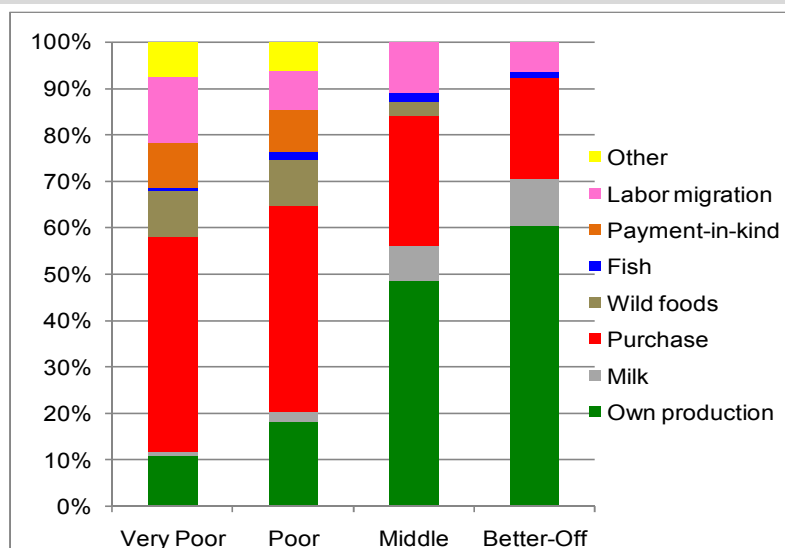
The most striking thing about this wealth breakdown is the skewing of wealth towards the middle and better-off groups. Livestock is the most important determinant of wealth in this zone and we should notice the large gap that separates the two upper from the two lower groups. Very poor and poor households own only a few small ruminants and no cattle, whose high value and the economic security this provides makes them particularly important. In comparison, a better-off household typically owns over twenty cattle. There is a system within the zone, by which middle and better-off households temporarily loan a number of lactating sheep and goats to poor and very poor households with whom they have familial ties. This gives the poorer groups slightly increased access to livestock and milk.

The other key difference between the wealthier and poorer groups is the land they are able to cultivate; in per capita terms the better-off cultivate six times more than the very poor. The wealthier groups not only own more land than their poorer neighbors, they also have much greater access to productive assets, such as motorized pumps, and to labor. For example, it is the middle and better-off who own the plows and plow oxen, which are first used on their own fields and which are then rented to poorer households in return for work. In fact, the middle and better-off have the means to cultivate more land than they own and consequently rent land from the poor and very poor. The majority of land in the zone is dedicated to rice cultivation, although a significant amount is also used for market gardening- around a quarter of a hectare for the very poor compared to one to two hectares for the better-off.

There are also important differences between the poor and the very poor; for example the very poor are the only wealth group that do not typically own donkeys and fishing nets. Both are important assets, the former for collecting firewood and wild food, the latter for fishing in the Niger river.

### Sources of Food<sup>13</sup>

The greater access to agricultural inputs, the ownership of productive assets and the larger land area cultivated by middle and better-off households means that they can cover considerably more of their annual food requirement from their own crop than the very poor and poor. These households have used up their harvest after only one to three months and are then heavily dependent on the market for their food.



However, in comparison to other zones (for example the delta and the south of the country) the middle and better-off are also dependent on the market to a significant degree once their harvest runs out after around six to seven months. It is worth noting that the harvest of the better-off could cover more than their entire annual food requirement, but they use it to pay the poor and very poor in-kind, sell a large amount of it (and buy millet, a cheaper staple), and give gifts in-kind.

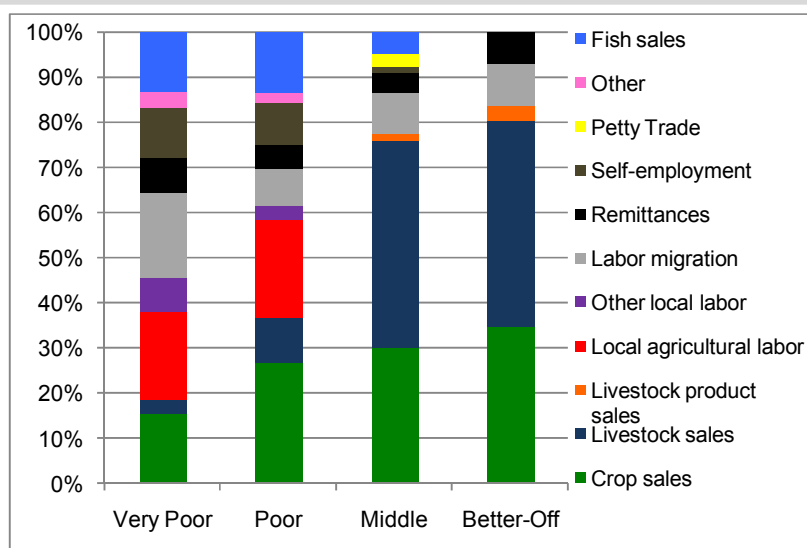
Milk contributes significantly more to the diets of middle and better-off households than to the poor; reflecting the large differences in livestock holding between wealth groups. The middle and the better-off

<sup>13</sup> This graph has been adapted from the Oxfam GB results, so that it has the same format as the other sources of food graphs in this report. For the original graphics please see the Oxfam GB profiles.

receive respectively 8% and 10% of their calories from milk. The very poor and poor are able to obtain only a small percentage of their food needs from milk, which they receive from their own small stock and those lactating females loaned to them by the middle and better-off. However, although small, the consumption of milk and livestock products is an important boost to the quality of diet of poorer households, especially when compared to other zones in Mali where milk is scarcely consumed.

Notably, all groups receive a significant amount of their annual food from labor migration. On their homeward journey migrants return with sacks of grain. In addition, the meals consumed by the migrant whilst he is away mean that there is one less mouth to feed at home. This 'saving' is also taken into account in the category 'labor migration'. The category named 'other' contains a mix of food coming from school feeding and food loans. Not all villages in the zone have a school canteen and key informants said that it was primarily children from very poor and poor households who benefitted. The yearly taking and reimbursing of food loans helps to illustrate the deep poverty of the poorest households. Poor and very poor households in this zone are chronically food insecure and must rely on a large number of different food sources to make up their annual requirement. These groups are extremely vulnerable to any shock that might reduce their access to food from any source.

### Sources of Cash



The main difference between the two richer and two poorer groups is the extent to which they can rely on their own crop and livestock production, which provides around 80% of cash for the middle and better-off. The importance of livestock as a determinant of wealth was discussed above; this point is reinforced here where it is livestock sales that make the largest difference between the poorer and wealthier groups in terms of income.

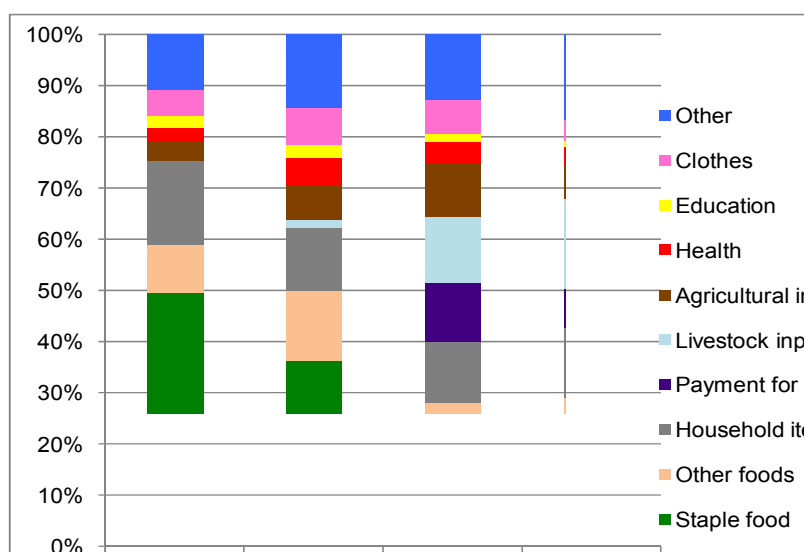
Livestock and livestock product sales make up around 50% of household income for both the middle and better-off and around 3% and 10% for the very poor and poor respectively. We may say that, while the middle and better-off are true agro-pastoralists, the very poor and poor are very much more 'agro' than pastoral.

There is less difference between wealth groups in the proportional significance of crop sales, but the trend is still for income to increase with wealth in proportional terms. This reflects the larger landholding and greater access to productive assets of the middle and better-off. Because they receive relatively little from their own production the very and poor must exploit a more diverse set of income sources to meet their cash needs. Laboring for the middle and better-off primarily includes agricultural (e.g. weeding, plowing, winnowing, harvesting) and construction work, but there is also a limited amount of other work, including shepherding, fishing and punting/paddling canoes. However, the difference between the poor and very poor is also striking; crop and livestock production is almost twice as important for the poor as it is for the very poor. We might say that this makes the poor part of the real farming population, whilst the very poor make up a sort of rural proletariat. This underscores differences not only in the degree, but also in the structure of poverty in this zone.

Self-employment mainly involves ‘bourgou’ sales, which is done by all but the better-off. However, it also includes a combination of handicraft and firewood sales, which are less common and are the preserve of the poor and very poor. Fishing in Téméra is an activity mostly associated with poorer households, although it is only the better-off who do not sell fish. Given their income from crop and livestock sales, there is no real need for better-off households to sell and they consume any fish they do catch. Furthermore, poorer households often give part of their catch to the middle and better-off as payment for the hire of fishing equipment.

All wealth groups receive a part of their income from remittances and labor migration. In terms of labor migration the middle and better off have the means to travel long distances, for example to Ghana and Côte d'Ivoire. In contrast, the very poor and poor have less capital and thus tend not to migrate so far and perform casual labouring jobs. Of the two poorer groups it is the very poor who commonly have more household members performing migratory labor; thus a greater proportion of their income comes from this source.

### Expenditure



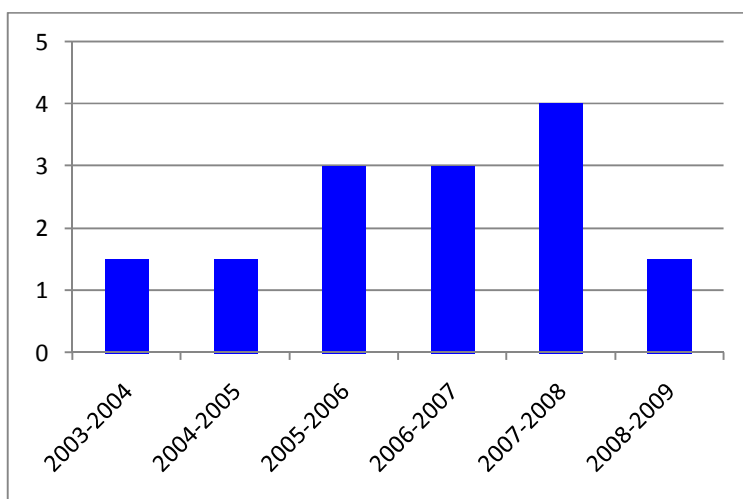
Reflecting the levels of their crop production the middle and better-off spend proportionally much less on staples than the poor and very poor. Indeed, the better-off are able to spend a higher proportion of their cash on ‘other foods’ which includes more ‘luxury’ items such as oil, sugar and fish. The difference between the very poor and poor is also striking – cereals constitute 50% of total expenditure for the very poor and 36% for the poor.

‘Household items’ consists of a variety of basic household items including salt, spices, soap tea, tobacco, torch batteries, and utensils. Although all wealth groups spend a similar proportion of their income on household items, the absolute amount spent on these increases with wealth (not shown in this graphic): they are part of the quality of life.

As would be expected, the proportion of income spent on and invested in animals – which is closely linked to the number of livestock owned - increases with wealth. Along with ‘other food’ this is the most important expense for better-off households – just as livestock sales are their most important source of income. This category includes expenditure on fodder, vaccinations, treatments and the purchase of animals.

All households invest in agriculture; this includes seeds and agricultural tools for all groups and the renting of land for the middle and better-off. Middle and better-off households also spend money on labor, which most often comes from poor and very poor households within the village; this is not only agricultural labor, but also house construction and repair work and the payment of shepherds to look after livestock.

## Hazards



Differences between years in terms of food security are important, since it is the good and acceptable years that make up for the bad ones.

Informants were asked to classify each year in the last 6 according to its relative food security; 1 represented a very poor year for food security, 2 a poor year, 3 an acceptable year, 4 a good year and 5 an excellent year.

The diversified nature of livelihoods in this zone serves to mitigate the impact of hazards to some extent. In other words, all the eggs are *not* in one basket. It is this diversification that allows the inhabitants of the zone to survive in a difficult environment. For example, when grain-eating birds destroyed the rice harvest in one part of the zone in 2008-9, the sale of market gardening crops and fish were important for households in overcoming this shock.

The following is a list of the principal hazards in this zone :

### Crops

**1. Drought/ insufficient rains** are one of the major hazards of the Sahel, particularly this far north, and are only partially mitigated in this zone by the presence of the river. Late-starting rains delay sowing (particularly for the very poor and poor who do not have access to motorized irrigation pumps); this means that plants are less well developed than normal and thus more vulnerable when the river level rises.

Precipitation that is poorly distributed across the rainy season is also a hazard and one that is hidden by total annual rainfall figures. An apparently favourable total rainfall figure can mask gaps in precipitation that have a negative effect on crops.

**2. Broken dykes.** Traditional dykes protect the rice fields from the river and require regular upkeep and repair. Strong winds and flooding can damage or break dykes and this may result in the destruction of part or all of the harvest. This said, dykes cede every year and the effect is not always severe.

**3. Crop pests,** particularly crickets and grain-eating birds are problem almost every two years. The severity of this hazard varies and, in bad cases, can decimate the rice harvest.

### Livestock

**1. Insufficient pasture.** This hazard is obviously linked to a lack of rain (see above). When there is not enough pasture middle and better-off households sell sheep and goats to buy 'bourgou' and other types of livestock feed.

**2. Livestock diseases.** These include: liver fascioliasis, contagious bovine pleuropneumonia and anthrax. Better-off households sometimes buy veterinary drugs, but livestock diseases often go untreated and many households do not have access to treatments.

### **Other**

**1. Increase in cereal prices** (notably since the beginning of 2008).

**2. Malaria.**

**3. Rice-eating fish** are a problem every year; villagers use protective nets and spines to prevent fish from getting into the rice fields.

### **Response Strategies**

In general, there are two types of coping strategies employed by households : reducing expenditure and/or maximising income. In a bad year households in all groups reduce their expenditure on non-essential items and increase their expenditure on staple foods. For example, members of very poor households stated that they reduce their expenditure on sugar, tea, clothes and batteries by around 50%. Some informants also reported reducing the number of meals they consume each day'. However, this strategy is dangerous if it continues for more than a few weeks.

The following strategies are employed by households to increase their income in a bad year.

### **Very Poor and Poor**

- They increase the number of householders migrating in search of labor opportunities as well as the number of months they spend away from the village. However, those who do not normally migrate must first find a job and therefore do not earn the same as those householders who migrate every year. This strategy can be socially harmful.
- They receive more cash in remittances from family members and relations, living permanently outside the village. (The amount received depends, amongst other things, on the economic performance of the zone in which the relations live).
- They increase their livestock sales. However, if possible, households will avoid relying heavily on this strategy. The poor and very poor own very few livestock and to over-sell would decimate their small herds. Distress livestock sales indicate an advanced crisis.
- They increase their sales of livestock products. (This strategy is harmful, given that it reduces the already low milk consumption of the poorest households).
- They increase the amount they take out in loans (in cash and in food). If the household borrows from a wealthier relation, they will normally be able to wait for a better year before paying back the loan.
- They fish more and try to increase their income from fish sales.
- They increase their sales of market gardening crops.
- They increase their consumption of wild foods. However, this depends on the availability of wild foods, which is often reduced in a bad year.
- They receive less in gifts from middle and better-off households.

### **Middle and Better-Off**

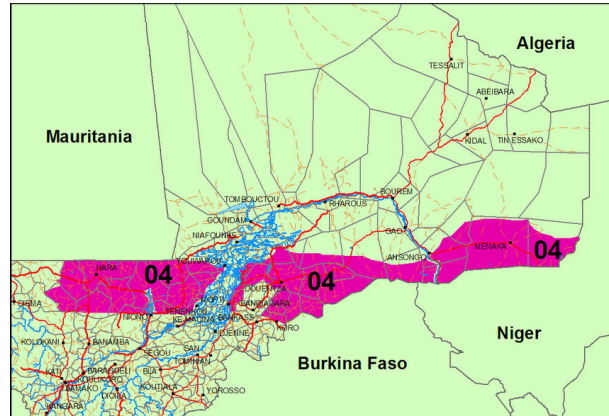
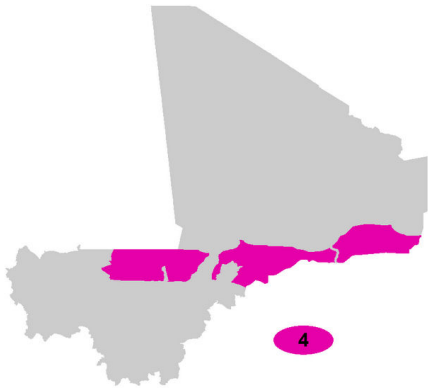
- Like the poorest groups the middle and better-off increase the number of seasonal migrants per household and the number of months spent away from the village.
- They increase their livestock and livestock product sales.

- They reduce in absolute terms what they give to poorer households, although they continue to pay 'zakat' (a Muslim religious obligation for charity).
- They reduce the number of laborers they employ.
- They use up their stocks (if they have them).
- They increase their sales of market gardening crops.

# Mali Livelihood Profiles

## Zone 4: Millet & transhumant livestock rearing

### Zone Description



The plains that principally make up this huge and sparsely-populated zone stretch across a large swath of the country and cover parts of four regions: from east to west, Gao, Mopti, Ségou and Koulikoro. The picture is typically sahelian: the annual precipitation of 300-500mm allows for the rainfed cultivation of millet and sorghum on fairly sandy soils, with inter-cropped cowpeas (niébé) and other items as both food and cash crops, groundnuts being the main example. In addition, the wealthier groups cultivate some rice and women from these groups grow market gardening crops -onions, garlic and tobacco- in the off-season. Livestock – principally cattle, goats, sheep and some camels- are an important source of cash income (particularly for the middle and better-off) and the principal form of savings/investment. The middle and better-off also earn money from the sale of fattened sheep; these animals are not part of the main herd, but are often tethered in the household's compound and fed livestock feed.

Overall, this is a food deficit zone, but there are some surplus-producing areas, such as Bankass and Koro in the south, that can export cereals. Annual rainfall is generally higher here than further north. There are also other internal variations; tourism, for example, is more important on the Dogon plateau than around Ansongo and Menaka, where it is currently non-existent due to insecurity. Furthermore, the Niger delta bisects the zone and provides laboring opportunities during the main rice harvest, engendering a seasonal influx of migrant laborers to zone 6 from the surrounding parts of zone 4. Far away from the delta in the very east of the zone and close to the border with Niger, the dynamic is different. However, the principal livelihood characteristics described in the paragraph above and the rest of this profile are the same across the zone.

External aid is relatively common, whether from the government, the World Food Programme or from other donors. Other characteristics of the zone include fishing, the manufacture and sale of handicrafts and the availability of wild products such as gum arabic, wild dates, zuzufis, zaban (*Landolphia senegalensis*), baobab leaves, tamarinds, jujube (*Ziziphus Mauritania*) and tannin. The sale of these provides an important income source for the poorest households. There are also some *bas-fonds* – localized depressions that retain moisture into the dry season – which can be used for irrigated agriculture.

## Markets

Access to markets in this zone is generally easy during the dry season, although areas of the zone are isolated. Access becomes more difficult in the rainy season, but is still better than in zone 6. Households are highly dependent on markets to buy cereals to meet their annual food requirement and to sell their livestock (primarily the middle and better-off)

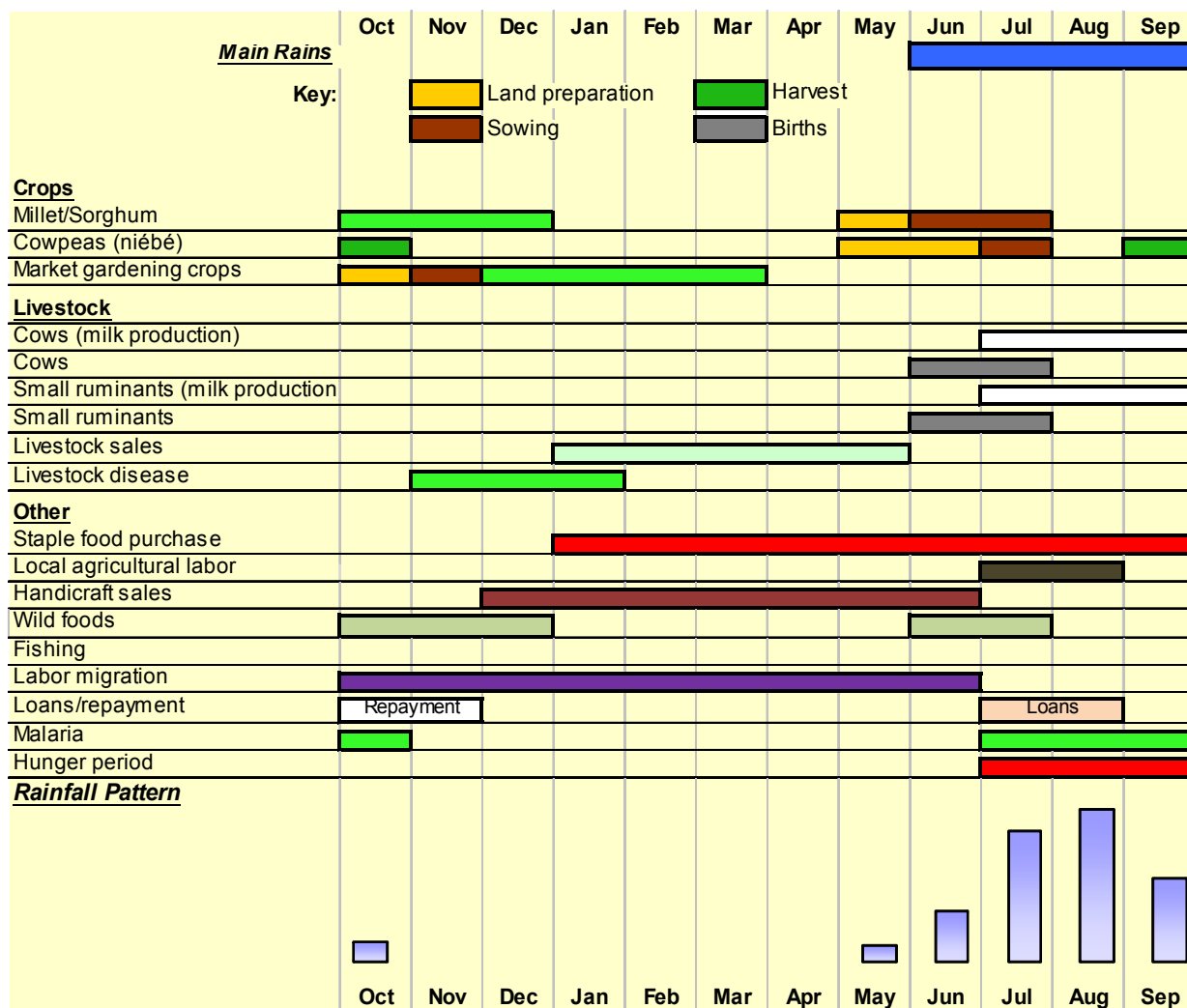
The following information is indicative only and should not be regarded as exhaustive.

<b>Crop</b>	<b>Trade Route</b>
Millet	local markets →Niono→Mauritania
Niébé	Bamako

<b>Type of livestock exported</b>	<b>Trade Route</b>
Small ruminants & Cattle	→Bamako, Ivory Coast →Niono→Segou→Bamako, Ivory Coast, Sénégal
Poultry	Local markets

<b>Main cereals imported into the zone</b>	<b>Trade Route</b>
Rice	from zone 6 (Niger Delta) → local markets from zone 7 ('Office du Niger') →local markets
Millet	Segou→Niono→local markets

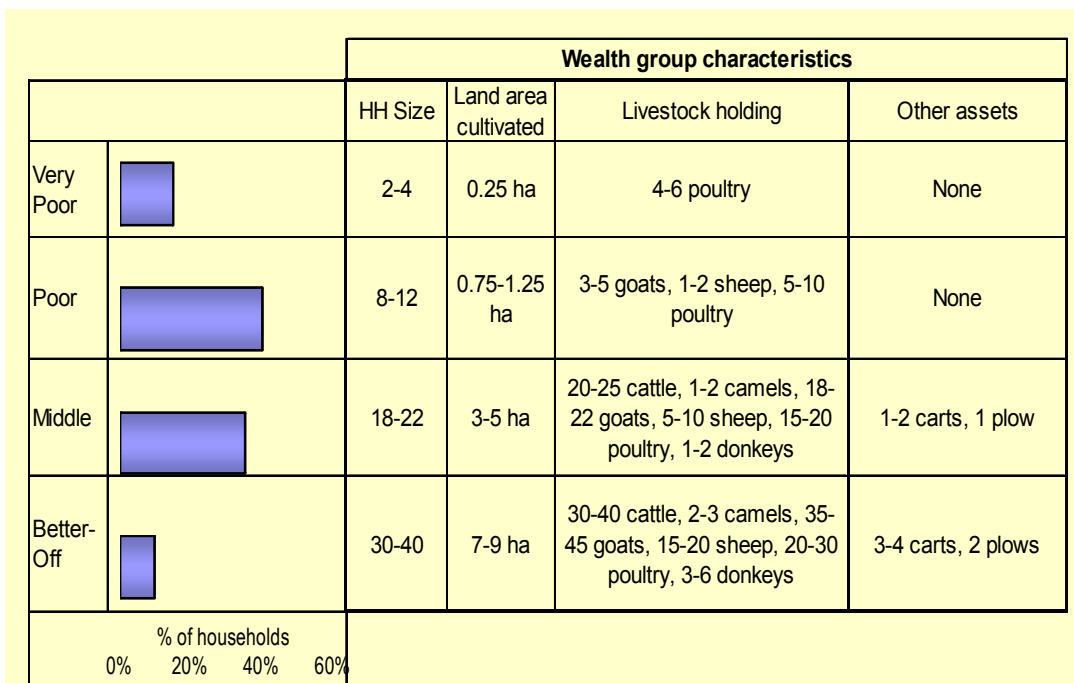
## Seasonal Calendar



The seasonal calendar above shows the main agricultural, livestock and income-related activities that make up the year in this zone. The months of July to September are the hardest, particularly for the poorest groups, whose harvests have long since run out. Malaria incidence is at its height, which may necessitate extra expenditure on medication at a difficult time and, if it affects able-bodied household members, can seriously affect the household's ability to work. Some households may be forced to take out loans to see them through these months; these are then repaid around October and November. More positively, some niébé (cowpeas) can be harvested and sold in September to provide important cash income. Milk production is also at its peak, although this benefits the wealthier groups more than the very poor and poor, since it is they who own the livestock.

The main millet and sorghum harvest starts in October, puts an end to the hunger period and marks the start of the new consumption year. Millet and sorghum sales are highest at this time. By January, the poor have consumed their harvest and start to purchase cereals on the market. From October able-bodied householders, primarily from the poor and middle groups, begin to leave the zone in search of migrant laboring opportunities; they return around June and July, a peak time for agricultural work within the zone.

## Wealth Breakdown



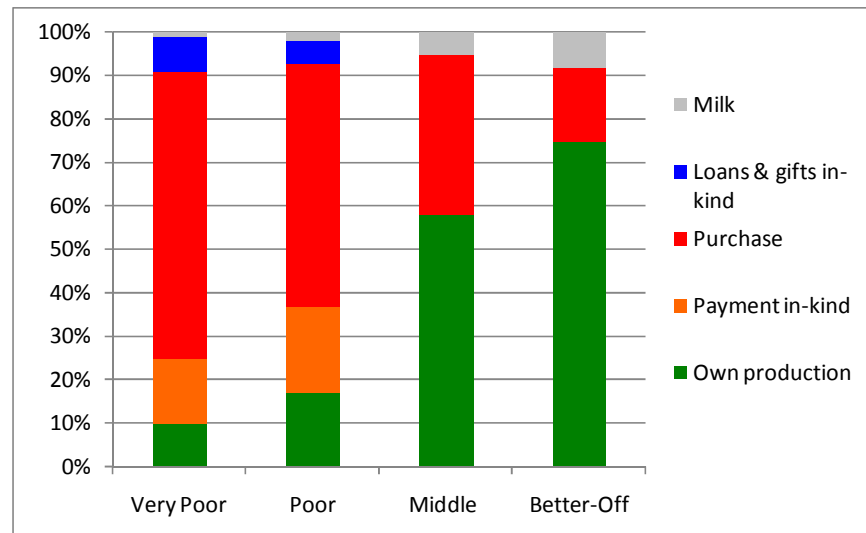
Livestock is the main indicator/determinant of wealth in this zone and is heavily concentrated among the 45% of households that make up the middle and better-off groups (and in absolute terms the majority of the population, because of their very large household size). Cattle are the most important livestock, because of their high value and the economic security they provide to those households who own them. These wealthier groups can also afford agricultural inputs and cultivate not only more, but also better quality, land, with access to wells and rivers. They own plows and plow oxen as well as donkeys and camels, which are used to till the soil. Furthermore, the ownership of carts allows these households to take their products to market and engage in trade.

Between the two poorest groups a critical difference is the larger household size and higher number of able-bodied household members of the poor. This gives poor households a much greater ability to earn money from labor.

In the countryside as well as in the town, poorer people make sacrifices to send children to school, but the middle and better-off can and do invest more in absolute cash terms. Children from very poor and poor households are likely to receive only a basic primary education, sometimes little formal education at all. Children from middle and better-off households generally receive some secondary education and perhaps more. Koranic education is also developed in this zone.

## Sources of Food

The very poor and poor can consume their harvests for only around one and two months respectively. In fact, they receive more of their annual food requirement from payment in-kind for working on the fields of the middle and better-off.

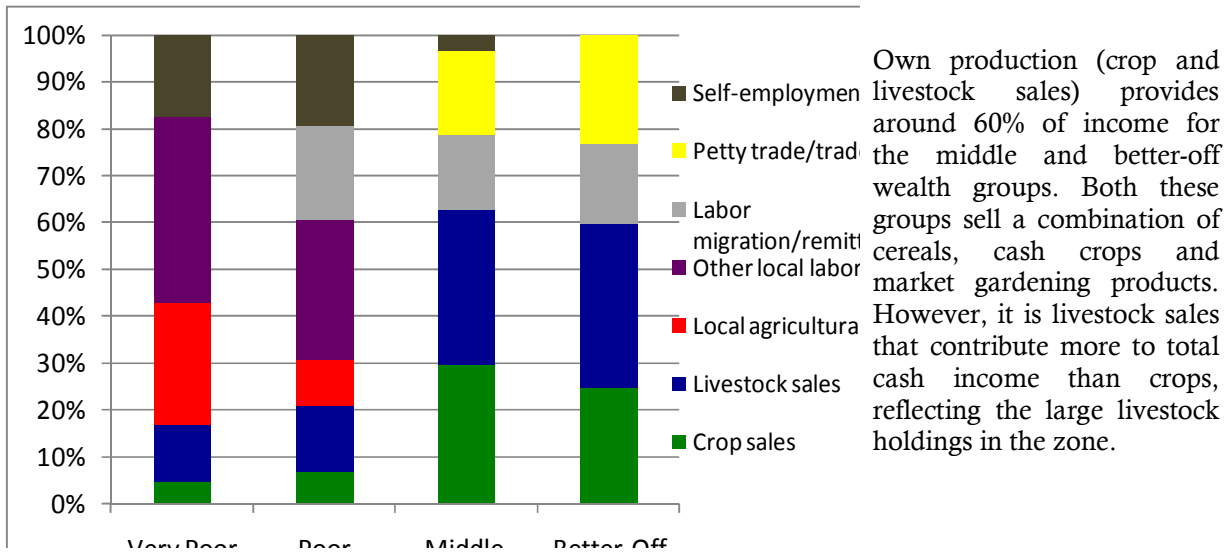


Depending on where in the zone they live poor households may also migrate to the Niger delta (zone 6) to work on the rice harvest; the rice they receive in payment is included in the payment-kind category. The very poor and poor receive some food in gifts from wealthier households, but depend on the market for the majority of their food needs; they most commonly buy cheap staples like millet and sorghum. The middle and better-off are more self-sufficient and if they chose not to sell a proportion of their millet, would be able to live off their own harvest, especially in the surplus-producing areas of the zone. The middle and better-off can also afford to buy rice, a more expensive staple, which adds some variation to their diet.

As in zone 6, milk is an important food source for the middle and better-off in this zone, contributing around 5-10% of food needs. The poor and very poor consume significantly less, but this is still a boost to the quality of their diet, that is not found in several other zones in the country. The poorest households, who do not own cattle, receive their milk in gifts from wealthier households.

Finally, the above graph deals exclusively with cereals, pulses and milk, since these make up the vast majority of food consumed. However, there are also wild fruits (e.g. wild dates) in the zone that may account for a small proportion of households' food needs.

## Sources of Cash

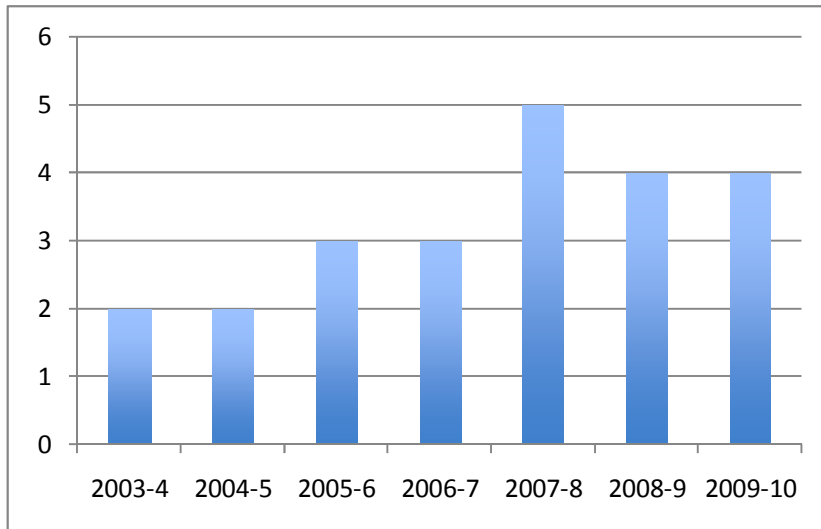


In contrast, the poor and very poor receive much less income from their own production. They sell a small amount of cash crops, but cannot afford the inputs to invest significantly in market gardening (the poor garden to an extremely limited extent and the very poor do not garden at all). Instead these households are primarily laborers and receive the majority of their income from a combination of agricultural and other local labor (this includes shepherding the herds of the middle and better-off, brick-making, plastering and construction).

Labor migration/ remittances are an important source of income for the poor, middle and better-off. The very poor do not have enough able-bodied household members for one to be able to migrate; consequently, they depend more on labor available locally. This is a significant difference between the two poorest groups. The poor and middle tend to migrate to regional capitals such as Mopti, Kayes, Segou, Sikasso and Bamako; the poor also work on the rice harvest in the delta. For the better-off, however, their income in this category comes principally from remittances received from relatives living abroad.

Self-employment for the very poor involves firewood and wild food sales. The poor also sell wild foods; and both the middle and the poor sell handicrafts, such as mats, fans, baskets and wicker-work, which may ultimately be sold in Bamako and Mopti. Petty trade is significant for both the middle and better-off, who own boutiques from which they sell their products.

## Hazards



Differences between years in terms of food security are important, since it is the good and acceptable years that make up for the bad ones.

Informants were asked to classify each year in the last 6 according to its relative food security; 1 represented a very poor year for food security, 2 a poor year, 3 an acceptable year, 4 a good year and 5 an excellent year.

The following is a list of the principal hazards in the zone.

### **Chronic**

1. Crop pests (e.g. termites and locusts).
2. Grain-eating birds.

### **Periodic**

1. Lack of rain/ late-starting or early-finishing rains. This is one of the major risks of life in Sahel. Even in years that they considered acceptable in terms of food security, informants stated that rainfall was insufficient. Rains that are poorly distributed across the season are also a hazard.
2. Livestock diseases (e.g. foot-and-mouth disease and anthrax).
3. Grasshoppers.
4. High winds can cover fields with sand. Winds that blow when seeds are germinating may mean that households have to resow their crop.
5. Floods.
6. Wild animals.

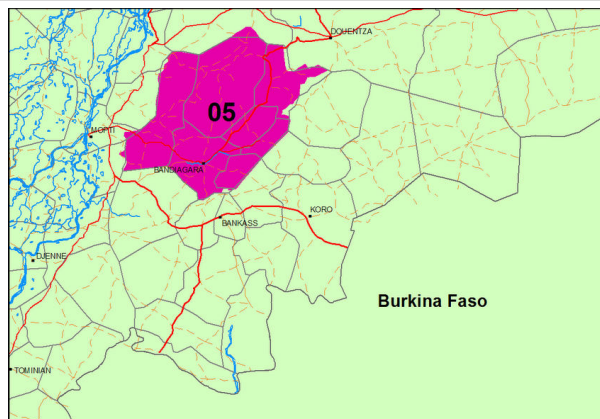
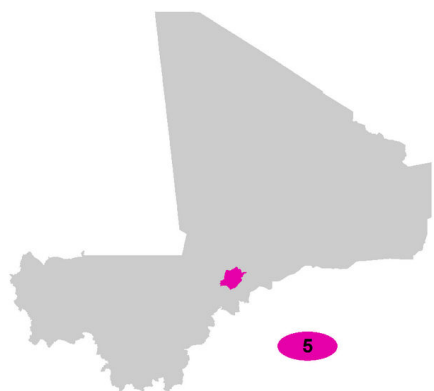
### Response Strategies

In a bad year all wealth groups try to maximize their income and reduce their expenditure; the income-maximizing strategies a household will employ depend a lot on its assets and its wealth. Thus the **middle and better-off** try to increase their income from market gardening, sell more livestock and do more petty trade. They may also stock cereals from October and November to be consumed when food becomes increasingly scarce. If pastures are bad their animals will spend longer on transhumance outside the zone. The **poor as well as the middle and better-off** try to increase their income from labor migration and remittances; however, this is not a strategy open to the very poor, since they do not typically migrate in search of labor. The **very poor** increase their firewood sales, but, unlike the middle and poor they are not able to augment their handicraft sales, since they do not typically do this in a normal year.

# Mali Livelihood Profiles

## Zone 5: Dogon plateau – millet, shallots, wild foods and tourism

### Zone Description



This is a small zone that covers part of the Dogon plateau. The relief is much higher here than the sahelian plains which surround it. An annual rainfall of 400-600mm allows for the rainfed cultivation of millet, which is the main staple. However, the zone is structurally in food deficit and is a net importer of cereals. As one informant noted: *'on ne peut pas se nourrir avec les échalotes'*, although the sale of shallots does provide households with cash to buy food on the market. Cash crops, such as niébé and groundnuts, may be inter-cropped with millet, although not all households do this. Market gardening crops (and to some extent rice) are also cultivated, but they require irrigation. Water sources include small dams, lakes, rivers, wells and *'bas-fonds'* – localized depressions that retain moisture into the dry season. However, the quality of the zone's sandy loam soil is poor and wealthier households actually move fertile soil closer to small dams, to enable them to grow garden crops. These are mainly shallots and, to a lesser degree, garlic and tomatoes. Market gardening is one of the zone's principal activities, yet the extent to which people can garden varies across the zone and is dependent on the proximity of water sources.

Livestock rearing is considerably less important than in neighboring zones 4 and 6 and the size of herds on the plateau is now relatively small. Nevertheless, the ownership of cattle still provides economic security for middle and better-off households. Cattle, goats and sheep are the main species, goats being particularly prevalent in villages near forests. The middle and better-off also earn money from the sale of fattened sheep; these animals are not part of the main herd, but are often tethered in the household's compound and fed livestock feed. Poultry are owned by all households; their management is a female activity.

Wild foods grow in the zone and are crucial to the livelihoods of the poor and very poor, who sell them. These include: tamarinds, shea, zaban (*Saba senegalensis*), raisins sauvages (*Lannea acida*), néré (*Parkia Sp.*) and baobab fruit. This is also one of the main tourist areas in Mali; visitors come to see Dogon villages cut into escarpments, distinctive Dogon grain stores and to experience the local culture and music. Some in the zone profit from this by acting as tourist guides; more typically, villagers manufacture and sell statuettes and other souvenirs to tourists.

External aid is relatively common, whether from the government, the World Food Programme or from other donors; interventions may range from distributing seeds to working to exploit the zone's resources in stone. Other activities performed by villagers include brewing (using millet or sorghum) and the sale of firewood. Some credit is available with micro-credit organizations or large traders; it is generally the

middle and better-off who can take credit in this way. The poor can do so to a limited extent, but also borrow from the middle and better-off; the very poor are not creditworthy. Finally, vegetation is sahelian and there are some orchards in the zone.

## Markets

Market access is relatively good and better than in zone 6. Households are highly dependent on markets both to sell their products (primarily shallots) and to buy cereals to meet their annual food requirement.

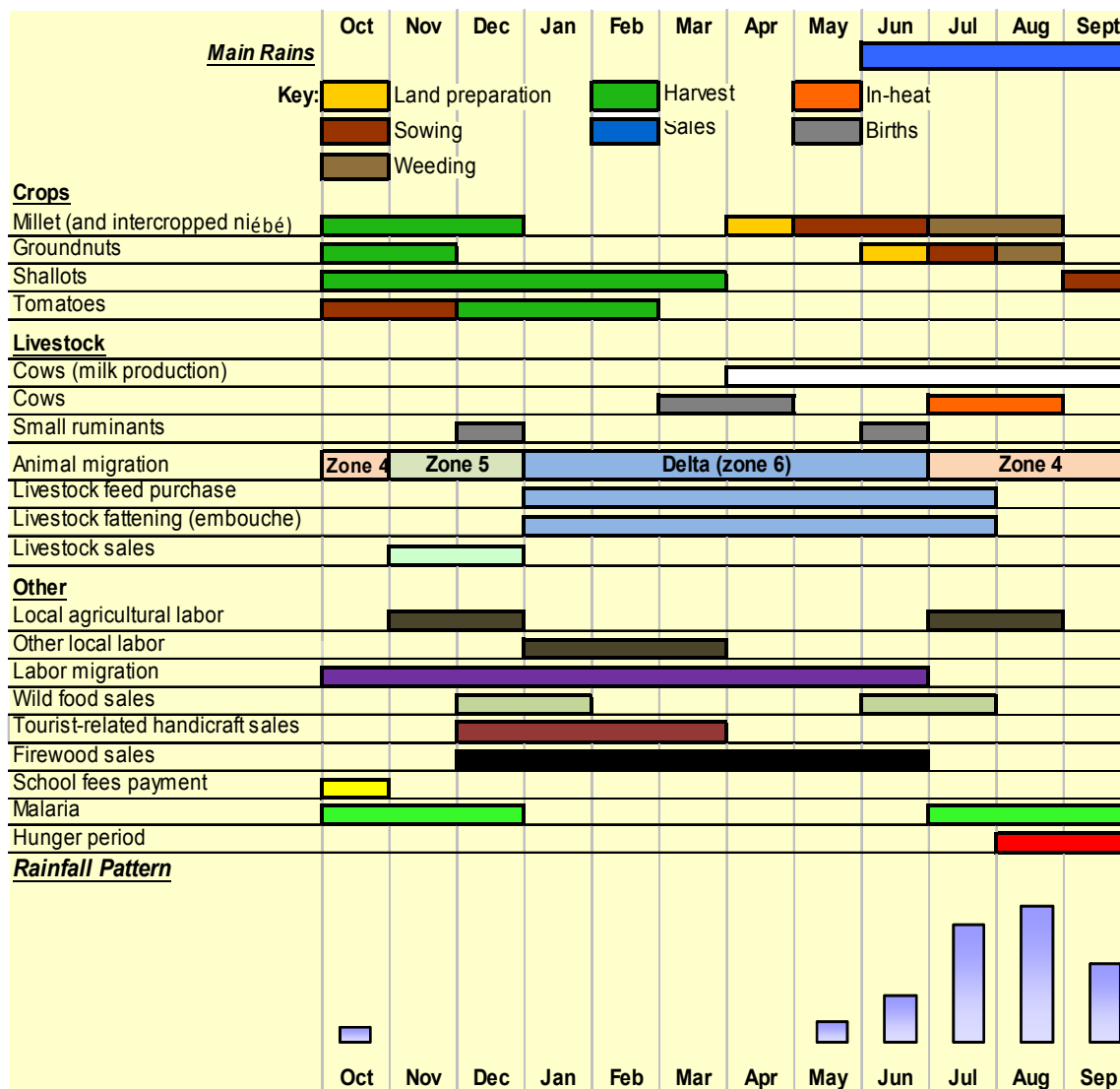
The following information is indicative only and should not be regarded as exhaustive.

Crop	Trade Route
Shallots	local markets→Bamako, Burkina Faso, Sénégal
Tomatoes	Sold locally because it is hard to conserve them. Dried tomatoes are sold to Bamako, but not in such large quantities.

Type of livestock	Trade Route
Poultry	local markets
Small ruminants	local markets

Main cereals imported into the zone	Trade Route
Rice	from zone 6 (Niger Delta) → local markets
Millet, sorghum	from Bankass, Koro, Douentza

## Seasonal Calendar



The seasonal calendar above shows the main activities that make up the agricultural year in this zone. The hardest time of year is during the rains; these are the months before the main millet harvest, which brings an end to the hunger period. Those households with enough resources stock some grain in their stores after the harvest; the store is then not opened until the rains to ensure that food is available during these months, not least because this is one of the physically-demanding times of year in terms of agricultural work. The poorest households are generally not able to stock grain in this way and the very poor may start eating their own harvest from mid September when it is not yet fully mature. The incidence of malaria is also high at this time; this can necessitate extra expenditure on medication and, if an able-bodied household member is affected, the household's ability to work is reduced. Malaria continues to be a problem through to December.





Millet is harvested from October to December and, consequently, these are important months in terms of agricultural labor. Shallots are planted and harvested in three cycles from October to March. The first cycle is not fully mature in October, but the price on the market is high, so households harvest early to take advantage of this. Migrants start leaving villages from October in search of work elsewhere; they

typically wait until after 'La Fête Nationale' on 22 September before leaving and return around the time of the next rains.

Peak livestock sales are from November to December when the livestock are in their best condition, and also when they are present in the zone. From January to June livestock are moved to the delta to take advantage of grazing there; from July to October they feed on the new pastures in zone 4, only returning to zone 5 for two months in November. It should be noted that plow oxen and milking cows do not migrate, but remain in the zone to work the fields and provide milk respectively.

Different wild foods become available at different times of the year, tamarinds in December and January, and shea, zaban and raisins sauvages in June and July. The majority of handicraft sales to tourists occur during the tourist season from December to March. Small ruminants can give birth at two points in the year in December and June. Petty trade takes place throughout the year.

### Wealth Breakdown

		Wealth group characteristics			
		HH Size	Land area cultivated	Livestock holding	Other assets
Very Poor		3-5	0.25-0.75 ha	4-6 poultry	None
Poor		9-11	2-4 ha	1-2 goats, 2 sheep, 9-11 poultry, 1 donkey	None
Middle		15-20	5-7 ha	5-7 cattle, 10-12 goats, 4-5 sheep, circa 15 poultry, 2 donkeys	1-2 motorized pumps, 1 plow, 1 cart
Better-Off		20-30	10 ha +	13-17 cattle, 20-40 goats, 10-15 sheep, 15-20 poultry, 2 donkeys	2-3 motorized pumps, 2-3 plows, 2 carts
% of households					
0%    20%    40%    60%					

60% of households in this zone fall into the lowest two groups, compared to 50% in zone 6. However, in terms of absolute population the majority of people are middle or better-off, because of the very large household size of these wealth groups. There is an obvious contrast between the two upper and two lower wealth groups; it is the middle and better-off who own the majority of the livestock and the productive assets. This includes plows and plow oxen (which have been included in the table above in the number of cattle owned); middle households typically own a pair of oxen, whilst better-off households own 5 (two pairs and a spare to rotate in when necessary). These groups also own motorized pumps, which are used to irrigate their market gardens. Informants emphasized that the ownership of this kind of equipment was a key indicator and determinant of wealth, because of the importance of market gardening in the zone. In addition, the richer wealth groups can afford to pay for labor and to buy agricultural inputs, such as fertilizer; and since they own livestock they have access to manure as well.

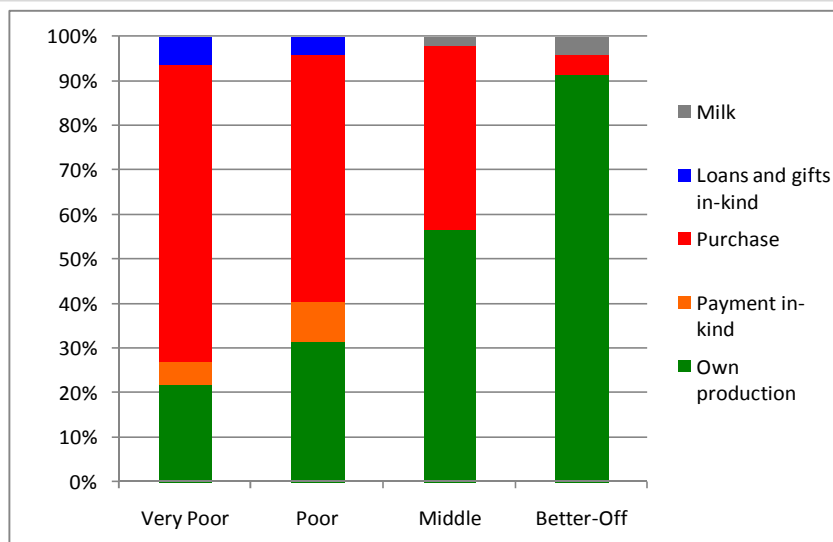
The gap between poor and very poor households should be emphasized, both in terms of livestock holding and household size; the poor, with much larger households, also have more able-bodied household members and therefore greater potential to earn money from labor. It should be noted too,

that the very poor are the only group not to own donkeys, which can be used for transport and for taking goods to market amongst other things.

In the countryside as well as in the town, poorer people make sacrifices to send children to school, but the middle and better-off can and do invest more in absolute cash terms. Children from very poor and poor households are likely to receive only a basic primary education, sometimes little formal education at all. Children from middle and better-off households generally receive some secondary education and perhaps more.

### Sources of Food

The ability for households to rely on their own production increases with wealth. All but the better-off depend on the market for a large proportion of their food needs, as might be expected in a food deficit zone. The very poor and poor, for example, can consume their harvests for only two and a half and four months respectively.

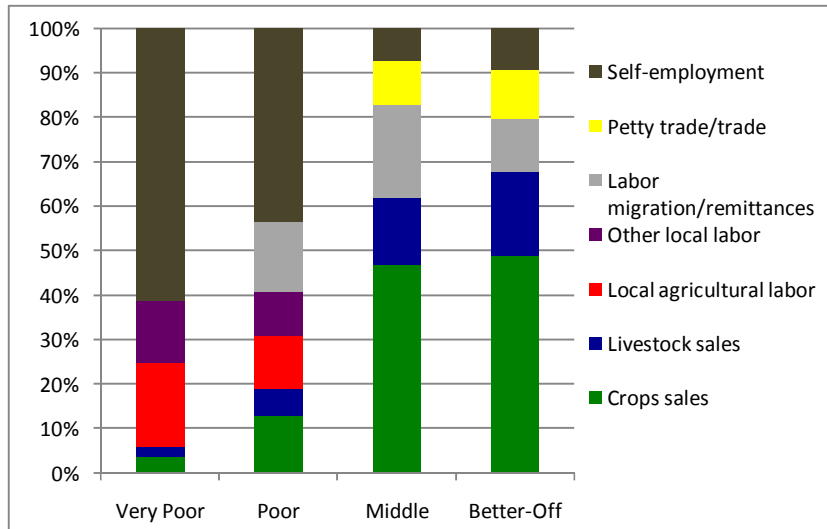


The poorest households primarily buy millet – the cheapest staple; however, the better-off and to some extent the middle can afford to buy rice to add variety to their diet.

The poor and the very poor receive some of their annual food requirement from payment in-kind for agricultural work. For the very poor this comes entirely from work carried out locally. In contrast, poor householders, as well as being paid in-kind for local labor, seasonally migrate to the Niger delta (zone 6) to work on the rice harvest. The rice they receive in payment helps to add a small amount of variety to their diet, something which is lacking among the very poor.

Milk contributes less to households' food needs in this zone than it does in neighboring zones 4 and 6; only a few percent for the middle and better-off and not at all for the poor and very poor. This reflects the lower livestock holding in this zone. (Shepherds also receive milk as part of their payment.)

## Sources of Cash



This graph illustrates the importance of market gardening to the middle and better-off (sale of market gardening crops makes up the major share of crop sales for these groups). Equally, it is possible to see the extent to which the poor and especially the very poor (who are the only group not to market garden at all) are excluded from this.

The middle receive over three times more of their income from their own production (crop and livestock sales) than the poor and over ten times more than the very poor. Whilst the poorest groups get some income from agricultural and other labor, such as brick-making and construction, it is the contribution of self-employment to income that is most striking. This category includes the sale of firewood and of handicrafts, such as fans, ropes and baskets. However, the most significant activity is the sale of wild foods, which accounts for over 30% of the poor and very poor's income. Middle and better-off households also earn money through self-employment; this is exclusively the sale of handicrafts, which are sold (often through a middleman) to tourists.

Labor migration is an important income source for poor, middle and better-off households. The very poor do not have the means to migrate for labor, either in terms of able-bodied household members or in terms of cash to pay for transport. 2-3 members of a typical poor household migrate in search of labor each year; they may go to Mopti for the rice harvest and then further afield to Segou, Sikasso, Kayes and Bamako to perform agricultural labor or menial work such as guarding houses or doing housework. Labor migration is one of the ways in which it is possible for a poor household to become closer in wealth to the middle and better-off groups.

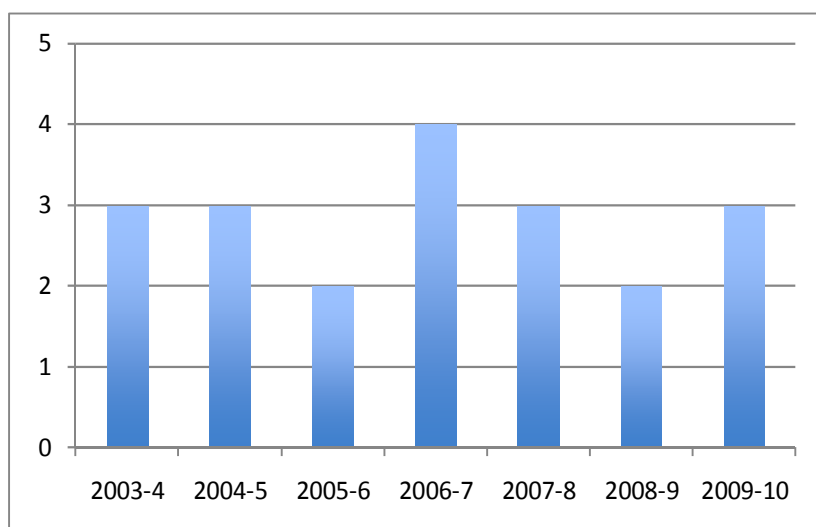
The middle and the better-off commonly leave the country when they migrate, for example to Abidjan in Ivory Coast where they might work in kiosks, shops (e.g. a butcher's) or do some kind of trade. These groups also receive remittances from relatives living abroad (e.g. in Cameroon or Spain); these can be difficult to distinguish from labor migration since household members may leave and then return a few years later or there may be a kind of rotation system by which a different household member returns to the zone each year. It is noteworthy that while 3-4 people may migrate in a typical middle household only 1-2 people migrate in a typical better-off household.

Petty trade involves products such as tea, sugar and drinks, including locally-brewed alcohol.

## Hazards

Differences between years in terms of food security are important, since it is the good and acceptable years that make up for the bad ones. The table below shows the perceptions of the villagers of Dandoli of the past seven years. Informants were asked to classify each year in the last 6 according to its relative food security; 1 represented a very poor year for food security, 2 a poor year, 3 an acceptable year, 4 a good year and 5 an excellent year. The table is interesting, since it gives us an idea of the problems facing villagers over time; it also shows the relative frequency with which the village received external aid.

Year	Annual performance	Description of the year
2009-10	3	This year has been better than 2008-9, but high cereal prices have affected everyone. Rains started late, but the last rains in the year were good.
2008-9	2	Lack of rains, increase in cereal prices, grasshoppers. There were gifts of seed in this year. Households also increased livestock and poultry sales to cope; the worst hit households were forced to sell assets such as bicycles and motorbikes.
2007-8	3	Overall the year was passable, but there was a lack of rains at the beginning of the year followed by floods in some areas. The water destroyed some houses, fields and orchards. There were gifts of millet seed and millet by the Bureau of Agriculture.
2006-7	4	Good rains. The price of cereals was not too high.
2005-6	2	Poor rains. Grasshoppers were a problem from sowing onwards. The villagers organized themselves against the grasshoppers; this was then followed by a formal intervention which used chemicals to combat the grasshoppers.
2004-5	3	Poor rains, grasshoppers and crickets – this was a poor year, but in food security terms it was acceptable, because the government had built cereal banks which made up for the poor harvest. Cereal prices were also not too high.
2003-4	3	The performance of the rains was not ideal, but cereal production was acceptable. Aid in cereals (maize) was also given.



The histogram (left) graphically illustrates key informants' impressions of the past seven years.

The following is a list of the principal hazards in the zone.

### **Chronic**

1. Poorly distributed rains.
2. High winds when the seeds are germinating mean that households have to resow their crop. This happens almost every year, but this hazard varies in terms of its severity.
3. Malaria. This is most serious when it affects the head of a very poor or poor household, because it jeopardizes that household's ability to work at one of the most crucial times of the year (see seasonal calendar).

### **Periodic**

1. Lack of rains/ late-starting rains
2. Crop pests such as crickets and grasshoppers (during the period when the plants are flowering).
3. Floods.
4. Livestock diseases (e.g. trypanosomiasis). This category includes diseases affecting poultry.
5. Increase in cereal prices on the market. This happened in 2008-9 when villagers recalled the price of a sack of millet had increased to 20,000 CFA.

## **Response Strategies**

In a bad year all households try to maximize their income; the strategies a household will employ depend a lot on its assets and its wealth. A list of coping strategies for the very poor and poor, and middle and better-off is given below.

### **Very Poor and Poor**

- They seek more local laboring opportunities.
- They gather, consume and sell more wild foods; these are very important in a crisis. These households will gather leaves, which they sell to those with livestock. (They will also consume these leaves, mixed with millet).<sup>14</sup>
- They try to increase their income from labor migration (this is only open to the poor, since the very poor do not typically migrate in search of labor).
- They receive more gifts than normal from the middle and better-off. (Solidarity within the village means that households will not, if at all possible, allow their neighbors to go without food).
- They increase their firewood sales (this is particularly important for the very poor).

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<sup>14</sup> There are certain trees in the forest, whose leaves are only eaten in bad year and indicate severe hardship.

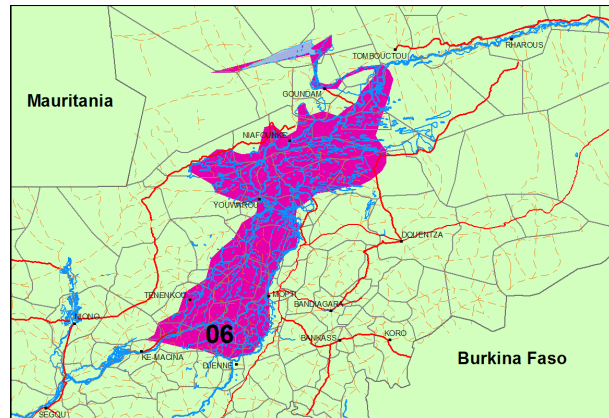
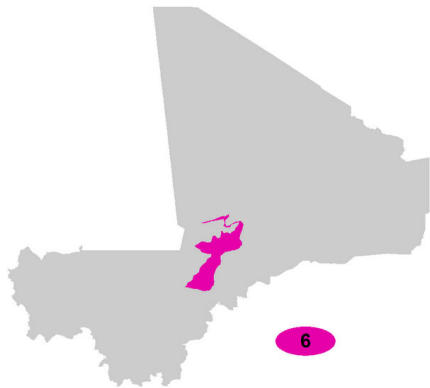
**Middle and Better-Off**

- They increase their livestock sales, in order to purchase cereal and other products.
- They try to increase their income from labor migration and remittances.
- They invest more in market gardening crops and sell these earlier than normal.
- They increase their petty trade.
- They increase their sales of tourism-related handicrafts.
- In a crisis middle households may sell wild foods, something which they do not do in a normal year.

# Mali Livelihood Profiles

## Zone 6: Niger delta/ lakes- rice & livestock rearing (agropastoral)

### Zone Description



This profile describes the livelihoods of the majority population in this zone, who are essentially agropastoralists, dependent on both rice cultivation and livestock rearing. The zone is also home to semi-nomadic Bozo fisherfolk, who have a distinct livelihoods system. The economic relationships between this groups and the majority population are important and a separate shortened profile of the Bozo has been prepared (see sub-zone 6a)

This is a surplus producing zone, which is more food secure than many of the zones which surround and neighbor it (2, 3, 4 and 5). It comprises the inland delta of the Niger river, which stretches over around 60,000 square kilometres from the Bani river in the south to Lake Fuguibine in the north. Every year the river floods and inundates more 20,000 square kilometres of land in the south and replenishes lakes in the north. This flooding is crucial for livelihoods in the zone, since it allows the cultivation of rice, which would otherwise be impossible, given the annual rainfall of 300-600mm. This huge plain also makes up one of the biggest pastures in West Africa and provides grazing for large numbers of livestock during the dry-season.

Rice is the most important crop, in terms of both household consumption and sales. The majority of rice is cultivated '*en submersion libre*'. In this method of cultivation, water levels in the rice fields are not controlled by man; peasants sow with the arrival of the rains and the subsequent flooding of the river (*'la crue'*) provides the remaining water. Thus both the timing and volume of water in the fields is determined by the river. Its dependence on the environment means this system has manifold risks; if the flood is too strong, for example, the rice plants can drown. (These risks are discussed in more detail in the hazards section). There are two other methods of rice cultivation in the zone, by which rice is irrigated and the water-level in the fields controlled by man (PIV – *perimètres irrigués villageois*). Whilst important, irrigated rice cultivation is less common. The main rice harvest takes place from November to February and requires a considerable amount of labor; every year a seasonal influx of people from zones 4 and 5 helps to meet this demand. Market gardening crops are grown, thanks to the availability of water for irrigation. The main crops are shallots, tomatoes and lettuces. Sorghum is also grown around the lakes as the floodwater recedes.

Livestock rearing is a major activity. The principal species are cattle, sheep and goats; of these cattle are the most prized and most valuable and are owned only by the middle and better-off. Other activities include the cultivation of bourgou (*Echinochloa stagnina*) – a grass, which serves as an important livestock feed, fishing (although this is mainly the preserve of Bozo specialists) and the sale of wild foods (jujube, tamarind and raisins sauvages being the most common). There is limited tourism to the nature conservation area – the first cross desert watering and feeding ground for birds seasonally migrating from Europe. The zone’s vegetation is typically Sahelian. Clay soils predominate in the south, while sandy soil is more common further north. External aid is relatively common, whether from the government, the World Food Programme or from other donors.

## Markets

Market access in this zone is worse than in zones 4 and 5 and during the flooding many roads are impassable. Trading is also carried out by canoe and motorized canoes; this decreases from March to July when the water levels are low. Market access is particularly important for the very poor and poor who purchase a large proportion of their cereals. Those areas close to large towns, such as Mopti, profit from supplying them with livestock and livestock products.

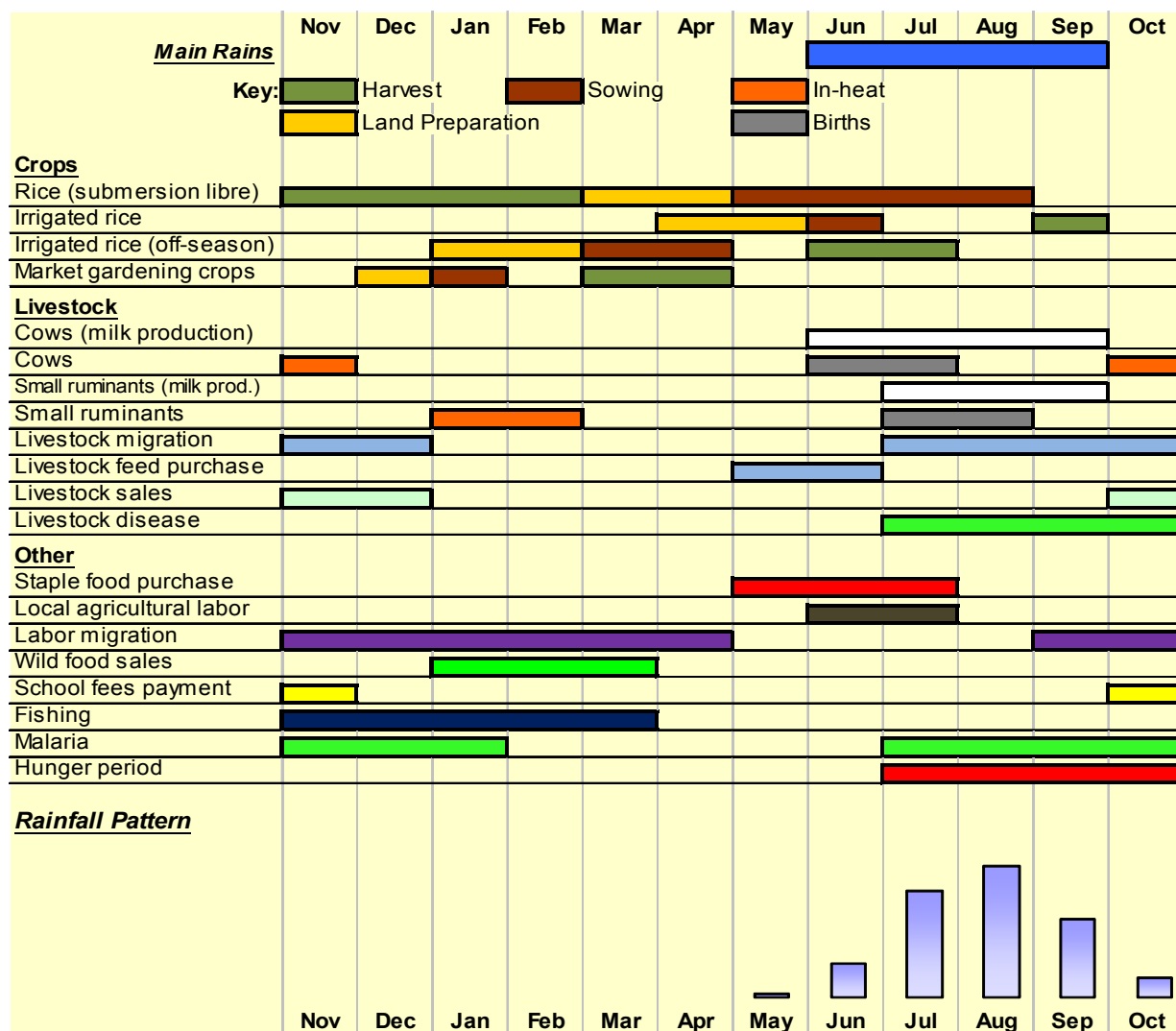
The trade routes below are indicative only (i.e. they are not exhaustive).

Product	Trade Route
Rice	Local markets→Mopti, Bandiagara (zone 5), Douentza, Koro & Bankass (all three in zone 4)

Type of livestock exported	Trade Route
Poultry	Local markets
Small ruminants	Local markets→Bamako
Cattle	Sold at local markets and then exported.

Main cereals imported into the zone	Trade Route
Millet	Bankass, Koro, San, Koutiala→local markets
Sorghum	San, Koutialia→local markets

## Seasonal Calendar



The seasonal calendar above shows the main agricultural and livestock-related activities that make up the agropastoral year in this zone. There are three main periods:

(1) The hunger season runs from July to October until just after the end of the rains in September. These are the hardest months of the year, particularly for the poorest households whose harvests have long since run out and for whom cash is scarce. Malaria is also at its peak during this period and can prevent able-bodied householders from working and necessitate extra expenditure on medication at the leanest time of year. The disease is particularly a problem in this zone and high incidence of malaria continues until January. From September, some able-bodied householders migrate in search of labor, often in large towns or abroad; some also find work in parts of zone 4 (for example in Bankass and Koro) where labor is required for the millet harvest. Poorer households may also sell cowpats in these months, which are used for fuel.





In terms of livestock, these are the peak months of milk production, following the new births from June

to August and the improvement in pastures that comes with the rains. (Small ruminants can also give birth from January-February, but July-August is more common). Livestock start leaving the delta from July to take advantage of pastures, in zones 2,4 and 9. The last animals leave by the end of August, to return to the delta from January, when pastures elsewhere have dried up. Livestock sales are at their peak from October to December when the condition of animals is good; this gives the wealthier households, who sell the most livestock, a boost in income from October, a month before the end of the of the hunger season. It is worth noting that the poor may be forced to sell their livestock earlier and are thus less likely to benefit from these good prices.

(2)The main rice harvest from November to February marks the end of the hunger period and the beginning of the new consumption year. Livestock also start to return to the delta at this time and wild foods (such as jujube) are collected and sold by poorer households.

(3) The period from March to June is the hottest time of the year. Market gardening crops are harvested from March to April and provide an important source of cash for poorer households, becoming available as they start to have used up their rice harvest. March to June are the most difficult months for livestock as pasture becomes increasingly scarce. Animals are in their worst condition and those who can afford it buy livestock feed, particularly in May and June. Most seasonal migrants also return in time for the rains and to sow the next year's rice crop.

### Wealth Breakdown

		Wealth group characteristics			
		HH Size	Land area cultivated	Livestock holding	Other assets
Very Poor		3-5	0.5-1 ha	3-5 poultry	None
Poor		6-8	1-2 ha	5-10 goats, 3-5 sheep, 10-15 poultry, 2 donkeys	None
Middle		10-12	5-8 ha	20-30 cattle, 10-20 goats, 6-15 sheep, 20-30 poultry, 2-3 donkeys	1-2 plows, 1 cart
Better-Off		15-25	12-15 ha	40-60 cattle, 30-50 goats, 20-30 sheep, 4-6 donkeys	3-4 plows, 2-3 carts
% of households					
0%    20%    40%    60%					

The wealth breakdown table above shows that wealth is heavily concentrated in the middle and better-off groups. Households in these groups make up half of all households in the zone and around two-thirds of the total population (when their larger household sizes are taken into account). Livestock ownership is a critical factor in the wealth of these groups; notice that cattle ownership is confined solely to middle and better-off households and that this is an important factor in separating the poor from the middle. This is significant, because cattle are a valuable asset and confer a considerable degree of economic security on the households that own them. One key informant affirmed their importance by suggesting that a household with a few cattle will become part of the middle group in a few years. It should be noted that there are those in the zone who possess 100-200 cattle; these households form small group at the very extreme of the better-off wealth group. Livestock holding is also one of the major differences between the

poor and the very poor; households in the latter group only own a few hens, while poor households own several small ruminants. The distinction between these two groups is important; informants talked of the ‘misquina’ (very poor) who have practically nothing and the ‘talka’ (poor) who have something but not that much.

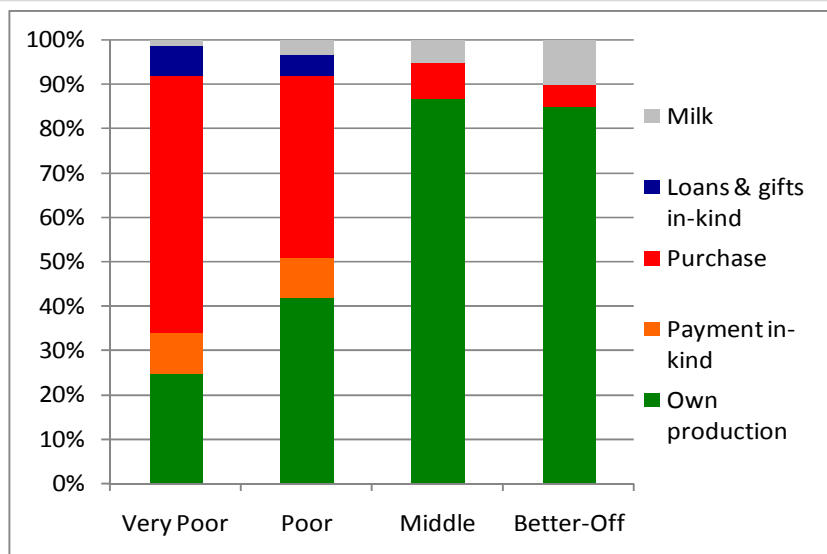
The number of able-bodied householders is a further determinant of wealth, particularly between poor and very poor households. This factor not only has a part in determining how much land a household can cultivate, but also in the number of migrant laborers within the household. As can be seen below migrant labor is an important source of income for all but the very poor, who are excluded, in part, because there are not enough able-bodied household members for one of them to be able to migrate.

Land area cultivated, ownership of productive assets and access to agricultural inputs also increase with wealth. Thus the very poor cultivate entirely by hand using the traditional ‘daba’ (a type of hoe); the poor are, to some extent, able to hire plows and plow oxen from the middle and better-off who own these assets. As with cattle, key informants noted the importance of plow ownership to being part of the middle and better-off wealth groups. To a much greater extent than their poorer neighbors the middle and better-off have access to mineral fertilisers, improved seed and manure; for the poor such access is limited and for the very poor non-existent.

In the countryside as well as in the town, poorer people make sacrifices to send children to school, but the middle and better-off can and do invest more in absolute cash terms. Children from very poor and poor households are likely to receive only a basic primary education, sometimes little formal education at all. Children from middle and better-off households generally receive some secondary education and perhaps more.

## Sources of Food

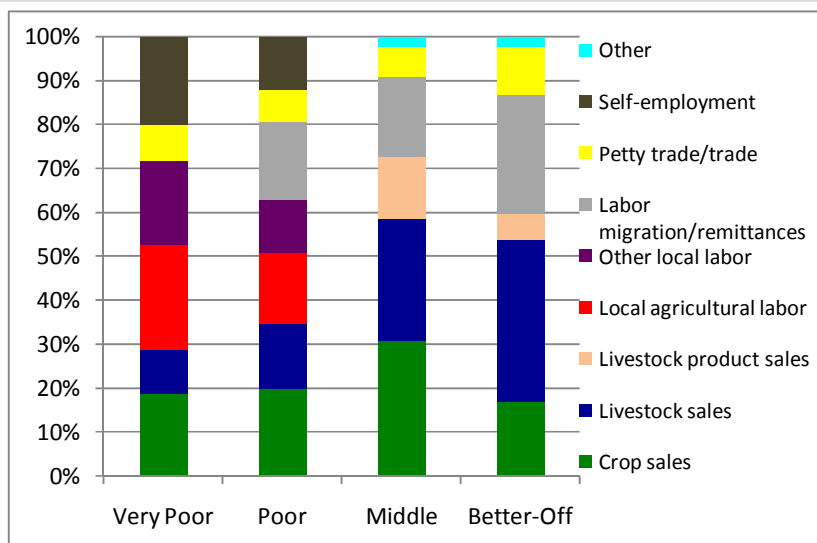
There is a striking difference between the two upper wealth groups, who are essentially able to depend on their own production, and the two lower groups who are heavily dependent on the market. Indeed the very poor and poor cannot generally feed themselves from their own fields for more than three months and five months respectively.



The poor do not necessarily consume all of their crop in the months directly after the harvest; generally, they try to keep some of their rice over for consumption during the following rainy season and hunger period. Given their lower production this is not an option for very poor households. Millet is the most common staple purchased, even for the middle and better-off, for whom it provides some variation to rice. Payment-in-kind for working on the fields of the middle and better-off provides about a month's worth of food for the very poor and poor and gifts-in-kind slightly less. The poorest households also take any left-over rice from the harvested fields of the middle and better-off.

Finally, milk consumption is important in this zone contributing around 5-10% of food needs to the middle and better-off respectively (much more than in many of the southern zones). The poor and very poor consume significantly less milk than the middle and better-off, but this is still a boost to the quality of their diet.

### Sources of Cash



As is to be expected given their larger landholding, greater access to productive assets and larger herds, the middle and better-off receive considerably more of their income from their own production (crops, livestock and livestock products) than the very poor and poor.

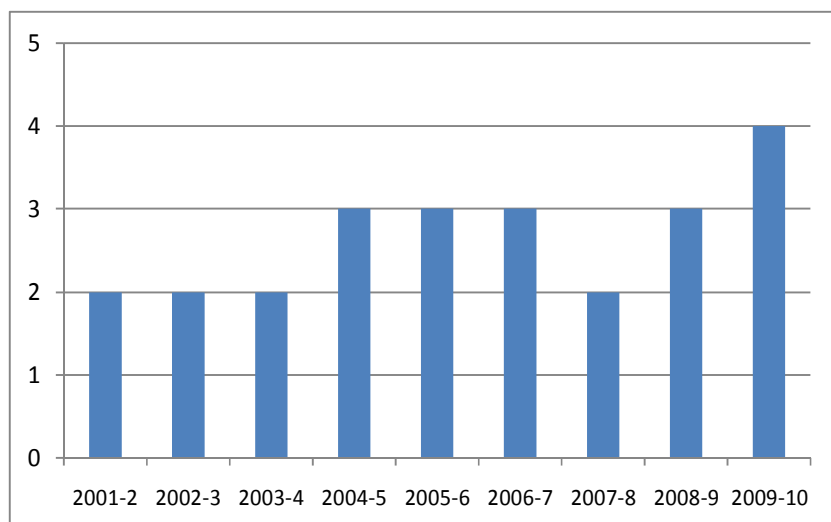
When we disaggregate own production we can see that livestock and livestock product sales together provide considerably more income to the middle and better-off wealth groups than crop sales; households in these two groups are true agro-pastoralists. A large part of the value of their rice seems to be the money they save on staple foods by consuming their own harvest. Unable to rely as much as the wealthier groups on their own production the poor and very poor depend more on agricultural and other types of labor (such as construction work), which they perform for middle and better-off households.

Labor migration and remittances are important income sources for the poor, middle and especially the better-off. The very poor do not typically migrate in search of labor; informants noted that very poor households have too few able-bodied members to be able to do so. In a typical poor household 1-2 people may migrate compared to 3-4 in a typical middle household and 4 or more (perhaps as many as 8) in a typical better-off household. Jobs and distances travelled vary, with the middle and better-off working as retailers or traders and the poor doing more menial jobs such as washing clothes or harvesting millet in zone 4. The middle and better-off also receive remittances from Central Africa, Ivory Coast and Europe. Remittances and labor migration can be difficult to separate; household members may leave and return a few years later or there may be a kind of rotation system by which a different household member returns to the zone each year. It is also worth noting that it tends to be younger people who migrate in search of labor.

It is only the very poor and poor who sell market gardening products (these are included as crop sales). The middle and better-off only sell rice and, although they do have gardens, they consume their production. The ready availability of water and relatively good soil quality are important factors in allowing the poorest households to grow and sell market gardening crops. This is in contrast to zone 5, where the relative lack of water and poor soil quality require a higher expenditure on inputs and mean that market gardening is dominated by the middle and better-off who are able to afford them. Petty trade is an activity of all wealth groups; however, the goods traded differ. The very poor and poor sell firewood to the middle and better-off, while the middle and better-off sell products such as tea and sugar. 'Self-employment' includes both the sale of wild foods and the sale of handicrafts, for example pottery and fans. These are both done exclusively by the poor and very poor. The category 'other' includes

money received from loaning plows and plow oxen to other (including poor households). In 2009-10 this cost 20,000 CFA per hectare, each hectare requiring around three days' work.

## Hazards



Differences between years in terms of food security are important, since it is the good and acceptable years that make up for the bad ones.

Informants were asked to classify each year in the last 6 according to its relative food security; 1 represented a very poor year for food security, 2 a poor year, 3 an acceptable year, 4 a good year and 5 an excellent year.

The following is a list of the principal hazards in the zone.

### Chronic

1. Rice-eating fish.
2. Malaria.

### Periodic

1. Insufficient rains are one of the major hazards of the Sahel. Late-starting rains delay sowing which means that plants are less well developed than normal and thus more vulnerable when the river level rises. Precipitation that is poorly distributed across the rainy season is also a hazard and one that is hidden by total annual rainfall figures. An apparently favourable total rainfall figure can mask gaps in precipitation that have a negative effect on crops. In a bad year, those households with irrigated rice fields (a minority in the zone) depend more on irrigated rice.
2. When the floodwater recedes early, there might not be enough water for rice cultivation. On the other hand, a flood that is too strong can drown the rice plants.
3. Grain-eating birds.
4. Livestock diseases.
5. Increase in cereal prices (for example in 2007-8).

## **Response Strategies**

In a bad year all households try to maximize their income. Some strategies are common to all wealth groups, such as increasing livestock sales. However, the larger herd sizes of the middle and better-off make this strategy much more viable and lucrative for these households than for the poor and very poor. Indeed, the very poor, having no other livestock, can only marginally increase their chicken sales (most often from August to September). All households increase their petty trade, although, as noted above, the items traded vary with wealth. Households may also try to augment their income by selling fish. Other response strategies are more wealth group specific; increasing the number of householders migrating for labor, for example, is a very important strategy for the poor, middle and better-off, but is not so commonly open to the very poor, who have too few active members in their households to do this. A list of other wealth group specific strategies is given below.

### **Very Poor and Poor**

- Maximising income from market gardening is an important coping strategy for the poor and very poor. If the rice harvest from November-February is poor, these households focus on increasing their income from garden crops, which are harvested from March-April. This was one of the coping strategies employed by households in the village of Nantaga in 2006-7 when grain-eating birds damaged the rice crop.
- Local agricultural labor may increase in availability but the daily labor rate decreases.
- They increase wild food sales.
- They depend more on gifts of cereals from the middle and better-off. These are most commonly received after the harvest and during the hunger period.

### **Middle and Better-Off**

- They increase their cereal sales, partly because, in a bad year, there is high demand on the market.
- They increase their livestock product sales.

# Mali Livelihood Profiles

## Sub-zone 6a : Bozo fishermen

### Zone Description

Semi-nomadic Bozo fishermen live and work along the Niger river; their livelihoods system is considerably different from those of the majority population in zones 3 and 6 (the major riverine zones). Consequently, this separate, shortened profile has been created, so that this group and their economic relationships with the majority population are represented. The key informants interviewed and the Bozo camp visited to prepare this profile were in the Niger delta (zone 6); however, the information presented here should, in general, be applicable to the Bozo living further down-river.

### Markets

Livelihoods in this zone depend on two main market transactions; the sale of fish and the purchase of cereals. The terms of trade between the two are thus very important. The table shows how extensively fish from the delta is traded.

Product	Trade Route
Fish (dried, smoked)	Local markets→Bamako, Sikasso, Kayes, Ivory Coast, Burkina Faso

### Seasonal Calendar

	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
<b>Main Rains</b>												
Main fishing season												
Migration for fishing												
Fish scarcity/hunger months												
Loans												
Trade												

The main fishing season runs from October to February and is also the time of peak trade. In March all able-bodied household members leave the camp and migrate down the river to fish; they return in April, most frequently with fish, but sometimes also with money. From May begins a long hunger period that ends when the fishing seasons starts again in October. Poor and very poor households take out loans from July to September, to tide them over to the beginning of the next consumption year; this highlights the chronic poverty and insecurity of these households.

	Wealth Groups Characteristics				
	HH size	Fishing nets	Size of nets	Canoes (pirogues)	Other
Very Poor	5-6	2-3	400 yds	0	0
Poor	8-10	4-5	600 yds	0	5-6 poultry
Middle	15-20	5-6	1000 yds	4	10-15 poultry
Better-off	20-25	7-10	1000-1500 yds	6	30-40 poultry, 4 sheep

The ownership of fishing nets, canoes and the number of able-bodied household members are the main determinants of wealth in this zone. The nets owned by the middle and better-off are not only more numerous than, but also larger and better in quality than those owned by their poorer neighbors. Canoes –*pirogues*– are a particularly important asset, both for fishing and for trading. From March to April poorer households may hire canoes (most often from businessmen outside the camp *not* from other households) for the annual migration; they generally pay the owner on their return. Motorized canoes –*pinasses*– are much less common; for example, they were owned by only two households in the camp visited.

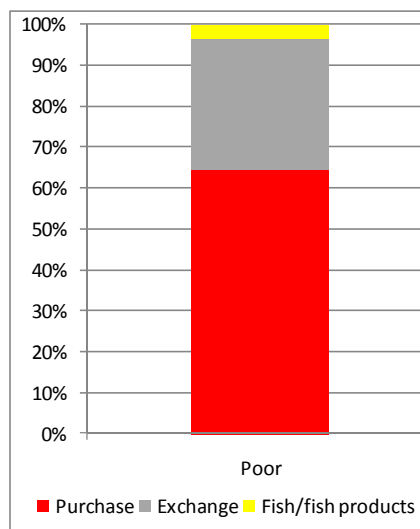
It is interesting that better-off Bozo households own a fairly large number of poultry, in contrast to better-off households among the majority population in the delta (zone 6) who own none. For these households, who have around 50 cattle and over 60 small ruminants, there is little reason to keep poultry, yet among the Bozo it is a relatively important asset. The better-off in this zone are also the only group to fatten sheep for sale.

<sup>15</sup> The names of the wealth groups in Bozo were: KoloKolona (very poor), Kondona (poor), Lafiana (middle) and Kirana (better-off).

## Sources of Food

It is noteworthy that, although the Bozo are professional fishermen, fish and fish products contribute very little to the annual food requirement of the poor. Even for the middle and better-off fish and fish products are estimated to account for only 8-10% of food needs. Consequently, households are overwhelmingly dependent on the market and exchange for their food. The poor, for example, receive around a third of their food by exchanging fish for cereals with rice cultivators in the zone.

Finally, gifts of fish from the middle and better-off to the poor and very poor are common during the main fishing season. These have already been included in the 'fish/fish products' category on the graph and are an important, if small, improvement to the diets of the poorest.



## Sources of Cash

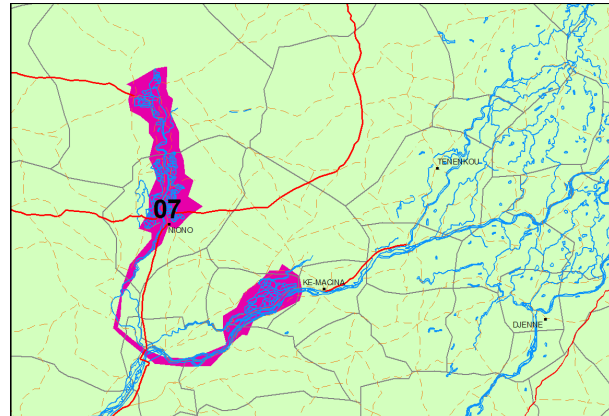
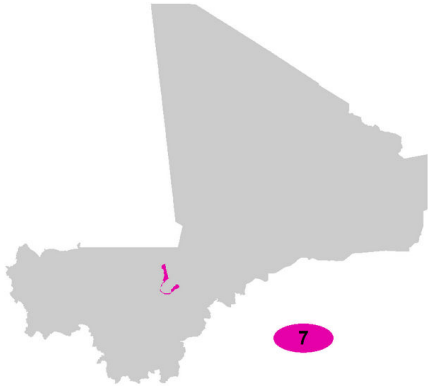
Middle and better-off households have three main sources of income, sale of fish and fish products (i.e. oil) is the most important, followed by petty trade and the sale of poultry and sheep (if they own them – the middle do not). Petty trade is undertaken primarily by women and concerns items such as fish and cereals ; households use canoes to trade and sometimes hire a horse and cart from the rice cultivators to trade cereal in towns such as Sevaré.

Poor and very poor households earn a lot of their cash from working for the middle and better-off. As well as fishing employment, such work involves brick-making, house repairs and re-roofing. They also earn money from the sale of fish and poultry (if they own them – the very poor do not), as well as from petty trade. For these households petty trade is on a much smaller scale than for the middle and better-off; for example, they often buy firewood to sell to other households within the camp. Poor households do not generally work in the fields of rice cultivators in the area; one reason for this is that the main rice harvest takes place at the busiest time of year for fishing and all able-bodied householders are occupied on the river.

# Mali Livelihood Profiles

## Zone: 7 ‘Office du Niger’ – Irrigated rice

### Zone Description



The ‘Office du Niger’ is a fully-irrigated agricultural zone in the region of Ségou that specialises in rice cultivation and market gardening. In terms of rice production this is the breadbasket of Mali, with high yields, sometimes surpassing seven tonnes per hectare. The ‘Office du Niger’ (ON) was created in 1932 as an autonomous public enterprise, making it one of the oldest areas of irrigated agriculture in West Africa. Water, from the Niger river, is supplied to fields by a series of dams and irrigation canals. In its original conception the ON was to be a major producer of both cotton and rice; cotton production, however, was abandoned in 1970 and rice cultivation increased in importance. Today, there is high pressure on the irrigated land, despite continued expansion thanks to new development. Households pay 67,000 CFA per hectare to the ON for the upkeep of the irrigation system; this is due annually in March, which can consequently be a difficult time of year for poorer households. Each year at the time of the rice harvest the zone receives seasonal migrants from Toura, San, Djenné, Tominian and elsewhere in zone 4; they are paid either in cash or in-kind. In the dry season, most households grow market gardening crops, although wealthier households can also afford the inputs to cultivate rice in the off-season. The principal garden crops are shallots and tomatoes, with cabbages and okra grown to a lesser extent. The main crops consumed are rice millet and sorghum, while the main crops sold are rice and vegetables.

Sedentary livestock rearing is a secondary characteristic of this zone. The main species are cattle, sheep and goats. Sheep are more numerous here than goats, partly because they require less space to roam. Some middle and better-off households earn money from the sale of fattened sheep; these animals are not part of the main herd, but are often tethered in the household’s compound and fed livestock feed. This is a new activity and is increasing in importance. Poultry are owned by all households and both poultry and sheep are typically the property of the women.

The densely populated nature of this zone can lead to conflicts over fields and to conflicts between livestock herders and farmers. Furthermore, there is a high incidence of disease, because the zone is inundated throughout the year (see hazards section below). Annual rainfall ranges from 300-500mm. Fertile clay and sandy loam soils predominate, while vegetation is sahelian. The zone’s other natural resources include tannin, baobab trees and African palmyra palm (*Borassus aethiopum*). Bozo fisherfolk are also present in this zone. In bad years they may migrate towards Manantali and Selingue in order to fish and could be gone for up to two years.<sup>16</sup>

<sup>16</sup> The Bozo may also practice agriculture, but as a secondary activity.

## Markets

Markets are generally accessible in all seasons, although during the rains some areas can be cut off. Households in this zone are highly dependent on the market, not just to buy staples, but to sell their cash crops – rice and vegetables. The following information is indicative only and should not be regarded as exhaustive.

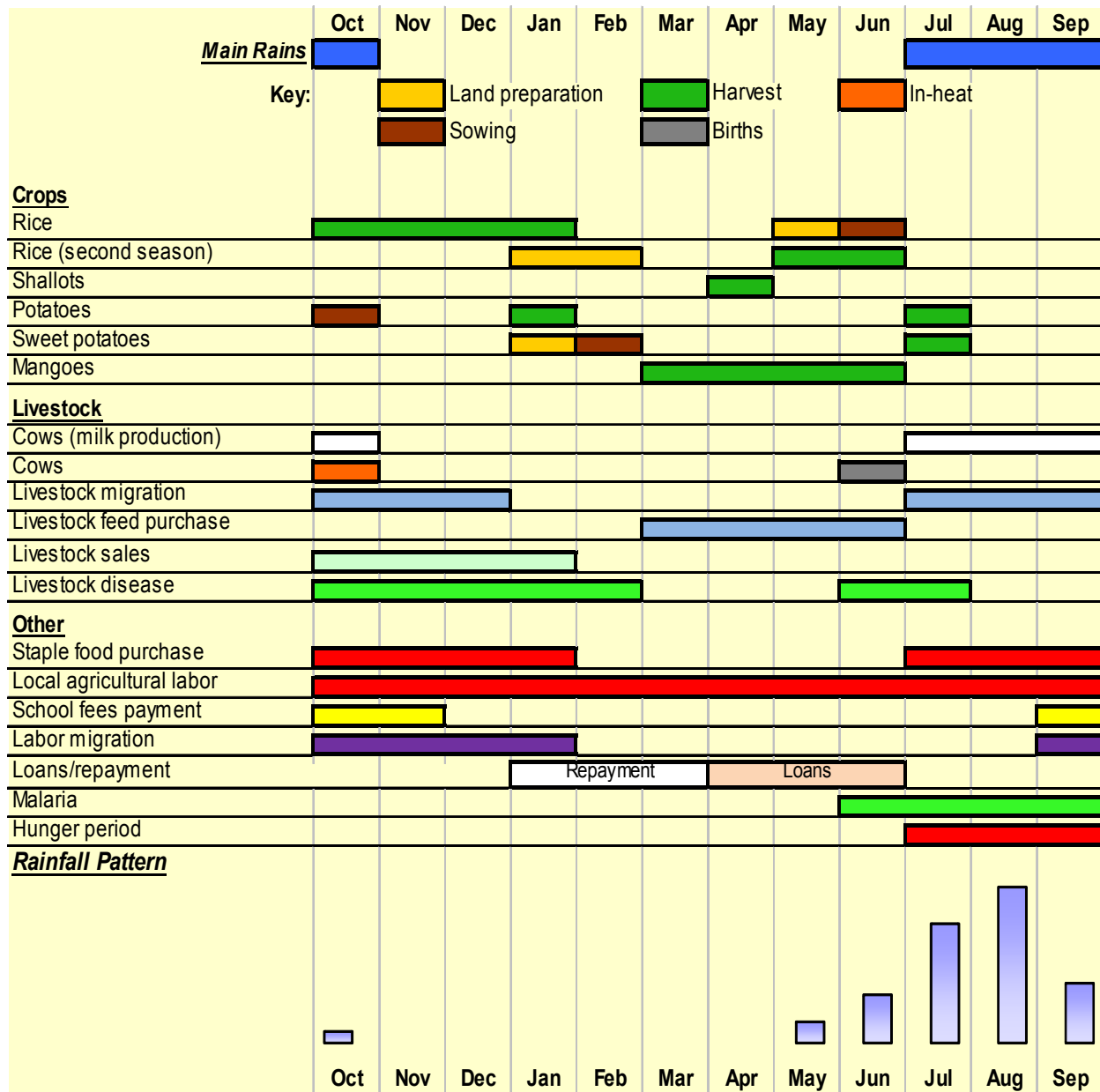
Crop	Trade Route
Rice	→throughout Mali (Sikasso, Koulikoro, Kayes, Tombouctou, Gao, Kidal)
Vegetables	→Segou→Bamako→Guinea, Senegal →Sikasso→Ivory Coast

Type of livestock exported	Trade Route
Cattle, sheep and goats	→Niono→Segou→Bamako, Ivory Coast, Sénégal → Dogofry

Main foods imported into the zone	Trade Route
Millet, sorghum	Sikasso→Koutiala→Segou→local markets Koutiala→Segou→local markets Macina→local markets
Groundnuts	Segou→local markets

Mangoes and citrus fruits are also imported into the zone from Sikasso and Segou.

## Seasonal Calendar







The seasonal calendar above shows the main agricultural and livestock related activities that make up the year in this zone. The hunger season from July to September is the hardest time of the year, especially for poorer households. Malaria incidence is also high at this time and can affect a household's ability to work (if an able-bodied household member becomes ill) as well as necessitating extra expenditure on medication at a difficult time of year. On the other hand, peak milk production is during these months, benefitting primarily middle and better-off households who own most livestock, but also benefitting the poor and very poor to a limited extent. As the pastures in the Sahel start to improve with the onset of the rains, livestock herds migrate to benefit from grazing outside the zone and to vacate the fields where rice is being grown; they return again sometime from October to December to take advantage of the rice stubble for fodder and the irrigation canals for water.

The main rice harvest starts in October, puts an end to the hunger period and marks the beginning of the new consumption year. Livestock sales peak from October to January when animals are in best condition, although sheep and goat sales may happen at any time of the year. It should be noted that it is primarily the middle and better-off who sell at these times; the poor and very poor are more likely to sell animals when they are in worse condition during the hunger period or from February to March before the annual fees are payable to the ON. The main rice harvest ends in January and is followed a few months later by the harvesting of market gardening crops, such as shallots.

Different livestock diseases are prevalent at different times of year; contagious bovine pleuropneumonia from October to December, pasteurellosis from January-February and June-July and anthrax from January-February. Handicrafts are sold all year round, while brick-making takes place during the dry season once market gardening has finished. The main fishing season is from December to February (as water levels are falling).

### Wealth Breakdown

		Wealth group characteristics			
		HH Size	Land area cultivated	Livestock holding	Other assets
Very Poor		4-6	0.25-0.75 ha	0-2 sheep, 8-12 poultry, 1 donkey	None
Poor		9-11	0.75-1.25 ha	2-4 sheep, 1-3 goats, 15-25 poultry, 1 donkey	1 plow, 1 cart
Middle		18-22	3-5 ha	5-7 cattle, 6-8 sheep, 4-6 goats, 15-25 poultry, 2 donkeys	2 plows, 1 cart
Better-Off		25-35	7-9 ha	25-35 cattle, 14-16 sheep, 9-11 goats, 20-30 poultry, 4 donkeys	3-4 plows, 2-3 carts, 1 motorized cultivator
% of households					
0%    20%    40%    60%					

Half of all households in this zone fall into the middle group and in terms of absolute population almost sixty percent belongs to this group. There are, of course, extremes of wealth and poverty in the zone, but it is interesting that the majority of people are of a similar economic status. In an agricultural zone the area of land cultivated and the ability to cultivate are important indicators of wealth. In this regard, middle and better-off households are able to cultivate more land *per capita* than their poorer neighbors. To do this they employ laborers from the poor and very poor groups. Wealthier households can also afford more fertilizer and own both plows and plow oxen; the better-off even own motorized cultivators. Typically, the middle have two oxen per household and the better-off have six; in the table above these have been included in the cattle herd numbers. In contrast, poor households do not own the full equipment needed for cultivation; most commonly, they own a plow, but no oxen.

Very poor households form a small group, making up just a few percent of the zone's population. They do not cultivate much land, have extremely limited access to fertilizers if they have it at all and have no equipment with which to cultivate their land. Furthermore, a high proportion of households in this group (around 10%) are female-headed. Informants put this down to several factors including the high incidence of HIV/AIDS and malaria as well as the relatively high level of debt among rice cultivators in

this zone; they explained that some men fled to escape their creditors, leaving their families behind.

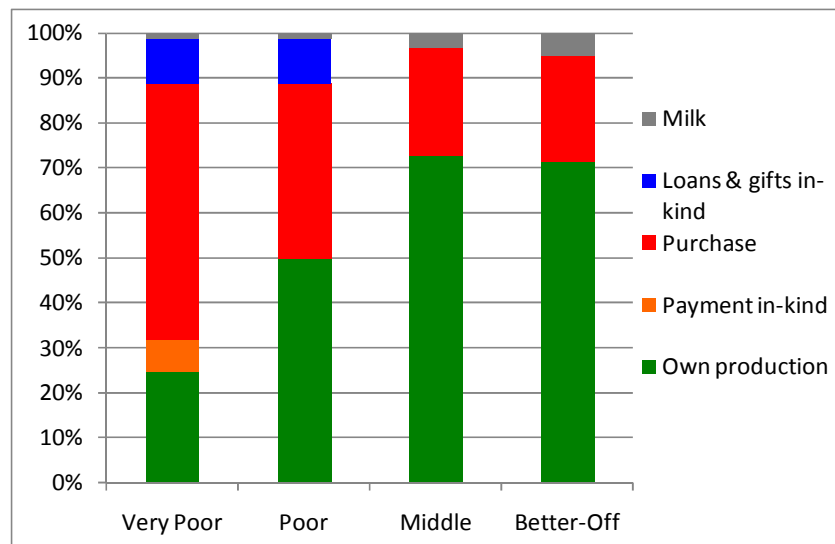
Livestock are less important in the 'Office du Niger' than in zone 4, which surrounds it and holdings are on a par with and sometimes even modest compared to the southern zones. However, livestock ownership still brings with it considerable economic security, not least the ability to sell animals to get through hard times. It is noticeable also that the livestock holdings of the better-off, who have around 30 cattle and 25 small ruminants, is much larger than that of the middle with around 6 cattle and 12 small ruminants. This suggests a significant difference in wealth between middle and better-off households.

Donkeys are useful as a method of transport to and from the fields and to pull carts to market. All groups own fishing equipment, but the majority of the population does not earn money from the sale of fish.

In the countryside as well as in the town, poorer people make sacrifices to send children to school, but the middle and better-off can and do invest more in absolute cash terms. Children from very poor and poor households are likely to receive only a basic primary education, sometimes little formal education at all. Children from middle and better-off households generally receive some secondary education and perhaps more.

### Sources of Food

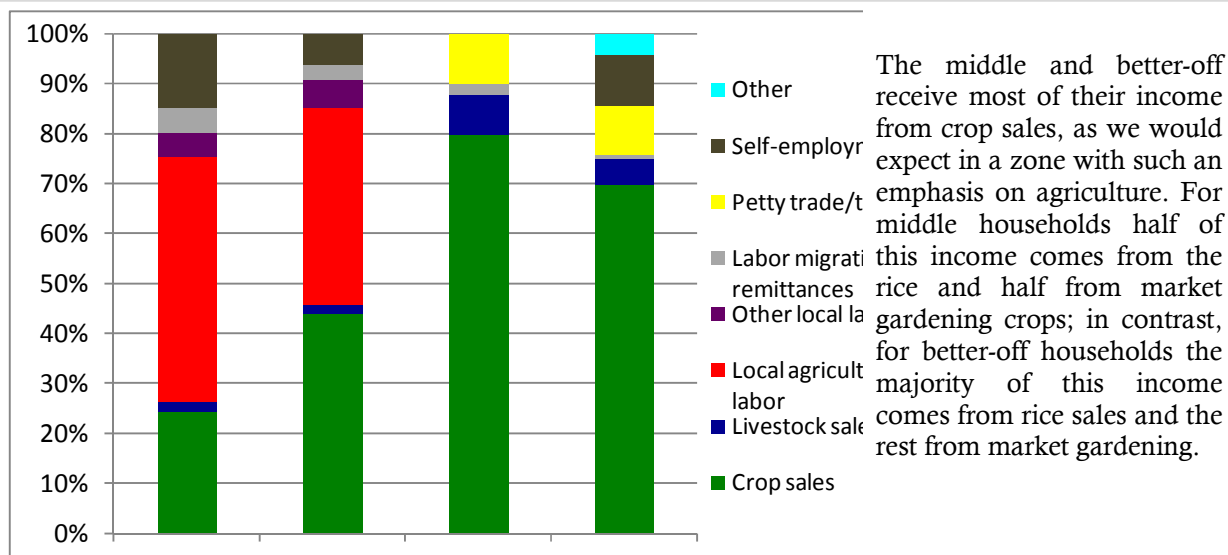
All households could potentially feed themselves from their own harvest for longer than is indicated by this graph. However, as can be seen from the cash graph below they choose to sell a significant proportion of their rice harvest and purchase the rest of their annual food requirement. Often they buy cheaper staples, such as millet.



We can see that the very poor consume their harvest for three months, the poor for six and the middle and better-off for nine. Notice, in particular the significant difference between the poor and the very poor. It is only the very poor who receive payment in-kind; this is usually for informally helping the middle and better-off with their harvest. The poor, however, prefer to be paid in cash.

The contribution of milk to food needs is important for the middle and better-off, although not as important as in the surrounding zone 4, where herd sizes are larger. The poor and very poor receive a small boost to their diet from milk, which is more significant here than for the very poor and poor in the southern zones.

## Sources of Cash



The middle and better-off receive most of their income from crop sales, as we would expect in a zone with such an emphasis on agriculture. For middle households half of this income comes from the rice and half from market gardening crops; in contrast, for better-off households the majority of this income comes from rice sales and the rest from market gardening.

This is partly because rice cultivation in the dry season is more expensive than market gardening and it is consequently the better-off group who are most able to do this. It is also partly because during the off-season the better-off rent out their land at 150,000 CFA per hectare to the other wealth groups; the income received from this has been included in the 'other' category. Indeed it is interesting that better-off households are less dependent on crop sales than middle households; their incomes are more diversified. Like the middle group they sell livestock and engage in trade, but they also run a transport service and might buy vehicles to provide a link to local towns and markets. The motorized cultivators, for example, are used for transport during the dry season. This income has been included in the self-employment category.

The poor and very poor make up a kind of laboring class, heavily dependent on the high demand for agricultural laborers in the zone. Both groups also receive some income from other local labor, which is principally brick-making. However, there are important differences between these two groups; the poor are able to depend to a much greater extent on their own production than the very poor. The primary income source for the poor is crop sales; for the very poor it is labor. It could be argued that this makes the poor part of the real farming population, whilst the small very poor group are not. This underlines the structure of poverty in the zone.

Self-employment for the poorest households involves, in equal measure, sale of firewood, hay and handicrafts. Labor migration makes a small contribution to the incomes of the very poor, poor and middle – much less than in zone 4. The better-off receive a very small portion of their cash from remittances.

## Hazards

Low precipitation and sporadic rains are a less serious problem in this zone than in many other zones this far north; this is because crops are irrigated. However, the presence of irrigation canals brings with it other problems, such as a high incidence of malaria and diarrhoea. The principal chronic and periodic hazards in the zone are listed below.

### **Chronic**

1. Crop pests and diseases such as boring caterpillar and viral infection of rice.
2. Malaria and diarrhoea.
3. Livestock diseases, for example botulism and foot and mouth disease. See also the seasonal calendar.

### **Periodic**

1. Grain-eating birds
2. Cholera
3. Conflict. The zone is densely populated and conflict between farmers and livestock herders who water animals in the irrigation canals that dissect the fields, is relatively common.

### **Response Strategies**

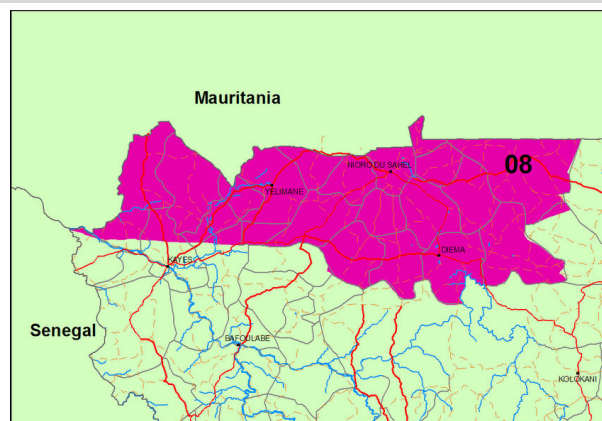
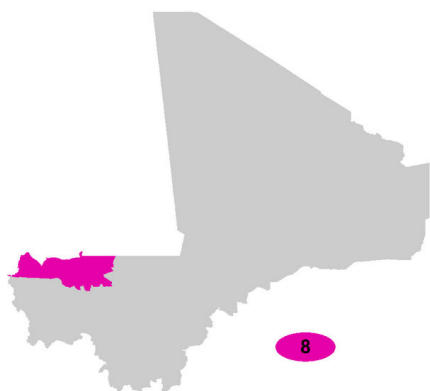
In a bad year, all households try to reduce their expenditure on non-essential items and maximize their income. However, households at different levels of wealth often pursue different strategies. Thus the **very poor and poor** try to bolster their income from brick-making and local agricultural labor. They also rely more heavily on gifts from the the wealthier two groups.

In contrast, the **middle and better-off** will increase their livestock sales and may take out formal credit (their asset levels make them a safer option for creditors than their poorer neighbors).

# Mali Livelihood Profiles

## Zone 8: North-west remittances, sorghum & transhumant livestock rearing

### Zone Description



This zone is situated in the north-west of Mali. It covers part of the regions of Kayes and Koulikoro, contains part of the Sénégal river valley and shares an international border with Mauritania and Sénégal. The most important characteristic of this zone is not agriculture or livestock related, in contrast to most other zones in the country. It is remittances that are the defining factor of livelihoods here. Migrants living outside Africa, often in France, provide a huge amount of support to their families living in this zone. It has strong ethnic element, since most migrants are Soninke; ethnic links with those already working abroad can make it easier for new migrants, because of the moral and practical support that will be available to them. It is worth noting that Soninke from Sénégal and Mauritania also migrate. Not only do migrants financially support their own households, but migrant associations in France and other destination countries fund development projects in the zone.<sup>17</sup> In general, the impact of remittances on this area is well-documented. Several studies point to the moral hazard associated with remittances and suggest that those households receiving money from abroad are likely to put less effort into cultivation in the village, in the knowledge that their relations abroad will support them.<sup>18</sup> During the fieldwork for this zone key informants independently corroborated this (see sources of food section below).

An annual rainfall of 400-500mm allows the rainfed cultivation of sorghum, which is the main staple. Some millet is also grown, but the emphasis on this is less than in zone 4 to the east. Most sorghum is grown on plains, but some is grown on the banks of rivers and lakes on the fertile land exposed when the water level recedes ('sorgho de decrue'). The main cash crops are calabash, rainfed okra and market gardening crops (primarily shallots and lettuces); however, none of these should be considered as typical of the zone as a whole. In those areas where it is common, market gardening is done by women's associations.

Sedentary livestock rearing is an important characteristic of the zone (see the wealth breakdown section for more on this). The main species are cattle, sheep and goats. The middle and better-off also earn money from the sale of fattened sheep and sometimes cattle; these animals are not part of the main herd,

<sup>17</sup> *Migration, Remittances and Development*, OECD (2005), p. 52.

<sup>18</sup> See Azam, J.P. and F. Gubert, 'Those in Kayes: The Impact of Remittances on Their Recipients in Africa', *Revue économique*, vol. 56, 6, November 2005, pp. 1331-1358.

but are often tethered in the household's compound and fed livestock feed. A middle household may fatten five sheep for sale per year, whilst a better-off household may fatten 5-10. Cattle are castrated between two to four years of age and are sold when they are around six years old in the run-up to major festivals. Poultry are owned by all households.

Finally, this zone is very hot with a low population density. Vegetation consists mostly of plains and shrubland. The zone's natural resources include the presence of *bas-fonds* –localized depressions that retain moisture into the dry season– as well as gum arabic, jujube, *Balanites aegyptiaca* and game. The three main soil types are sandy, sandy loam and silty clay; soils are fertile in 'bas-fonds' and on the edges of lakes, but not very fertile on the plains. There is also some fishing in the zone.

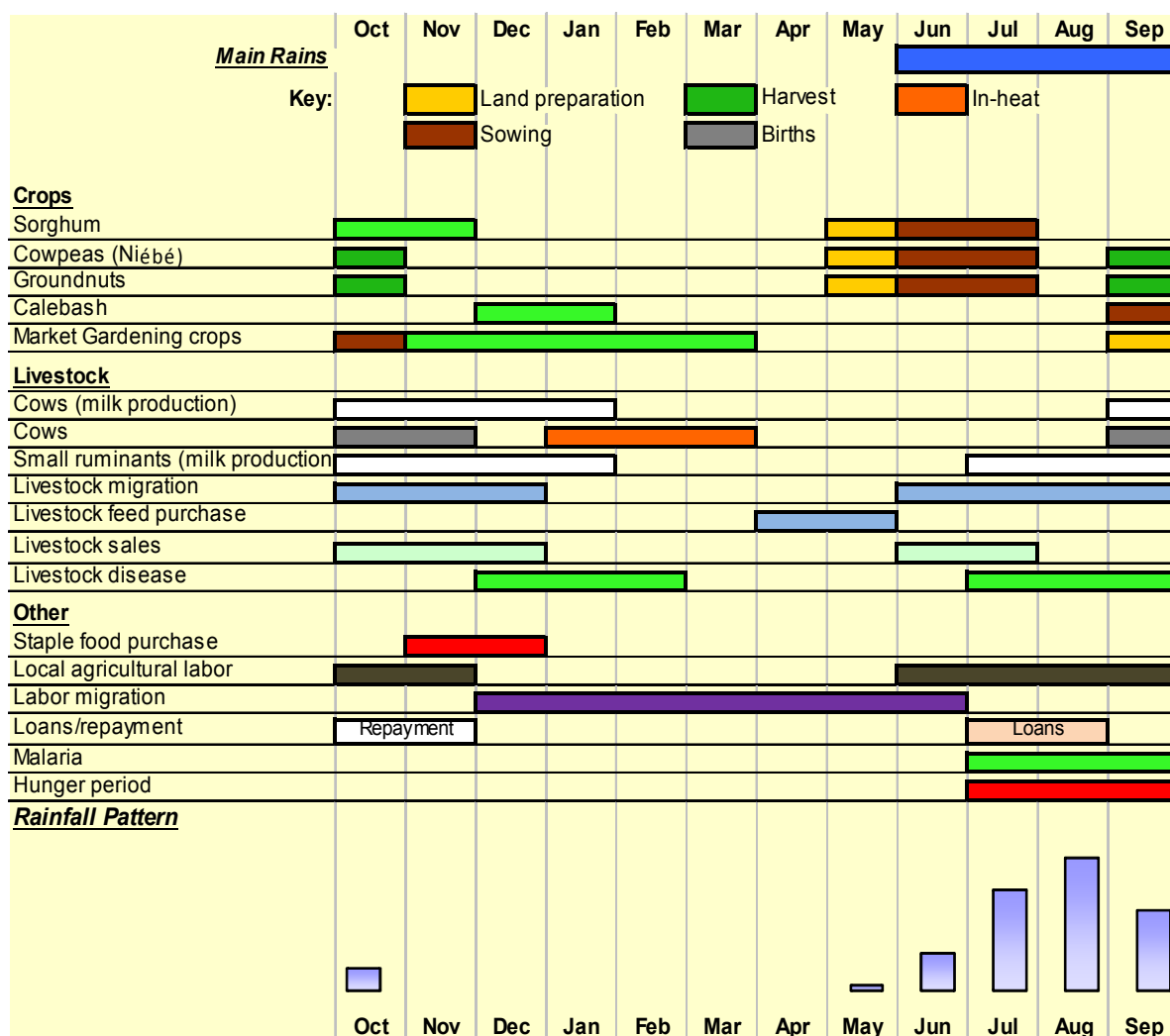
## Markets

There are few markets in this zone and households commonly buy their goods in community 'boutiques'. Access to markets is relatively poor; during the dry season roads can very sandy and in the wet season very muddy.

Type of livestock exported	Trade Route
Goats	local markets→Kati→Bamako
Sheep	local markets→Kayes/Kati→Bamako/Senegal
Cattle	local markets→Kayes/Kati→Bamako/Senegal

Main cereals imported into the zone	Trade Route
Rice	Sokolo/Bamako/Mauritania/Senegal→local markets (some imported rice also comes from the Office du Niger)
Maize	Sikasso/Bamako→Kayes→local markets
Groundnuts and cowpeas (niébé)	Kolokani/Bamako/Banamba→local markets

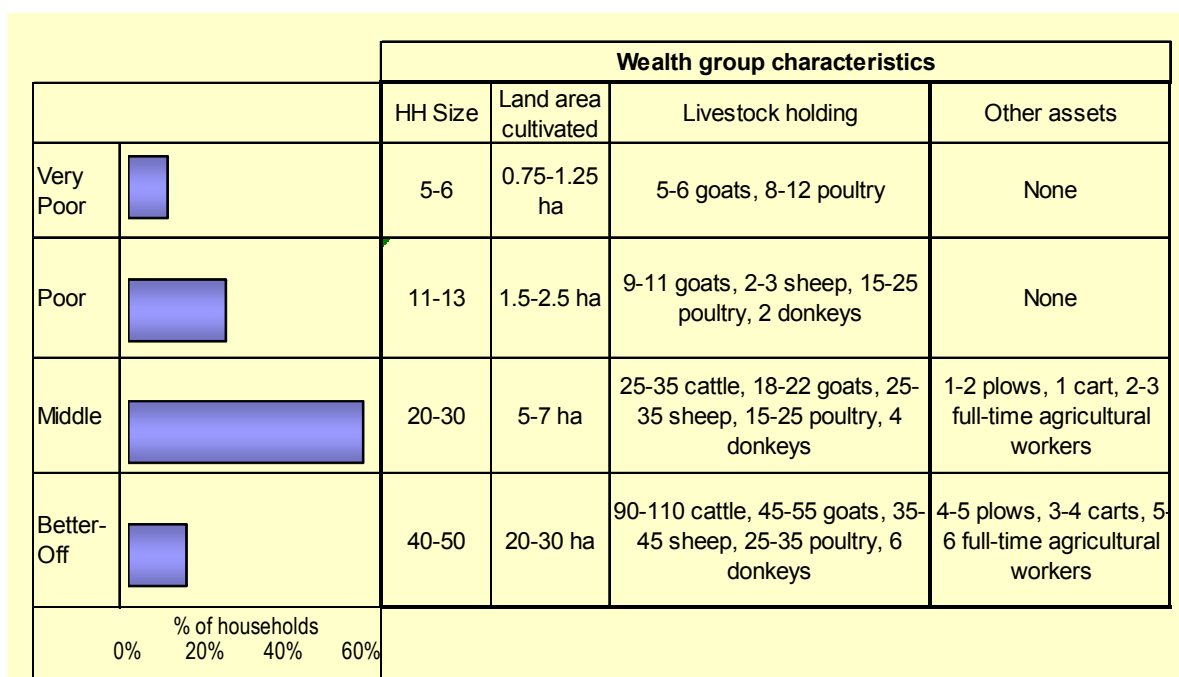
## Seasonal Calendar



The seasonal calendar above shows the main agricultural and livestock related activities that make up the year in this zone. The rainy season from June to September coincides with the hunger period and is the hardest time of year, particularly for the poorest households. This is also a time of hard physical activity as poor householders prepare, sow and weed their own fields, as well as working on the fields of the middle and better-off. Furthermore, malaria incidence is high and can affect the ability of able-bodied householders to work as well as necessitating extra expenditure on medication. Loans may be taken out at this time of year by the very poor and poor and reimbursed once the hunger season has ended. More positively, milk production peaks during the rains; this primarily benefits the middle and better-off who own most of the livestock, but very poor and poor also benefit to a limited extent.

The main sorghum harvest from October to November brings an end to the hunger period and marks the start of the new consumption year. Demand for agricultural labor is high during the harvest months. Once the harvest is over some able-bodied householders leave the village and migrate in search of work. Construction work is also available locally at this time.

## Wealth Breakdown



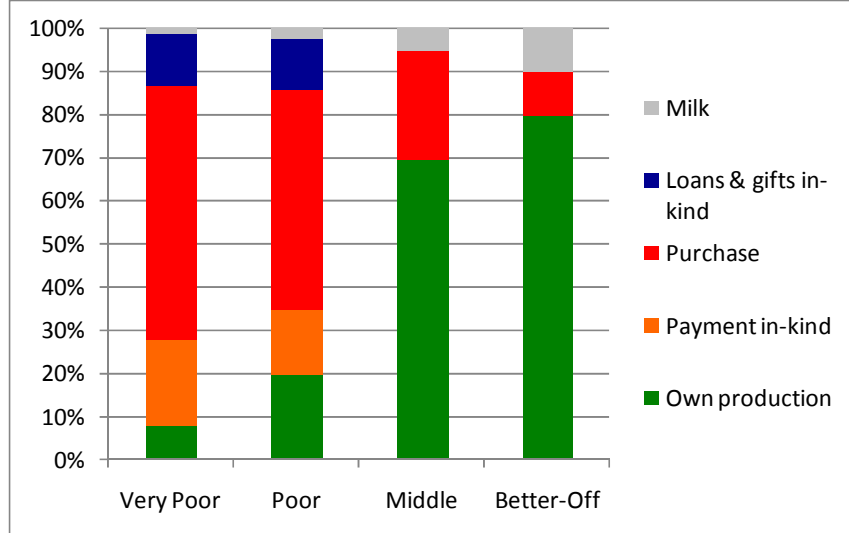
The majority of households in this zone fall into the middle group. Indeed, the extremely large household size of both the middle and better-off groups means that these groups make up over 85% of the total population. It is these two groups that typically receive remittances, which are the most important determinant of wealth in this zone. Remittances help to explain the sharp skewing of wealth towards the middle and better-off groups. This concentration of wealth is most evident in the large differences in livestock holding between wealth groups. Notice the gap in livestock ownership between the two upper and two lower groups; notice also the wide gap between the middle, who own 25-35 cattle and the better-off who own 90-110 cattle. Livestock, especially cattle, are an important form of savings and investment; the very large holding of the better-off thus reflects their very large income from remittances. In the same way the very poor and poor do not receive remittances and are unable to invest heavily in livestock.

The middle and better-off are able to cultivate more land *per capita* than their poorer neighbors. This is partly because they own plows and plow oxen to till the fields (oxen have been included in the table in the number of cattle owned). They also have more able-bodied household members and can afford to pay for labor; very often, middle and better-off households in the zone employ full-time agricultural laborers who live with the household and are paid on a monthly basis. Furthermore, some households own motorized water pumps for irrigation. In contrast, the poorest groups do not own such assets and may rent equipment, such as plows, in exchange for labor. Informants also stated that households in the very poor group are often the last to have settled in the zone and have access to little land that is often of poor quality.

In the countryside as well as in the town, poorer people make sacrifices to send children to school, but the middle and better-off can and do invest more in absolute cash terms. Children from very poor and poor households are likely to receive only a basic primary education, sometimes little formal education at all. Children from middle and better-off households generally receive some secondary education and perhaps more. There is also a gender bias in education; informants noted that girls rarely attend secondary school.

## Sources of Food

Very poor and poor households can live off their own harvest for one month and two and a half months respectively. For the majority of their food needs, they depend on the market and buy sorghum and millet- the cheapest staples. These groups also receive a significant proportion of their annual food requirement from payment in-kind for agricultural labor.

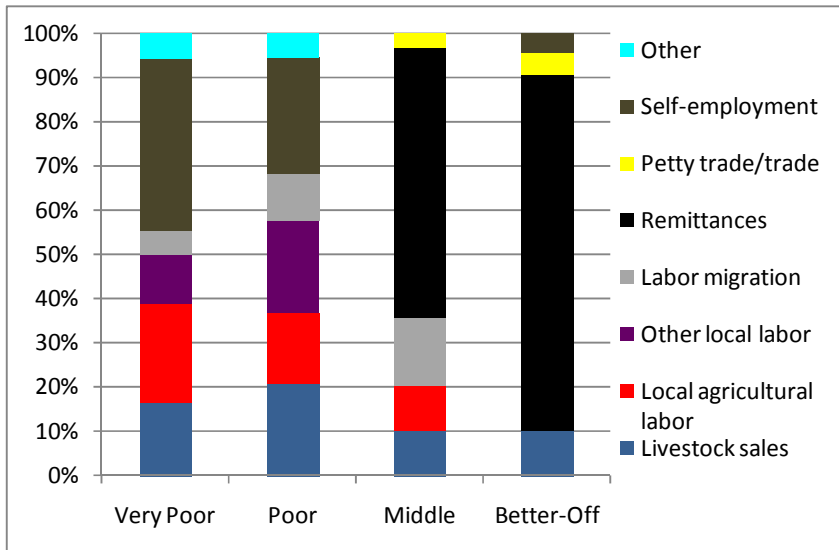


Sometimes food may be received as payment before the work has been carried out. Typically, payment in-kind is preferred to cash in this zone, possibly because access to markets is poor.

The middle and better-off are able to live off their own harvest for much longer than their poorer neighbours. In some parts of the zone, however, the contribution of own production to the annual food requirement of the wealthier households may be considerably lower (50% or less). Informants noted that there is less incentive to invest time and effort in cultivation when farmers know they can rely on remittances to make up any shortfall. (This type of moral hazard was briefly discussed in the zone description.) The middle and better off receive the remainder of their cereals from the market; they are able to purchase more expensive staples, such as rice. A better-off household may eat rice everyday whilst a middle household eats rice two to three times per week.

Milk contributes significantly to the food needs of the middle and better-off, as we would expect given their large herd sizes. The poor and the very poor consume considerably less milk, but this is still a boost to the quality of their diet. Although they own few livestock, the poorest households receive their milk through the system of zakat (a Muslim charitable obligation); thus the better-off give milk to the very poor every Monday and Friday during the months when milk is produced.

## Sources of Cash



The most striking thing about this graph is the huge contribution of remittances to the incomes of the middle and better-off.<sup>19</sup> Thus we have a slightly unusual picture, where the very poor and poor receive more of their income from own production (livestock sales) than the middle and better-off.

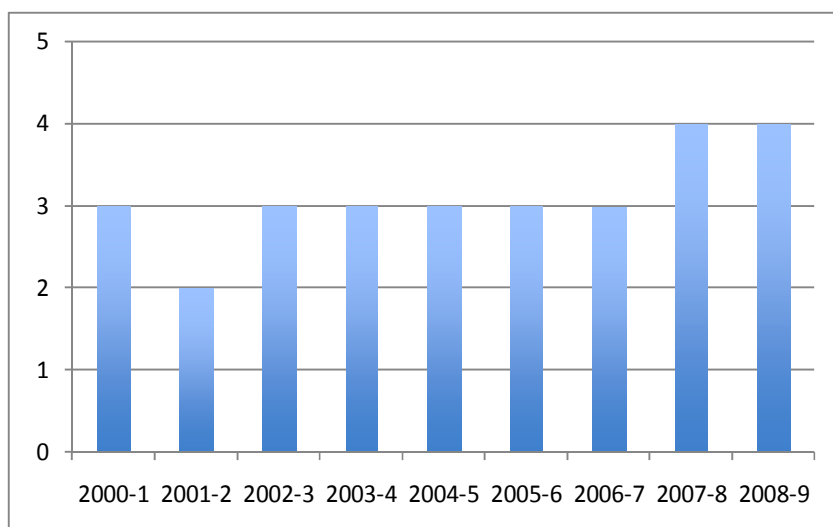
Although remittances do not directly benefit the poorest households, there is a trickle-down effect. The 'other' category is made up exclusively of gifts received from middle and better-off households; gifts of food are also given in significant quantities (see the sources of food graph above). Moreover, it is remittance money that the middle and better-off use to pay for labor and for the wood and hay sold by the poorer groups. (Wood and hay sales have been classified as self-employment).

The category 'labor migration' is distinct from remittances in that it is seasonal and shorter-term; it is also less distant with most migrants travelling to places inside Mali such as Kayes, Bamako, Nioro and to the goldmining sites in Kénédougou. Others go as far as Senegal, but all return to the zone in time for the following rains. Jobs include construction work and agricultural labor.

Middle households also receive income from agricultural labor. For two days per week (Monday and Friday) the heads of household in this group typically allow younger household members to work for themselves; the money they are paid for this labor is not shared among the rest of the household. It is this income that is counted in the 'local agricultural labor' category for the middle. Trade for the middle and better-off primarily includes goods such as cereals, tea and sugar. Better-off households also earn money from running a transport service, linking people to towns and markets; this income has been included in the self-employment category.

<sup>19</sup> Remittances primarily come from migrants who have left the zone for a long period of time. However, in the case of the better-off, informants noted that, in addition to this, a former migrant, who has returned permanently to Mali, may migrate once again for six months to a year and return with money and other materials. They called this 'migration temporaire'.

## Hazards



Informants were asked to classify each year in the last 6 according to its relative food security; 1 represented a very poor year for food security, 2 a poor year, 3 an acceptable year, 4 a good year and 5 an excellent year.

It is interesting that this histogram shows little variation and that informants identified only one poor year in the last nine. This may be explained by the importance of remittances in the zone; in years when the rains are poor or unevenly distributed relatives living abroad can increase their support in response to mitigate the impact of the hazard.

The following is a list of the principal hazards in the zone.

### Chronic

1. Bushfires (most common from October to April).
2. Grain-eating birds.
3. Malaria.
4. Damage caused by monkeys.
5. Livestock diseases. Foot rot was classified by informants as chronic. Foot and mouth disease and dermatosis were listed as periodic.

### Periodic

1. Lack of rains/ drought.
2. Locusts.
3. Floods (most common from August to September).

## **Response Strategies**

In a bad year all households try to reduce their expenditure on non-essential items and bolster their income. However, the range of responses open to a household depends on its assets and its wealth. A list of wealth group specific strategies is given below.

It should be noted that many of the following coping strategies are carried out between October and June; this is presumably because able-bodied household members are needed in the fields for agricultural work from the beginning of the rains.

### **Very Poor and Poor**

- They try to increase their income from agricultural labor.
- They try to increase their firewood sales.
- They try to increase brick-making and the sale of bricks.
- They increase seasonal migration (primarily towards urban centers).
- They depend more on gifts from the middle and better-off.
- They increase their livestock sales.
- They may carry out fishing related work, for example at Lake Magui.
- They extract rubble from quarries for construction.

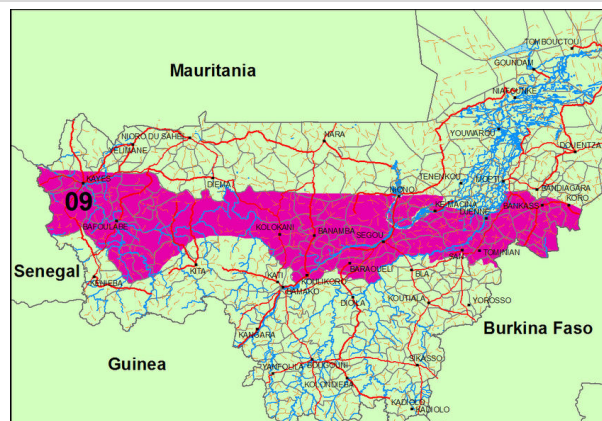
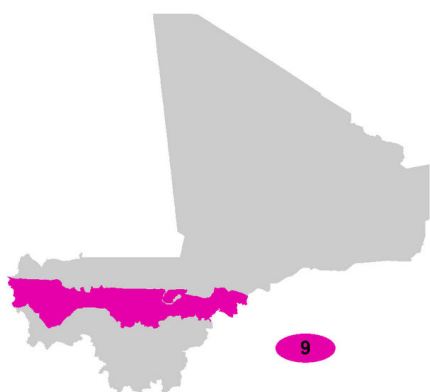
### **Middle and Better-Off**

- They increase their income from remittances (October). For example: in 2001-2 there was a drought and migrants abroad helped to buy food.
- They increase their livestock sales.
- They increase seasonal migration.
- They rely on stocks in cereal banks and cooperatives.

# Mali Livelihood Profiles

## Zone 9: West & central rainfed millet/sorghum

### Zone Description



This zone has a moderate population density and is primarily characterized by rainfed agriculture and sedentary livestock rearing. It dominates the north-south commercial axis of grain trade towards the deficit north and livestock trade and seasonal migration towards the south. The zone consists primarily of plains, hills and woodland and contains long stretches of the Niger and Sénégal rivers are in this zone. Moderately fertile clay soil predominates, while fertile loam soil is found along the rivers.

Annual precipitation ranges from 600-800mm and allows the cultivation of sorghum, millet, cowpeas (niébé) and maize, which are the main food crops. Sorghum is more dominant towards the south and millet towards the north. Groundnuts, watermelons, cotton and sesame are the main cash crops. Cotton is more common in the center and east of the zone and its production is managed by the *Compagnie Malienne du Développement des Textiles* (CMDT). (The center and the east are also more food secure than the western parts of the zone.) The cotton-growing areas receive seasonal migrants from Koutiala, the Dogon plateau and Burkina Faso from the beginning of the rains until the end of the cotton harvest. Small-scale market gardening is done by all but the better-off and is especially profitable in those areas close to towns. Fonio is also grown in some areas.

Sedentary livestock rearing is an activity of the majority of households. The main species are cattle, sheep and goats. The importance of livestock sales represents a kind of medium between the north and south of the country; that is, income from livestock is less important than in the majority of zones further north, but more important than those further south. As well as selling livestock middle and better-off households typically earn money from the sale of fattened sheep, goats and occasionally cattle; these animals are not part of the main herd, but are often tethered in the household's compound and fed livestock feed. Transhumants livestock herders from the north also pass through the zone with their animals.

Formal credit is available in the zone, but only to wealthier households; the very poor and poor may take credit informally from the middle and better-off. The zone's natural resources include forests, wild foods (shea nuts, néré, baobab fruits and leaves, zaban, tamarind, jujube fruits, and *Balanites aegyptiaca*) and *bas-fonds* –localized depressions that retain moisture into the dry season- which can be used for rice cultivation and arboriculture. There is also a goldmine at Sadiola. Other activities include trade and fishing.

## Markets

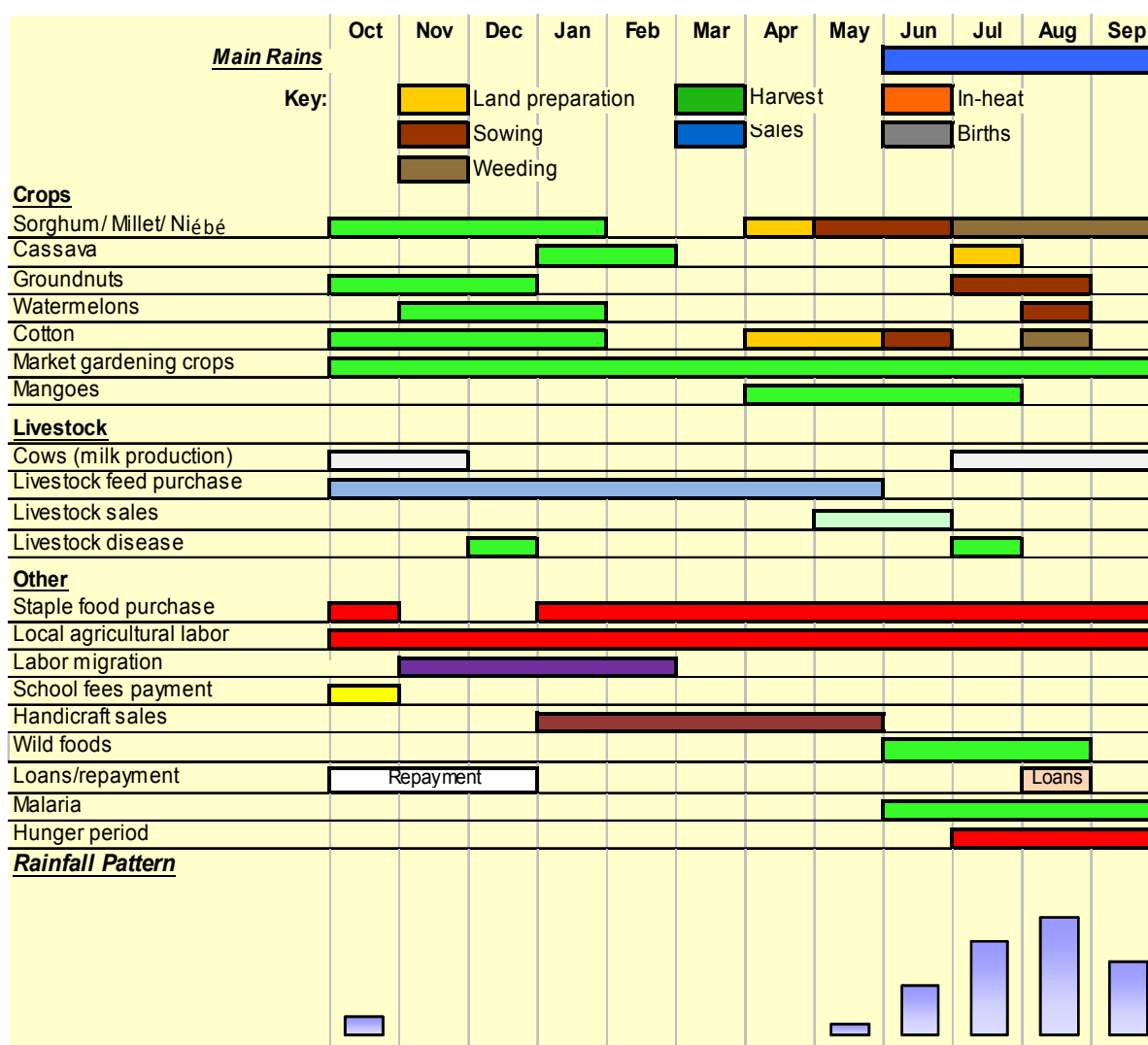
Markets access in this zone is generally good; however, it can become very difficult in some areas during the wet season, because of rivers and muddy roads. The trade routes below are indicative only (i.e. they are not exhaustive).

Crop	Trade Route
Groundnuts	local markets→Bamako local markets→Nara, Kayes→Mauritania local markets→Nioro→Gogui→Mauritania
Sorghum	local markets→Kayes, Yelimané, Nioro
Millet	local markets→Bamako→other regions in the country local markets→Mopti→Gao→Kidal
Sesame	→Bamako→Israel, Persian Gulf
Watermelons	→Bamako→Ivory Coast →Kayes →Nioro/Nara→Mauritania
Gardening vegetables	local markets→Kayes, Yelimané, Nioro local markets→Segou→Sikasso→Ivory Coast local markets→Bamako

Type of livestock exported	Trade Route
Goats	local markets→Bamako local markets→Kati→Guinea
Sheep	→Kati→Bamako →Kati→Sénégal local markets→Kayes→Sénégal
Cattle	→Kati→Bamako →Kati→Sénégal local markets→Kayes→Sénégal

Main cereals imported into the zone	Trade Route
Millet	Bamako→local markets (in the hunger season).
Sorghum & maize	Sikasso→Bamako→Kayes→local markets Ivory Coast→Sikasso→Bamako→Kayes→local markets Kéniéba/Kita→Kayes→local markets
Rice	Niono/Bamako→local markets Dakar→Kayes→local markets Office du Niger→local markets (sometimes imported from abroad through Bamako to local markets)
Pasta	Bamako, Mauritania, Sénégal→local markets





## Seasonal Calendar



The seasonal calendar above shows the principal activities that make up the agricultural year in zone 9. The rainy season from June to September coincides with the hunger period and is the hardest time of year for households, especially the poorest. In order to tide them over until the situation eases the poorest households may take out loans (often in-kind) with the middle and better-off. These are then repaid from October to December. June to September are months of hard physical activity for the poor and very poor who sow and weed their own fields as well as working on those of wealthier households. Malaria incidence is high during the rains and, if it affects able-bodied household members, can reduce the household's ability to work as well as necessitating extra expenditure on education when the household can ill-afford it. More positively, the shea nuts come into season and can be gathered and sold by the poor and very poor. This is also a time of peak milk production and the poorer groups benefit to some extent, even though most livestock is owned by the middle and better-off.

The main sorghum harvest from October to January brings an end to the hunger season and marks the beginning of the new consumption year. The main cash crops are also harvested around this time as well as the rainfed market gardening crops. Migrant laborers leave around November and return in February, although some stay longer and do not return until the beginning of the next rains. Following the agricultural labor of the main harvest, the poor and very poor carry out construction work as well as selling handicrafts.

## Wealth Breakdown

		Wealth Group Characteristics			
		HH Size	Land area cultivated	Livestock holding	Other assets
Very Poor		3-5	0.75-1.25 ha	0-2 goats, 15-25 poultry	None
Poor		7-9	2-4 ha	0-2 cattle, 3-5 goats, 1-3 sheep, 25-35 poultry, 1 donkey	None
Middle		11-13	7-9 ha	5-7 cattle, 9-11 goats, 9-11 sheep, 35-45 poultry, 2 donkeys	1 plow, 1 cart, 1 seeding machine
Better-Off		18-22	13-17 ha	25-35 cattle, 25-35 goats, 25-35 sheep, 55-65 poultry, 4 donkeys	2 plows, 2 carts, 1 seeding machine, 1 motorized cultivator, 2 full time agricultural laborers
% of households 0%    20%    40%    60%					

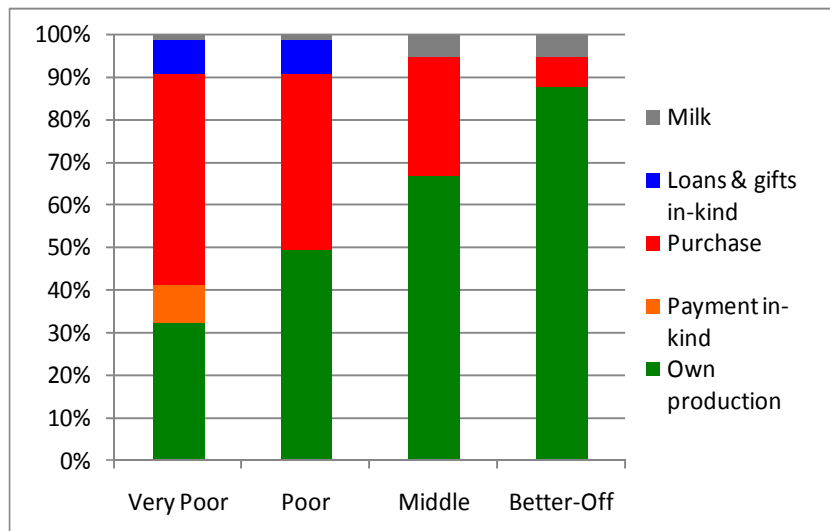
The majority of households (55%) fall into the poorer two groups. In terms of absolute population, however, the majority of people are part of the middle group. Notably, the better-off make up only a small proportion of households. In an agricultural zone the ability to cultivate and the land area cultivated are important indicators of wealth. In *per capita* terms the middle and better-off cultivate considerably more than their poorer neighbors (the better-off three times more than the very poor). The wealthier groups can afford agricultural inputs and own plows, plow oxen (included in the cattle herd numbers) and agricultural machinery, such as seeding machines. Furthermore, they have greater access to labor; not only do the middle and better-off have more able-bodied household members, they are also able to employ laborers from the poor and very poor groups. In contrast the poor and very poor have no productive assets.

The gap between the middle and better-off is also striking. The better-off own a wider variety of agricultural equipment and can afford to pay two full-time agricultural laborers. This is unlike casual labor in that the workers sleep and eat with the households and are paid at the end of each month. In addition, better off households are able to devote substantially more of their land to cash crop production than the middle. However, the most obvious difference between these groups is in livestock holding. Although not as significant here as in some of the northern zones, livestock ownership is nonetheless an important indicator of wealth. Thus the fact that a better-off household own around six times more cattle than a middle household is indicative of a large gap in wealth. Carts, along with the donkeys to pull them allow the middle and better-off to take their produce to market as well as to engage in petty trade.

In the countryside as well as in the town, poorer people make sacrifices to send children to school, but the middle and better-off can and do invest more in absolute cash terms. Children from very poor and poor households are likely to receive only a basic primary education, sometimes little formal education at all. Children from middle and better-off households generally receive some secondary education and perhaps more.

## Sources of Food

Own production is the main source of food for all groups other than the very poor, who can consume their harvest for around four months. For the majority (50%) of their food needs the very poor depend on the market. In addition, they receive some cereals from the middle and better-off as payment in-kind for agricultural work (sometimes before this work has been undertaken).

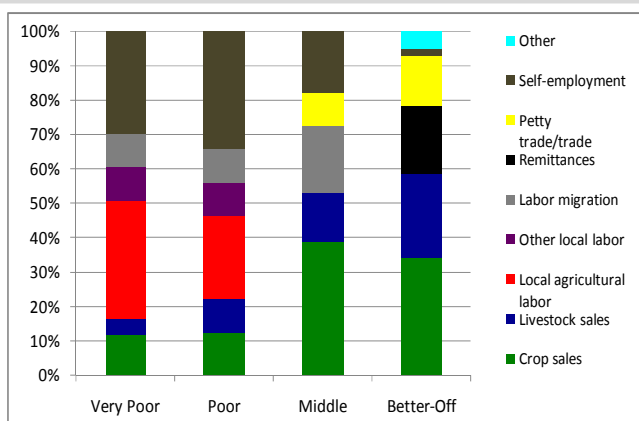


Both the very poor and poor receive food loans from wealthier households (see seasonal calendar).

Middle and better-off households could depend to a greater extent on their own harvest, but they invest in cash crops and buy some of their cereals on the market. However, the better-off try to ensure that the vast majority of their annual food requirement comes from their own production and significant rice purchase by the better-off indicates a poor harvest.

Milk contributes less to food needs in this zone than it does in many of the northern zones, but is still more significant than many in the southern zones. The very poor and poor receive only around 1% of their food requirement from milk, compared to around 5% for the middle and better-off. Wealthier households also pay livestock herders partly in milk.

## Sources of Cash



Crop sales are the most important source of income for the middle and better-off as we would expect in an agricultural zone. Both groups sell cash crops, but it is only the better-off who produce cereals in sufficient quantities to be able to sell them. Preferring to invest money in cash crops and other sources of income (e.g. trade), this group is the only group not to grow market gardening crops.

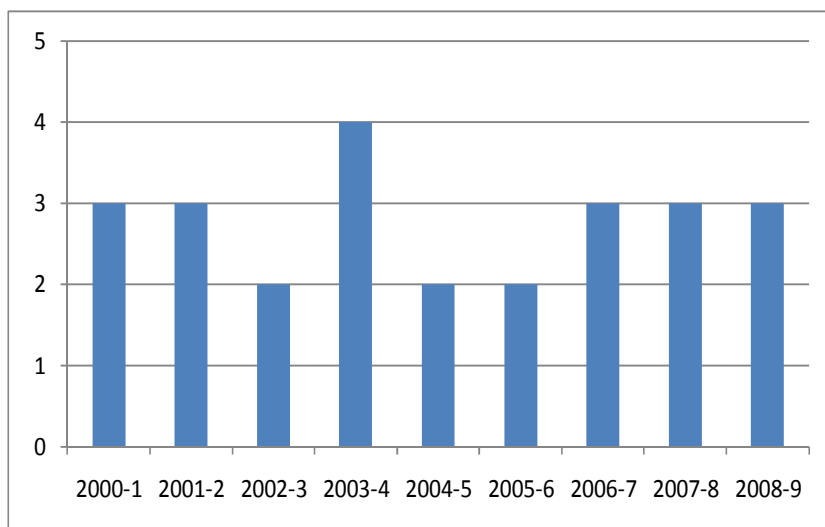
Aside from crop sales it should be noted that a large proportion of the wealthier groups' income comes from other sources, such as livestock sales (which includes the sale or purposefully fattened livestock –

embouche- mentioned in the zone description).

The very poor and poor also sell crops (primarily gardening crops and a small amount of groundnuts). Households in these groups market garden both during the rainy and dry seasons (often gardening in a different area during the dry season, because of the need to irrigate). However, the poorest households are primarily dependent on labor and self-employment. Self-employment involves several different activities. Both the poor and very poor sell handicrafts, such as mats, wooden chairs, stools, beds and basic agricultural equipment. The very poor, poor and middle all sell wood (firewood and/or timber) and charcoal, although this is on a much larger scale for the middle who may export wood outside the zone (e.g. to Bamako, Kati and Mauritania). Finally, households in all wealth groups earn money from the sale of wild foods and other wild products.

Remittances are typically received only by the better-off, since it is only these households that can afford to send able-bodied people both elsewhere in Africa (e.g. Libya and Gabon) and to Europe (e.g. Spain and France). The very poor, poor and middle groups receive income from labor migration, which is distinct from remittances in that it is seasonal, shorter-term and less profitable; it is also less distant with migrants travelling inside Mali to places such as Yelimané, Nioro, Niono, Koutiala, Bamako and gold-mining sites in the south of the country. Others go as far as Sénégal and Mauritania, but all return to the zone in time for the rains. A typical very poor household has one labor migrant, compared to two in a poor household and four in a middle household. Jobs include construction work and agricultural labor. The 'other' category includes cash received by the better-off for renting out agricultural equipment to households in other wealth groups.

## Hazards



Differences between years in terms of food security are important, since it is the good and acceptable years that make up for the bad ones.

Informants were asked to classify each year in the last 6 according to its relative food security; 1 represented a very poor year for food security, 2 a poor year, 3 an acceptable year, 4 a good year and 5 an excellent year.

The following is a list of the principal hazards in the zone.

### Chronic

1. Livestock theft.
2. Malaria.
3. Lack of pasture.

### **Periodic**

1. Insufficient rains/ Drought. This is one of the major hazards of cultivation in the Sahel and figures large in determining whether a year is good or bad in terms of food security. The three bad years above were classified as such, because the rains were poor in those years.

2. Caterpillars.

3. Livestock diseases such as anthrax.

4. Newcastle disease (during the cold season).

5. Floods (most common from July to September).

6. Bushfires (most common from January to April).

### **Response Strategies**

In a bad year all households try to reduce their expenditure on non-essential items and bolster their income. However, the range of responses open to a household depends on its assets and its wealth. A list of wealth group specific strategies is given below.

#### **Very Poor and Poor**

- Those migrating for labor stay away for longer, leaving in October and not returning until May-June.
- They try to increase their income from agricultural labor (April to August) and other types of casual labor (throughout the year).
- They try to increase their handicraft sales.
- They try to increase their wood and charcoal sales.
- In those villages in the zone where there is no market gardening, able-bodied householders in these groups may travel to other villages to market garden.

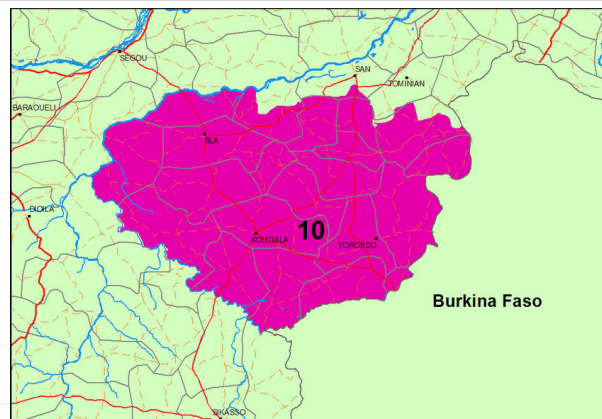
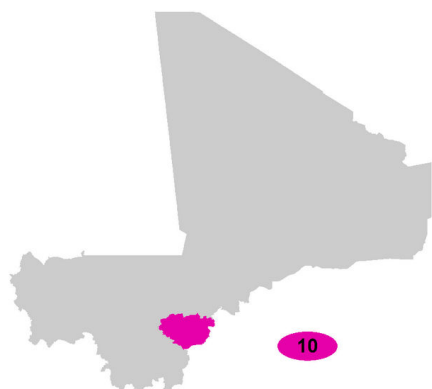
#### **Middle and Better-Off**

- They increase their livestock sales (primarily from October-December).
- They sow groundnuts earlier in the year (May-June), so that they can harvest and sell them earlier than normal.
- The middle increase their income from labor migration.
- The better-off increase their income from remittances (primarily from October to December).

# Mali Livelihood Profiles

## Zone 10: Sorghum, millet & cotton<sup>20</sup>

### Zone Description



This food surplus zone in the south-east of the country is strategically located for marketing north to Mopti, west to Segou and Bamako and east into Burkina Faso. The vegetation is sudano-sahelian and soils are sandy-clay and generally fertile. It is a highly productive zone, characterized by rainfed agriculture and sedentary livestock rearing. Annual precipitation ranges from 700-1100mm and allows the cultivation of sorghum, millet and maize, which are the main food crops. Cotton is the primary cash crop, despite a decline in production over recent years, due to lower yields, falling prices, the high cost of inputs and late payment of cotton-cultivators by the state buyer, the *Compagnie Malienne du Développement des Textiles* (CMDT). Access to the expensive inputs needed for cotton cultivation is provided by a system of agricultural credit provided by the *Banque Nationale de Développement Agricole* (BNDA). Loans taken out by peasant organisations are then automatically deducted from the final cotton payment made by the CMDT. Other crops sold include groundnuts and market gardening crops (for example onions and tomatoes) as well as cereals and cowpeas (niébé).

Sedentary livestock rearing is an activity of the majority of households; it is the Peulh present in the zone who own the largest herds. The main species are cattle, sheep and goats. Animals migrate short distances each year within the region of Sikasso and generally remain in or close to the zone throughout the year. Every year, during the dry season, the zone play host to and acts as a corridor for transhumant livestock and their herders, coming from areas in the north of the country in search of pasture. There are a high number of plow oxen in the zone, used for the cultivation of cotton and cereals. Some households (mostly the middle and better-off) also earn money from the sale of fattened sheep; these animals are not part of the main herd, but are often tethered in the household's compound and fed livestock feed. Poultry and eggs are also important.

Other characteristics include petty trade and the availability of wild food, such as shea nuts (*Butyrospermum parkii*) and néré (*Parkia sp.*). These are collected and sold by all households in the zone.

<sup>20</sup> The information contained in this profile comes primarily from fieldwork conducted by FEWSNET from November to December 2009. However, some of the information also comes from an HEA baseline study conducted by Save the Children UK in November 2009 in Yorosso, which lies within this zone. This study has helped to inform all sections of this profile, in particular the zone description, seasonal calendar and hazards sections.

Shea may be sold both in nut and butter form. Cotton is also processed– there are five factories for the ginning of cotton and three oil-seed crushing companies, including Huicoma and FAMAB. There are some family-owned oil presses. Finally, there are a small number of traditional beehives in the zone, generally found among the poorest households.

## Markets

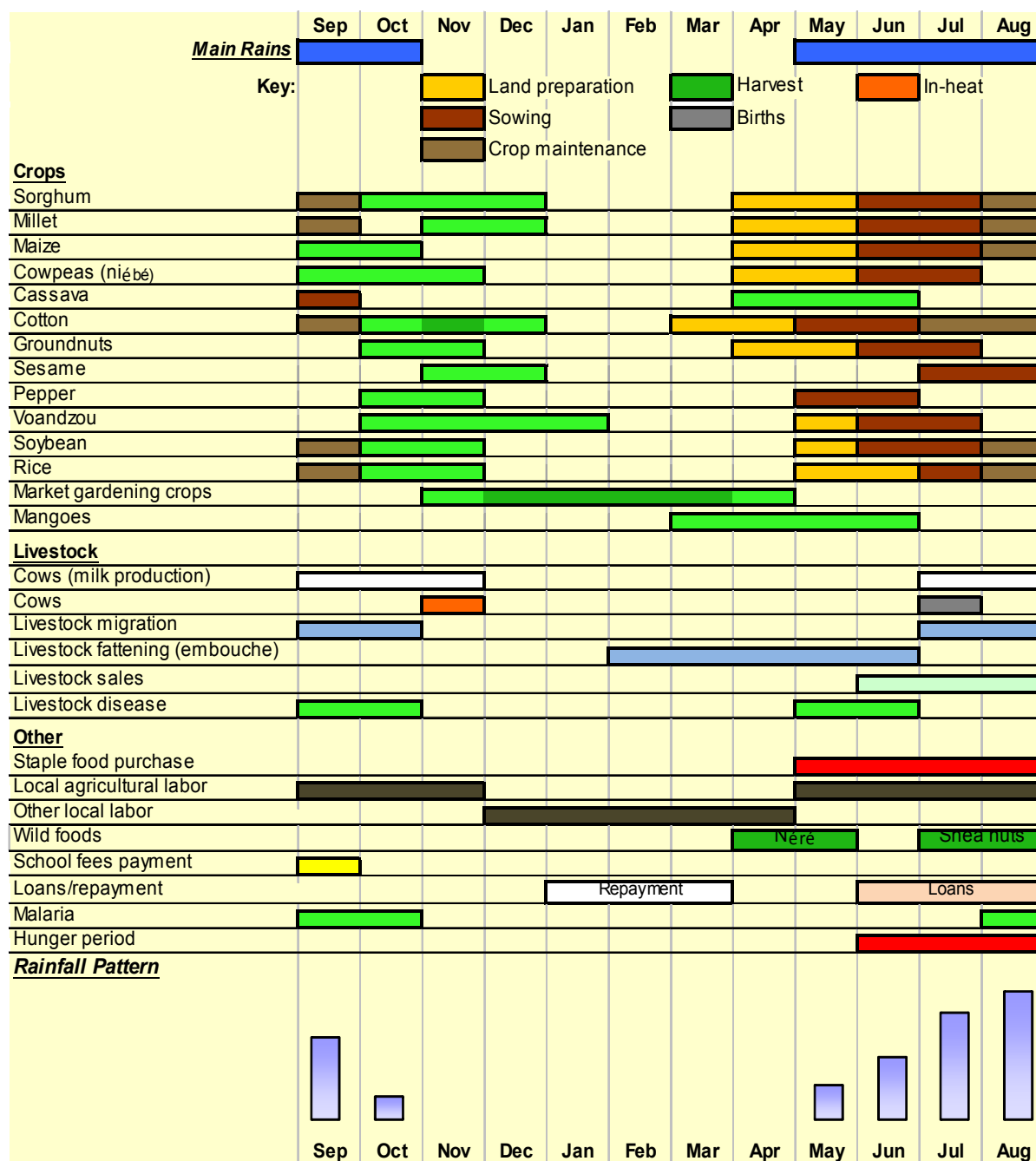
Market access is generally good, but can become difficult in some areas during the rainy season. Cereals are exported to the north of Mali, to large towns and abroad, for example to Burkina Faso. The peak period for cereal sales is after the harvest from November to March. Cotton is sold in villages to the CMDT, who collect the crop in lorries and pay at a later date. Markets typically happen on a weekly basis. Cereals imported to the zone come from Burkina Faso and are sold by local traders.

The trade routes below are indicative only (i.e. they are not exhaustive).

Crop	Trade Route
Millet	→Bamako, Segou, Sikasso, Gao, Niger, Burkina Faso
Sorghum	→Bamako, Sikasso, Segou, Gao, Kidal, Niger, Burkina Faso
Maize	→Bamako, Segou, Kayes

Type of livestock exported	Trade Route
Cattle/ Sheep/ Goats	→Ivory Coast, Burkina Faso, Senegal
Poultry	Bamako

## Seasonal Calendar<sup>21</sup>



The seasonal calendar above shows the main activities that make up the agricultural year in this zone. The hardest time of year for households, particularly the poorest, is the hunger period from June to August, which falls during the rains. Grain from the previous year's harvest has long been used up and the very poor and poor purchase staple foods on the markets, where prices are high at this time. These months involve hard physical activity as the poorest households work not only on their own fields, but are also employed as laborers on those of the middle and better-off. The preparation of fields for sowing involves picking the stalks and clearing the fields as well as transporting and spreading organic manure. Following this the crop is sown; exact timing depends on the rains. From June to August poorer

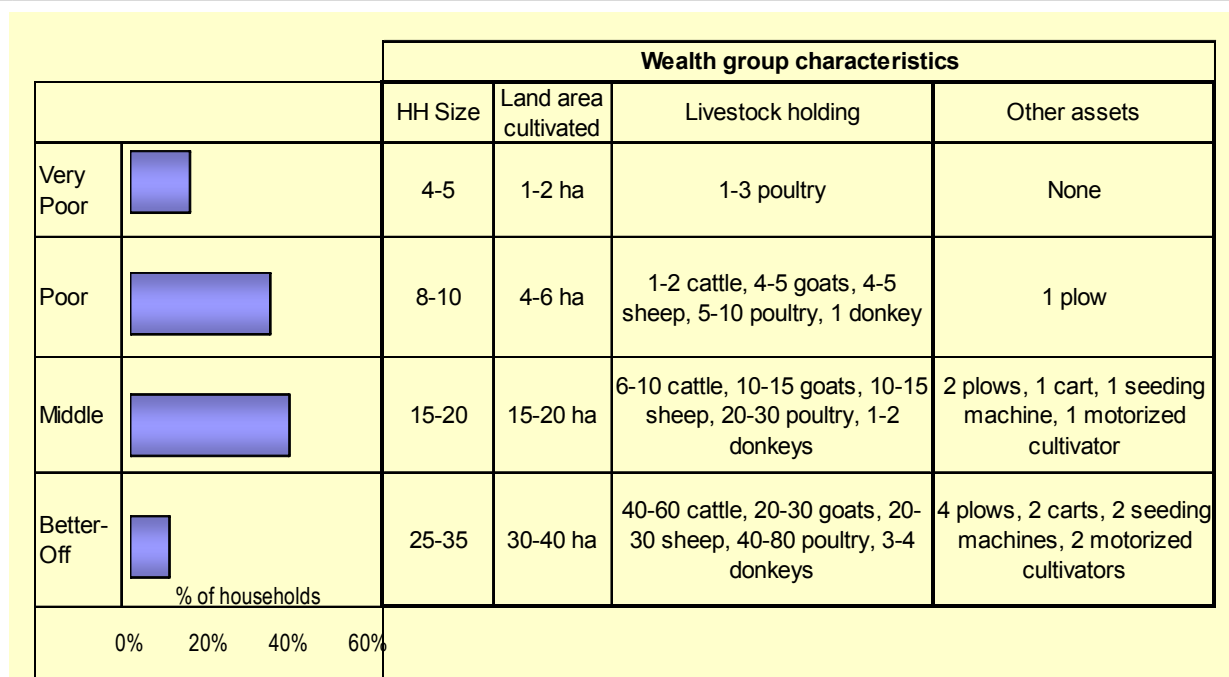
<sup>21</sup> Cassava is grown on an 18 month cycle.

households take out loans in-cash or in-kind to tide them over until the main harvest; these are then repaid several months later from around January to March. The hunger period is also an important time for livestock sales and those who own them sell small ruminants, particularly goats. The cash from these allows the middle and better-off to buy inputs for the forthcoming agricultural season and allows the poor to buy staple foods. This is not an option open to the very poor, who do not own livestock (see wealth breakdown below). Malaria incidence is high, particularly towards the end of the hunger period; if an able-bodied household member is affected, this can reduce the household's ability to work as well as necessitating extra expenditure on medication at a difficult time. On the positive side, wild foods are available, which are gathered and sold by women.

The hunger season ends with the consumption of green maize and cowpeas (niébé) in September. The main harvest of sorghum then begins from October. This is also a time of hard physical work, but is less difficult than the preceding months, because households can consume their own harvests. The peak period for cereal sales is in the months following the harvest, when the price is at its lowest. The poor and very poor are forced to sell at this time to meet their immediate needs. Wealthier households are able to buy cereals after the harvest when they are inexpensive, to stock and resell them later in the year when prices have risen.

Labor migration is not typical of the zone, although some young people do move to urban centers (e.g. to Kouiala) after the harvest in search of work. Boys will tend to do portering (they transport goods), while girls do domestic work. They return in time for the rains.

### Wealth Breakdown



The wealth breakdown above shows that half of all households fall into the middle and better-off categories. In terms of absolute population, however, over seventy percent of people are part of the two wealthier groups, because of their larger household size. In population terms the very poor make up a small group living in extreme poverty.

In a zone dominated by agricultural production, the land area cultivated by a particular household is a crucial indicator of wealth. In this regard it is significant that the better-off cultivate around three and a

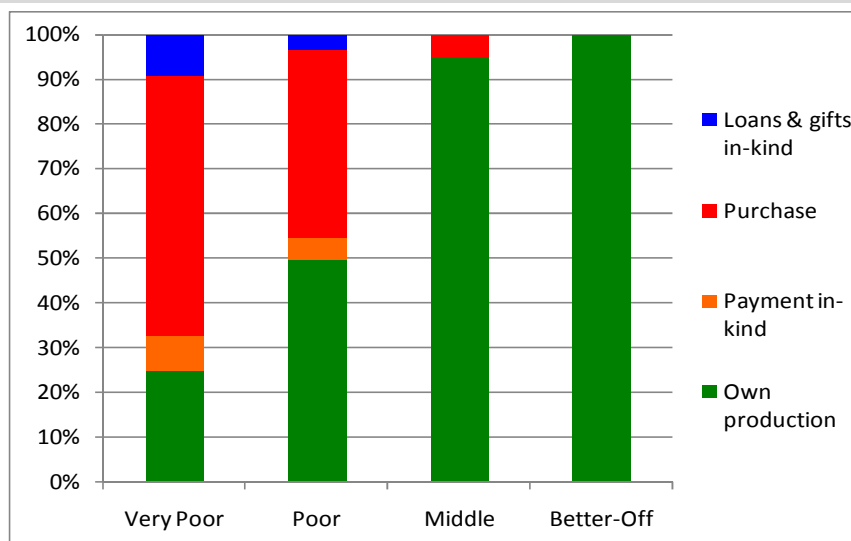
half times more land *per capita* than the very poor. The ability to do this depends on several factors. The household must have access to enough labor to cultivate the land; middle and better-off households have more able-bodied household members than their poorer neighbors as well as the means to employ people from other households as laborers. The household must also have access to agricultural equipment, such as plows, plow oxen and seeding machines. Plow oxen are particularly important in cotton-producing areas, since it is a very labor-intensive crop. These are owned in differing numbers by the poor (1-2), middle (4-6) and better-off (8-10): - these figures have been included above in the numbers of cattle owned. The very poor borrow their oxen from other households; this is often free, but they must wait until the other household has finished before being able to cultivate their own fields. Finally, wealthier households are able to devote proportionally more of their land to cash crops than the very poor and poor and also have better access to agricultural inputs such as fertilizer. Given their significant advantages it is not surprising that the middle and better-off not only cultivate more land than the poorest households, they also receive higher yields per hectare.

Livestock is an important indicator/determinant of wealth; note, for example, the large difference in cattle holding between the middle and the better-off. However, livestock sales are much less significant in this zone than in many of the zones further north. Here livestock are sold to meet specific needs, such as to pay for health expenses, school fees and festivals or to buy agricultural inputs. Without savings in livestock households may have to take out loans to meet specific needs. Informants affirmed that the high amount of loans and credit taken has contributed to poverty in the zone.

In the countryside as well as in the town, poorer people make sacrifices to send children to school, but the middle and better-off can and do invest more in absolute cash terms. Children from very poor and poor households are likely to receive only a basic primary education, sometimes little formal education at all. Children from middle and better-off households generally receive some secondary education and perhaps more

## Sources of Food

The middle and better-off are essentially self-sufficient in terms of cereals. The better-off do not typically buy cereals at all, since they cultivate enough both in terms of quantity and variety on their own fields. The middle group could live entirely from their own production, if they consumed it all.

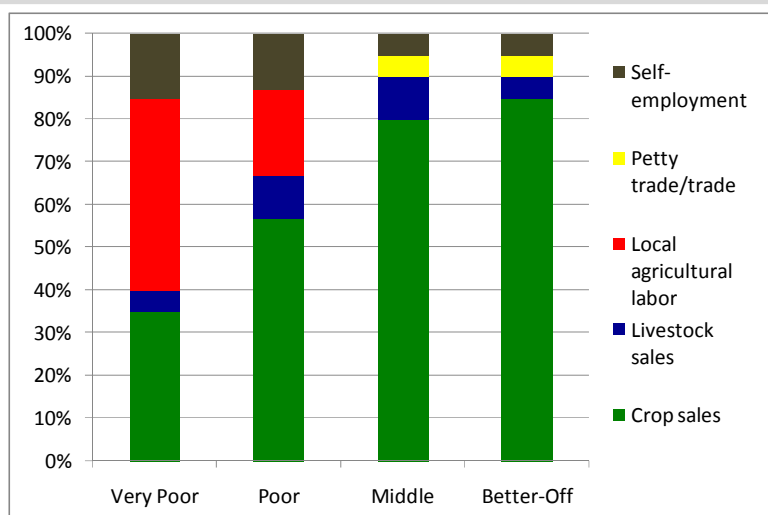


However they sell much of their harvest for cash income and then purchase a small amount on the market. In contrast, the poor and very poor are much more market dependent, most notably the very poor, who consume their harvest for only three months and rely on the market for most of the rest. The situation of the poor is more secure, since their own harvest lasts for twice as long (six months). Both of these groups cultivate enough food to depend on their own crop for longer; however, they are forced to sell some of their cereals directly after the harvest to pay off their debts and to meet their immediate needs (for example payment of school fees). The poorest households also receive some of their annual

food requirement from payment in-kind, which is received for working on the fields of the middle and better-off.

Milk does not contribute to the annual food requirement of households in any of the four groups. It is given to sherpherds as part of their payment for herding livestock. The consumption of milk is not part of households' dietary habits in this zone.

### Sources of Cash

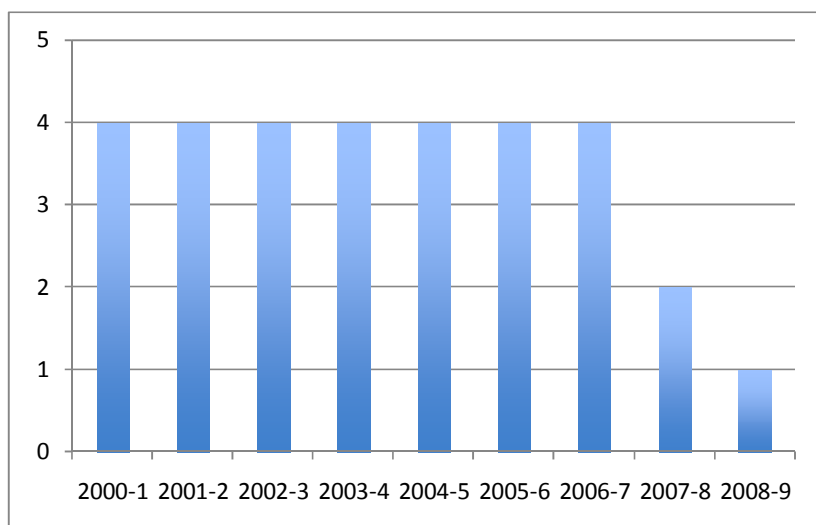


Crop sales are the most important source of income for all groups, apart from the very poor. Cash crop sales contribute the most to this category (around half of total income for the middle and better-off). For the wealthier groups this is primarily cotton; the price of this is fixed in advance, making it easier for households to plan in terms of their family budgets. For the poorest households other cash crops, such as groundnuts are considerably more important than cotton. Cereal sales make up the second biggest portion of this category, followed by market gardening crops. The very poor depend on labor for the majority of their income (almost half). As discussed in the wealth breakdown section above households in this group have very limited means to invest in agricultural production. They are the only wealth group, for example, that does not typically grow market gardening crops. (In this zone income from other local labor, such as construction, has been included in the 'local agricultural labor category').

Livestock sales contribute to the cash income of all wealth groups. The very poor are only able to sell poultry, while the poor may be able to sell a small number of goats and/or sheep. However, because of their small herd sizes the poor are often forced to sell when animals are younger and therefore receive less per animal sold than the middle and better-off. Sheep prices are high around the festival of Tabaski.

Self-employment involves activities such as wild food and wild product sales (e.g. shea nuts, shea butter and néré. This is a primarily female activity and is done by women in all households Petty trade includes buying and re-selling cereals and products such as soap, tea and matches.

## Hazards



Informants were asked to classify each year in the last 9 according to its relative food security; 1 represented a very poor year for food security, 2 a poor year, 3 an acceptable year, 4 a good year and 5 an excellent year. It is interesting that apart from the most recent two all years have been good in terms of food security. There is much less climatic risk here than further north.

The following is a list of the principal hazards in the zone. Given the importance of cotton, anything that might negatively affect the cotton crop is detrimental not only to the middle and better-off, but also to the very poor and poor who are employed on their fields.

### Crops

1. Crop pests and insects (e.g. termites, caterpillars, grasshoppers, Spanish fly.).
2. Late payment of farmers for cotton by CMDT. This is a big problem.
3. Late provision of agricultural inputs (seed and fertilizers) by government services. Poor quality of agricultural inputs (e.g. seed).
4. Rain shortages/ breaks in precipitation at critical times. Poor rains sometimes mean farmers have to resow their crops.
5. Grain-eating birds.
6. Water-points becoming dry earlier than normal, which negatively affects market gardening.
7. Striga.
8. Straying animals destroying crops (for example from the herds owned by the Peulh) and wild animals.

### Livestock

1. Lack of pasture from April to May.
2. Livestock diseases (e.g. anthrax, pasteurellosis, trypanosomiasis and foot-and-mouth) as well as avian diseases.

3. High price of inputs, for example livestock feed and veterinary products.
4. Insufficient number of water points.
5. Theft of small ruminants.

#### **Other**

1. Malaria (September-November)
2. Sureties for cotton. (Peasant associations are accountable for the agricultural credit granted to each farmer and must therefore reimburse the credit of insolvent producers; this cost is borne by all the producers belonging to the association).

#### **Response Strategies**

In a bad year all households try to reduce their expenditure on non-essential items and bolster their income. However, the range of responses open to a household depends on its assets and its wealth as well as on the timing of the hazard. A list of wealth group specific strategies is given below.

##### **Very Poor and Poor**

- They try to increase their income from agricultural labor and domestic work (April to August and December to April).
- They migrate in search of labor, something which they do not do in a normal year (e.g. to Niono or Ivory Coast).
- They seek work as livestock herders.
- They may rely on cereals banks or take out credit and loans.

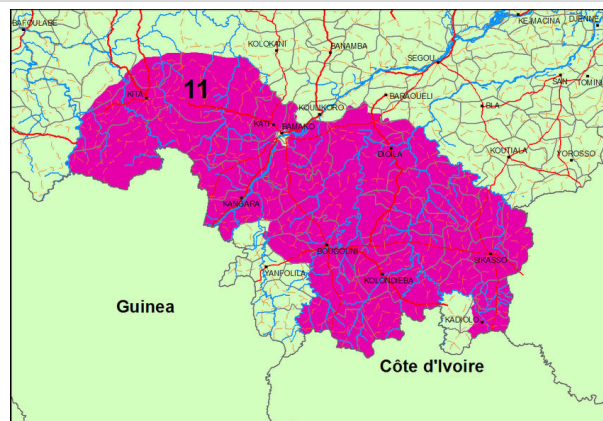
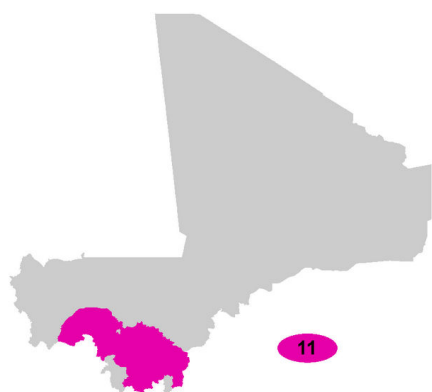
##### **Middle and Better-Off**

- They increase cereal sales and may sell stocks (April to May).
- They increase livestock sales, particularly sheep and goats (April to June).
- They may rely on cereals banks or take out credit and loans.

# Mali Livelihood Profiles

## Zone 11: South maize, cotton & fruits<sup>22</sup>

### Zone Description



This highly productive zone is situated in the south of the country and shares an international border with Guinea, Ivory Coast and Burkina Faso. It is principally characterized by rainfed agriculture, sedentary livestock rearing and the exploitation of natural resources in the area's forests. The vegetation is sudano-sahelian and the topography is mostly flat. There are both permanent and seasonal rivers; the soils are clay, loam and lateritic and are generally fertile. The capital city, Bamako, lies in this zone and has a distinct urban economy. The demand of the city has also created a peri-urban zone, where the most important source of income is the sale of gardening crops. Fieldwork was not carried out for either of these zones.

Annual precipitation ranges from 1000-1300mm and allows the cultivation of maize, sorghum and millet which are the main food crops. Maize is more common to the south of the zone, sorghum and millet to the north. Cotton is the main cash crop, despite a decline in production over recent years, due to lower yields, falling prices, the high cost of inputs and late payment of cotton-cultivators by the state buyer, the *Compagnie Malienne du Développement des Textiles* (CMDT). Cotton cultivation is mostly restricted to middle and better-off households. The second most important crop sold is maize, which is becoming increasingly important, as cotton cultivation declines. The zone supplies maize to the rest of the country and; maize is often intercropped with cowpeas (niébé). Other cash crops include groundnuts, sweet potatoes, sesame, sweet peas as well as gardening crops, such as potatoes, lettuce, tomatoes, okra and cabbage). Market gardening is not typical for the very poor and is most profitable around towns like Sikasso. Market gardening cooperatives may help to finance this activity among the poor. Rice (increasingly important for the upper three groups), fonio and yam are also cultivated (although yam is not typically sold- it is yam from Ivory Coast that is on the market). Fruit (mangoes, oranges, bananas, papayas, cashew nuts etc.) are sold and marketed around the country and abroad). The range of crops in the zone is very diverse, more so, for example than in zone 10).

Sedentary livestock rearing is an activity of the majority of households. The main species are cattle, sheep and goats. There is some seasonal livestock migration of cattle to Ivory Coast, Burkina Faso and Ghana.

<sup>22</sup> The information contained in this profile comes primarily from fieldwork conducted by FEWSNET from November to December 2009. However, some of the information also comes from an HEA baseline study conducted by Save the Children UK in November 2009 in Yorosso, which lies within this zone. This study has helped to inform all sections of this profile.

The zone is also a seasonal grazing area for livestock from zones further north in the country.

Wild foods are available in the forests and are sold by women; these are principally shea nuts (*Butyrospermum parkii*) and néré (*Parkia sp.*). Wood and, to a lesser extent, honey are also sold. Arboriculture (the cultivation of trees) is increasing. Zone 11 traditionally had strong links with the Ivory Coast, which was a destination for labor migrants; since the 2002 crisis in Ivory Coast, migration there has decreased. Instead, there is some migration to towns and goldmining sites.

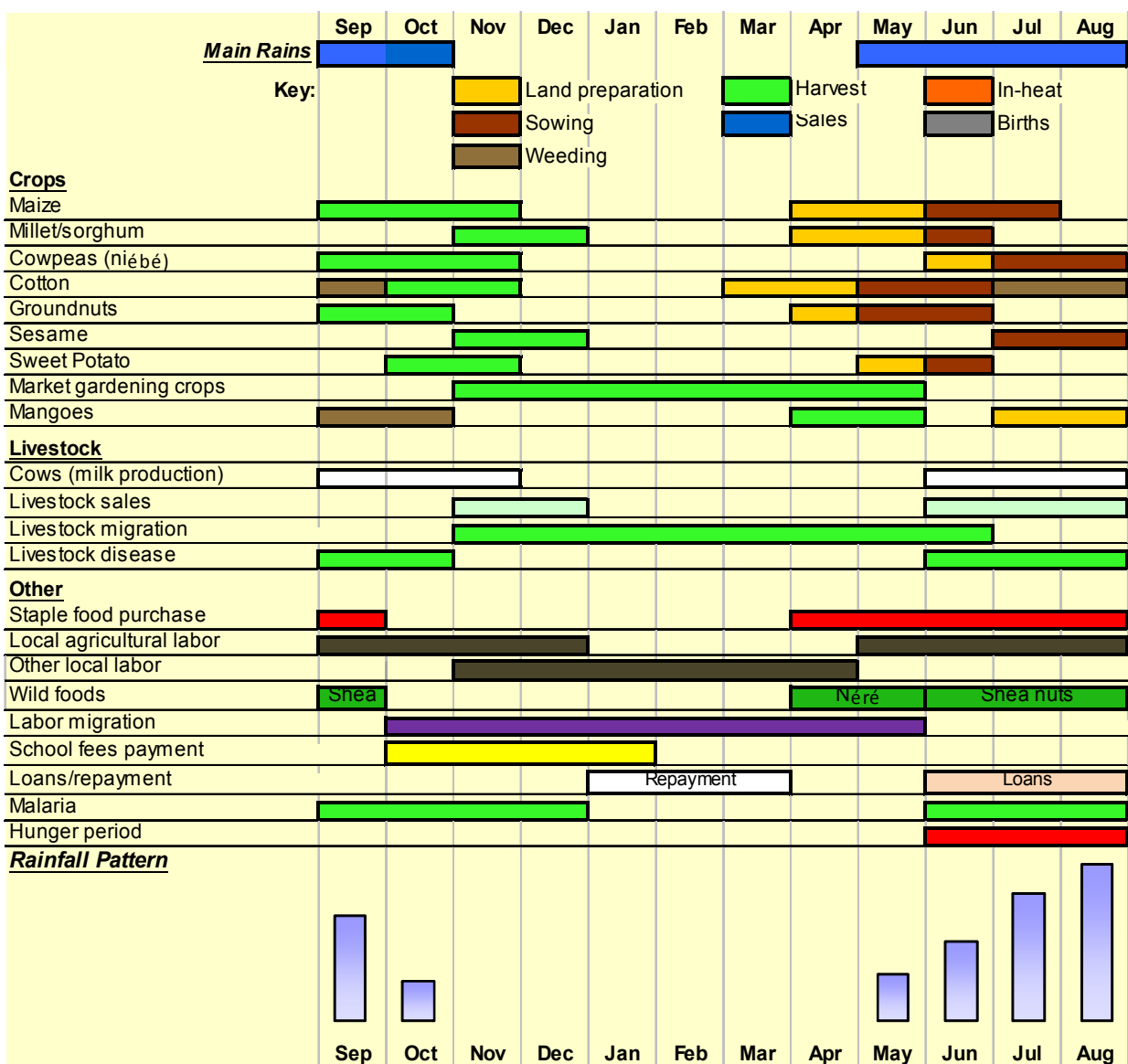
### Markets

Market access is generally good, apart from during the rains when areas can become isolated and lorries easily get bogged down on the roads. Roads may also be blocked by seasonal rivers. Cotton is sold in villages to the CMDT, who collect the crop in lorries and pay at a later date. If maize is imported into the zone it comes from the Ivory Coast. The trade routes below are indicative only (i.e. they are not exhaustive).

Crop	Trade Route
Maize	→Bamako→ Kayes→Senegal
Tubers (potatoes, yam etc.)	local markets→Bamako, Segou, Gao, Kidal,Senegal
Fruits (mango, orange etc.)	local markets→Bamako, Mopti, Segou, Gao, Kidal, Tombouctou, Burkina Faso,Senegal, Ivory Coast, Europe

Type of livestock exported	Trade Route
Cattle	Ivory Coast,Senegal
Sheep, Goats	Sénégal
Poultry	Bamako

## Seasonal Calendar

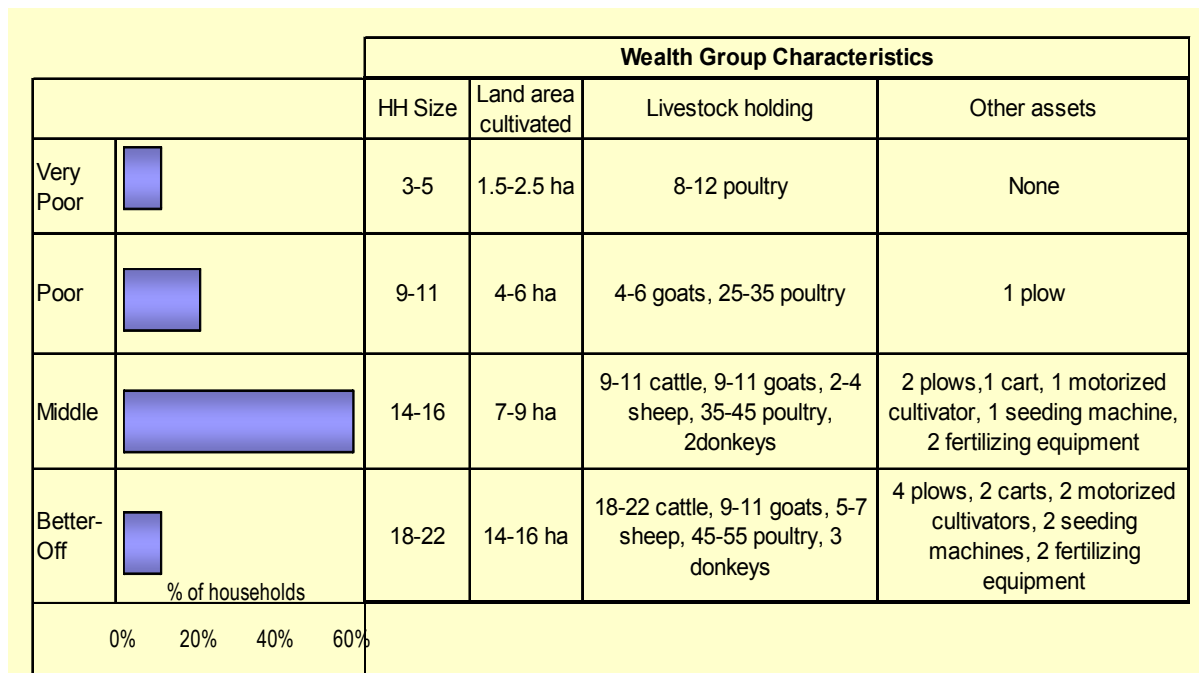


The calendar above shows the main activities that make up the agricultural year in this zone. The hardest time of year for households, particularly the poorest, is during the rains as the previous year's harvest has run out and the poor and very poor purchase their staples on the market, where prices are high. These months are a time of hard physical activity as households prepare, sow and weed their crops; the poor and very poor work both on their own fields and are paid for working on the fields of the middle and better-off. Generally, they are forced first to work for wealthier households, before devoting themselves to their own fields; this means that they sow late, weed less and consequently receive lower yields. Furthermore, there is high incidence of malaria at this time; if this affects an able-bodied household member it reduces the household's ability to work and necessitates extra expenditure on medication. The poorest households commonly take out loans at this time to tide them over until the end of the hunger periods; they repay them from January to March. Milk production peaks during the rainy season, but the very poor and poor do not benefit from this, because they do not own cattle. However, shea nuts may be harvested and sold by women, which brings some cash.

The hunger season ends with the consumption of green maize and cowpeas (niébé) in September. The

main maize harvest then begins in October. While the poor and very poor are forced to sell cereals to meet their immediate needs directly after the harvest when prices are low, the middle and better-off are able to wait even until July and August when market prices are high. School fees are paid at some point between October and January. From October to May there is some labor migration.

### Wealth Breakdown



By far the largest group is the middle, which contains 60% of all households and almost 70% of the total population (taking into account the large household size of this group). The very poor make up only a few percent of the population and live in extreme poverty.

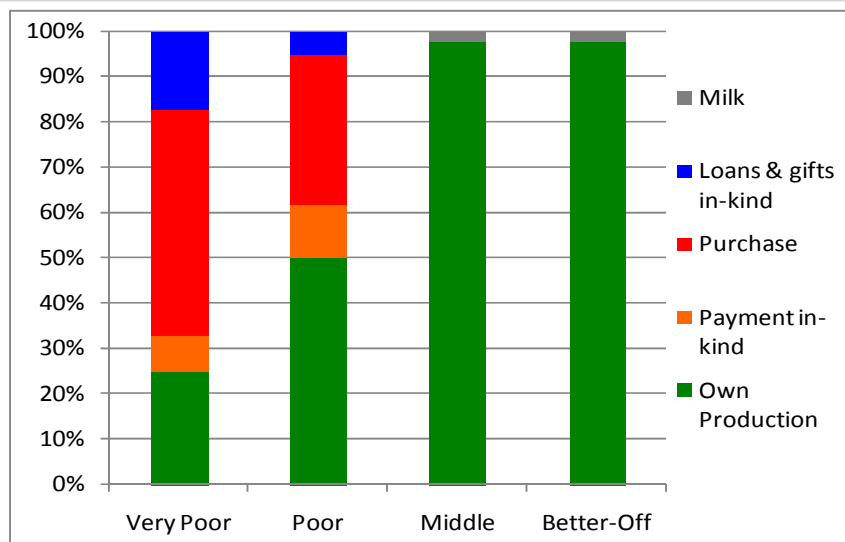
In a predominantly agricultural zone the ability to cultivate is the most important indicator/determinant of wealth. This depends on several factors. In this zone access to land is not a limiting factor. More important are access to labor, to agricultural inputs and ownership of productive assets. In terms of labor the middle and better-off not only have more able-bodied household members than the other groups, they also have the means to employ people from other households as laborers. Furthermore it is the middle and better-off, who are most able to afford agricultural inputs such as fertilizer and pesticides. Their livestock provides them with organic manure and they own carts (as well as donkeys and cattle to pull them) with which to transport the manure to the fields. The poorest households do not use manure, because they own neither the livestock nor the means to transport it. The two wealthier groups also own agricultural equipment, such as plows, plow oxen and seeding machines. Plow oxen are particularly important in cotton-producing areas, since it is a very labor-intensive crop. These are owned in differing numbers by the middle (4) and better-off (10) and have been included above in the numbers of cattle owned. The species of plow oxen in the zone is N'Dama which are resistant to trypanosomiasis. Poor households typically own a plow, but not an ox, while the very poor have no equipment, apart perhaps from the traditional daba (a type of hoe). The poorest groups may borrow equipment from the middle and better-off in exchange for working on their fields. Finally, wealthier households are able to devote proportionally more of their land to cash crops than the very poor and poor. Given their significant advantages it is not surprising that the middle and better-off not only cultivate more land than the poorest households, they also receive higher yields per hectare.

Livestock is also an important indicator/determinant of wealth, particularly cattle, which are owned exclusively by the middle and better-off. The very poor own only a small number of poultry.

In the countryside as well as in the town, poorer people make sacrifices to send children to school, but the middle and better-off can and do invest more in absolute cash terms. Children from very poor and poor households are likely to receive only a basic primary education, sometimes little formal education at all. Children from middle and better-off households generally receive some secondary education and perhaps more.

### Sources of Food

All groups apart from the very poor receive the majority of their annual food requirement from their own crops. The very poor's harvest runs out after only three months and thereafter they are primarily dependent on the market for their food, although the contribution of loans and gifts in-kind is also noticeably large.

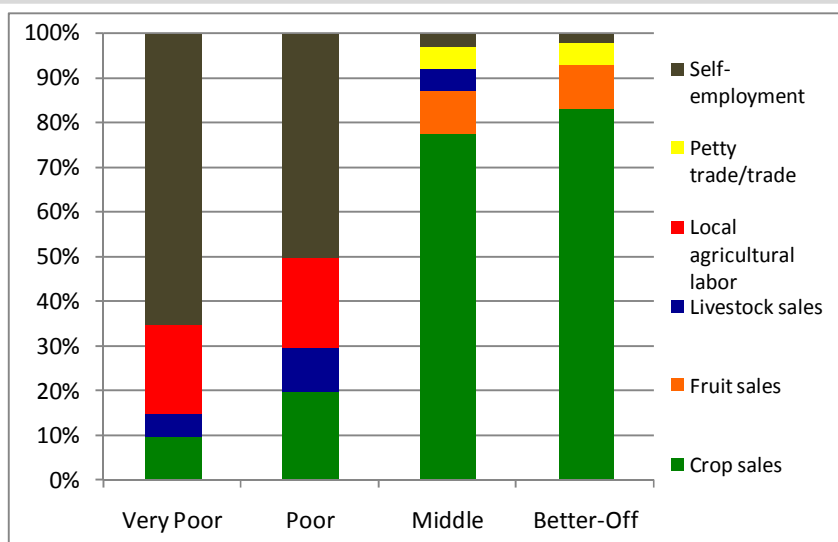


The poor's harvest lasts twice as long (six months); they still depend heavily on the market, but less so than the very poor. Both these groups also receive some of their annual food requirement from payment in-kind, which is received for working on the fields of the middle and better-off. The middle and better-off are essentially self-sufficient. They grow enough both in terms of quantity and variety to depend entirely on their own harvests. From their own harvests, for example, a middle or better-off household may consume sorghum, maize, millet, fonio, rice, tubers, cowpeas and groundnuts.

Milk does not contribute to the food needs of the very poor and poor, which is unsurprising since they do not own cattle. It contributes only minimally to the diet of the middle and better-off and is mostly consumed during the rains. Milk consumption is not part of households' dietary habits in this zone.

Finally, the above graph deals exclusively with cereals, pulses, tubers and milk, since these make up the vast majority of food consumed. However, there are also wild foods (e.g. shea nuts and néré) in the zone that may account for a proportion of households' food needs.

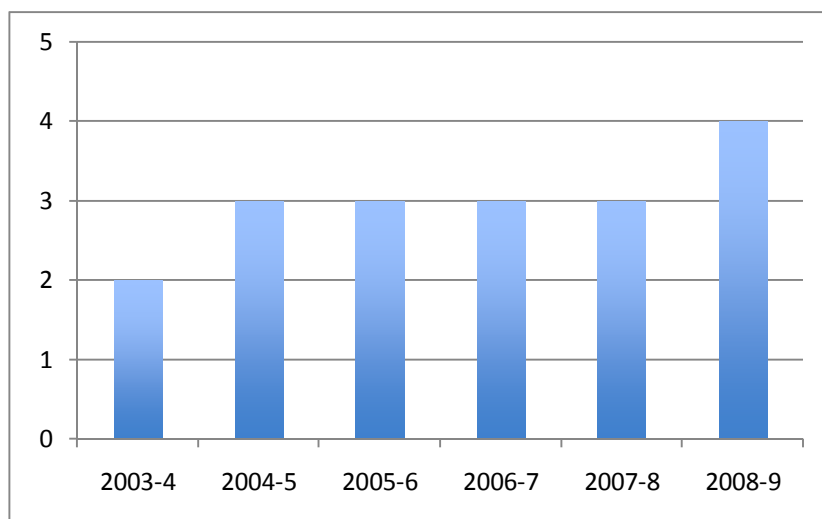
## Sources of Cash



The difference in income structures between the two upper and two lower wealth groups is striking. The middle and better-off receive around 80% of their income from crop sales. This includes cereals, cash crops (cotton, groundnuts etc.) and market gardening crops. The price of cotton is fixed in advance making it easier for households to plan in terms of their family budgets. If we include the sale of fruit around 90% of the middle and better-off's income comes from their own cultivation. In contrast, the very poor and poor receive the majority of their income from self-employment, which consists of wood and charcoal sales as well as the sale of wild foods. In addition, they work on the fields of the middle and better-off. The contribution of crop sales is relatively low and, it should be noted, does not include cotton, the cultivation of which is restricted to the middle and better-off.

Petty trade involves the buying and re-selling cereals as well as the sale of products such as tea, matches and soap. Labor migration used to be an important source of income in the zone, but has dramatically reduced, since the crisis in Ivory Coast in 2002.

## Hazards



Informants were asked to classify each year in the last 6 according to its relative food security; 1 represented a very poor year for food security, 2 a poor year, 3 an acceptable year, 4 a good year and 5 an excellent year. Although this exercise is somewhat subjective it is interesting that informants perceive years as being fairly consistent, in contrast to the peaks and troughs on similar graphs for many northern zones where rainfall is less reliable.

The following is a list of the principal hazards in the zone.

### **Crop**

1. Late-starting rains/ lack of rains during seeding/ poorly distributed rains both in terms of time and space. Poor rains sometimes mean farmers have to resow their crops.
2. High price of agricultural inputs (especially for cotton).
3. Grain-eating birds (particularly for millet).
4. Illness/death of plow oxen.
5. Wild animals causing damage to crops.
6. Cotton diseases/ cereal pests (e.g. stem borer).
7. Maggots damaging fruit.
8. Poor quality of seeds.

### **Livestock**

1. Livestock disease (e.g. trypanosomiasis, pasteurellosis) as well as avian diseases.
2. Lack of pasture for livestock and difficulty watering livestock.
3. Difficulty watering livestock.

### **Other**

1. Malaria.
2. Closure of frontiers for migration to Ivory Coast.

## **Response Strategies**

In a bad year all households try to reduce their expenditure on non-essential items and bolster their income. However, the range of responses open to a household depends on its assets and its wealth as well as the timing of the hazard. All households, however, migrate in search of laboring opportunities in urban centers and Ivory Coast (from November to May). They also cultivate more sorghum and millet, instead of maize which requires more fertilizer. A list of wealth group specific strategies is given below. It should be noted that this is a food secure zone and that there are not many bad years in terms of food security

### **Very Poor and Poor**

- They increase their livestock sales if they are able (during the rainy season and hunger season).
- They may depend more on gifts or go into debt.
- They use short-cycle crops to ensure an early harvest.

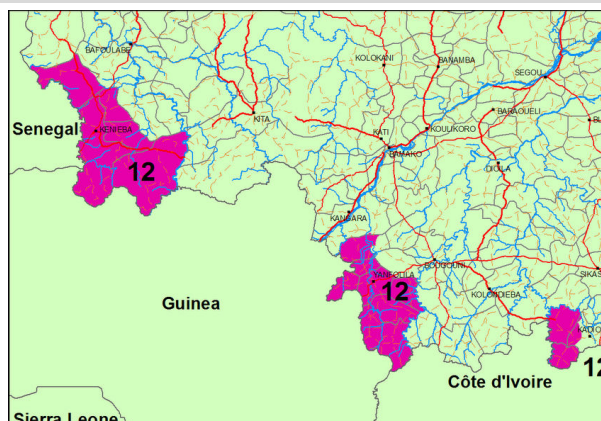
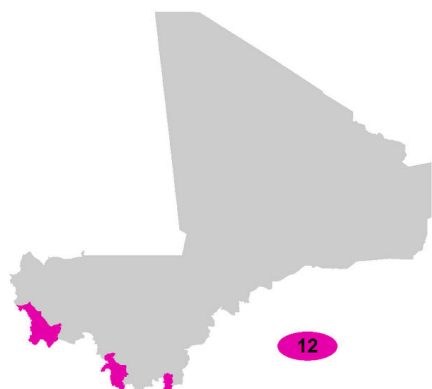
**Middle and Better-Off**

- They increase their livestock sales, including cattle (May-June).
- In very bad years some households may be forced to sell their productive assets (e.g. plows, plow oxen).
- If there is a lack of fertilizer households depend more on compost pits/ organic manure.

# Mali Livelihood Profiles

## Zone 12: South-west maize, sorghum & fruits

### Zone Description



This relatively rich zone is split into three parts across the south of the country. With an annual precipitation of 1000-1300mm it is primarily characterized by rainfed agriculture, fruit tree cultivation and sedentary livestock rearing. The zone is humid and moderately densely populated with sandy clay and gravelly soils that are fairly fertile. There are lots of rivers (including the Balé and Saukarani) and *bas-fonds*- localized depressions that retain moisture into the dry season. Vegetation is Sudanian. The topography is a combination of plains and hills.

The main crops grown for consumption are maize, sorghum and rice (generally grown by women in the *bas-fonds*).<sup>23</sup> Inhabitants of the zone do not eat much millet. Maize, cotton, groundnuts and 'dah' (*Dahlia arborea*) are the major crops sold. Cotton is bought either directly or indirectly by the Compagnie Malienne pour le Développement des Textiles (CMDT). Payment for cotton is regularly received late by farmers, which may negatively affect households' management of their resources (see sources of cash below). The investment necessary in cotton production means that it is primarily done by wealthier households. Groundnuts are not so exclusive, while potatoes, which require hard work, are typical only of poorer households. Yam cultivation has increasingly been abandoned, because of the labor-intensive method of cultivation with the traditional 'daba' (a type of hoe).

Fruit trees are grown by wealthier households and are a defining product of this zone. There are factories to make fruit juice, and to package fruits for export to Europe; others are under construction. The main fruits are mangoes, oranges, bananas, lemons and cashews. Market gardening crops, such as tomatoes, okra, shallots, lettuces and aubergines, are typically cultivated by the very poor and poor, although in some areas gardening is not possible because irrigating the crops is difficult. This is a female-dominated activity.

There is pasture in the zone all year round, which allows for sedentary livestock rearing. The main species are cattle, sheep and goats. The availability of grazing means that the zone plays host every year to transhumants, who stay from around December to May. While in the zone transhumants sell milk and

<sup>23</sup> Rice is more common in the middle segment of the zone, while maize is more common in the south-eastern most section.

livestock to provide cash to satisfy their food and other needs.

Gold-mining is another characteristic of this zone and is a source of income for the poorest households, who use traditional methods to prospect for gold. In some areas (e.g. Kadiolo) mining is concentrated on certain sites and attracts people from different areas, including the Burkinabé. In other areas (e.g. Yanfolila) mining activities are not limited to central sites and are more dispersed, taking place for example along the rivers in the zone. Key informants stated that goldmining can be an unprofitable distraction from other (e.g. agricultural) activities that are more likely to bring in income. There are also gold-mining sites that are commercially exploited by large companies.

The zone's forest resources are important, although it is generally businesses outside the villages that profit from the lumber (even if some within the village may be paid to chop down trees). Wild food and products include shea nuts, zaban (*Saba senegalensis*), néré and tamarinds; their sale is an important income source for the poor and very poor. There is some hunting, but only to a limited extent.

As with many rural zones solidarity between wealthier and poorer households is important. It should be noted, for example, that middle and better-off households may help their poorer neighbors out with expenditure, such as health and funeral costs. In a normal year households do not typically migrate in search of labor. Fishing is a further activity and some Bozo fisherfolk are present.

## Markets

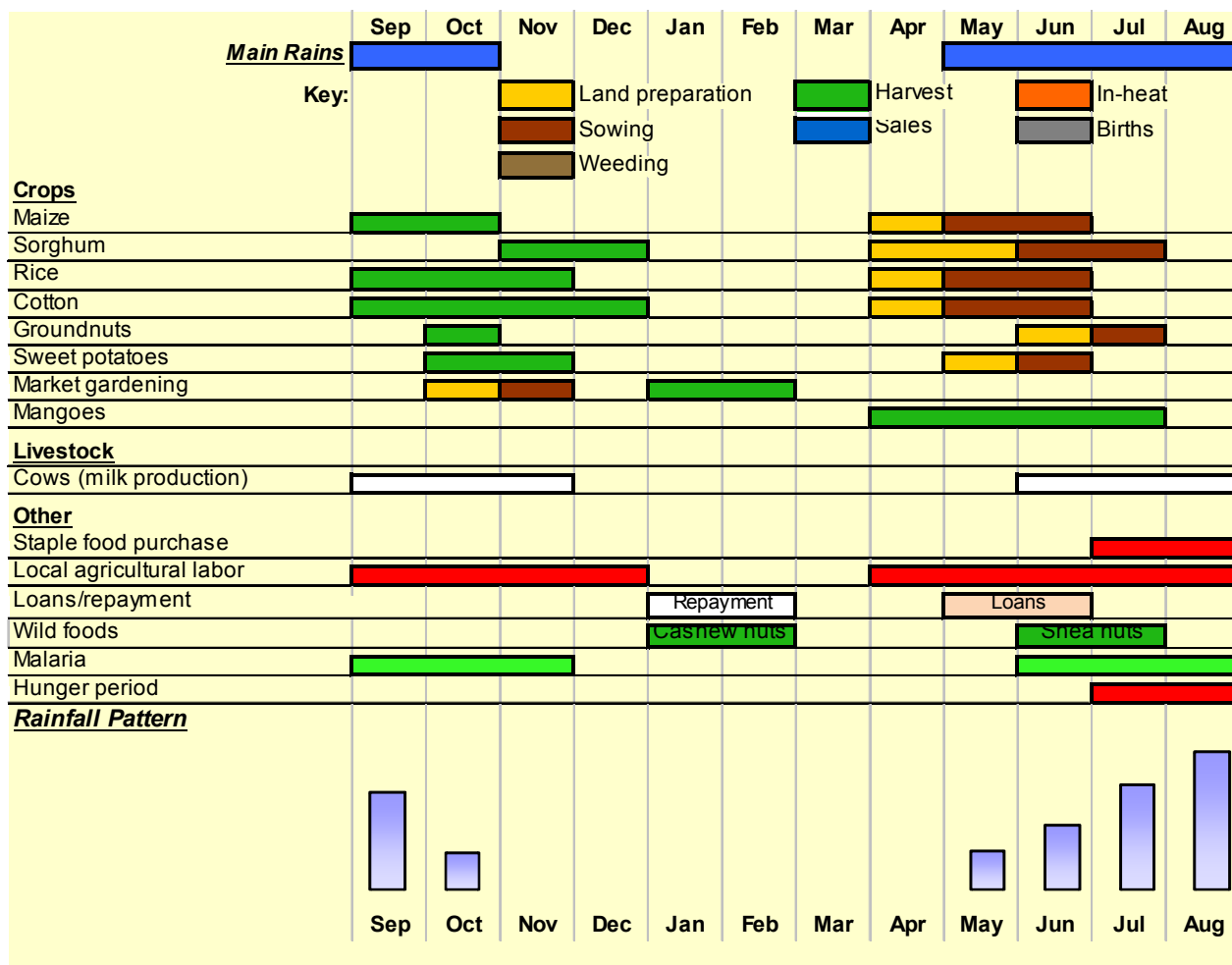
Market access in this zone is generally good, but can become difficult in some areas during the rainy season. The trade routes below are indicative only (i.e. they are not exhaustive).

Crop	Trade Route
Fruits	→Sénégal, Europe, Bamako →Kayes →Kédougou→ Sénégal
Maize	local markets, Bougouni
Sorghum	→Kayes→ Sénégal
Groundnuts	→Kayes, Kéniéba→ Sénégal
Rice	local markets→Bamako

Type of livestock exported	Trade Route
Cattle, sheep, goats	local markets→Bamako/ Ivory Coast Kéniéba→ Sénégal →Guinea
Poultry	local markets→Bamako

Main cereals imported into the zone	Trade Route
Maize	Ivory Coast→ local markets
Sorghum	Kayes→ Kéniéba→local markets
Rice	Kayes→ Kéniéba→local markets Sénégal → Kéniéba→local markets

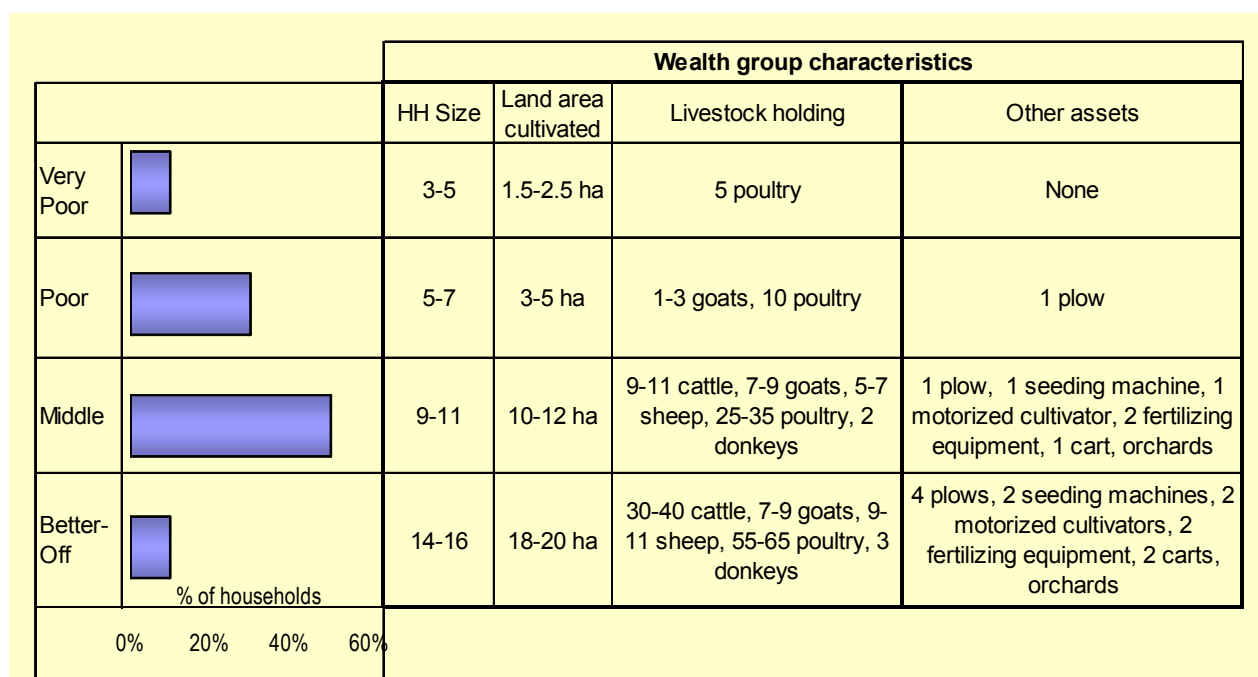
## Seasonal Calendar



The seasonal calendar above shows the main activities that make up the agricultural year in zone 12. The hunger season primarily affects the very poor and poor and runs from July to August. These are the months of highest staple food purchase. It is also a time of high malaria incidence and hard physical activity as fields are sown and weeded. The poorest households work both on their own fields and the fields of the middle and better-off. Milk production is at its peak from around June, but poor and very poor households do not benefit from this (see sources of food section). However, shea nuts come in to season from June to July the poorest households gather and sell these.

The hunger season ends and the consumption year begins in September when the first maize is harvested. Most other crops are harvested around this time, making it another labor-intensive period, particularly for the poor and very poor. Mangoes are harvested from April to July. The middle and better-off often sell livestock around May and June to provide cash to invest in cereal and cash crop production during the new agricultural season. The poor and very poor tend to sell animals from July to August during the hunger season, although the very poor own only poultry and thus receive an extremely limited income from this.

## Wealth Breakdown



Half of all households fall into the middle group. At the extremes only 10% of households are very poor and 10% better-off. However, in terms of population more people are better-off than very poor, because of the difference in household size between these groups. In fact the very poor make up only around 5% of the population, suggesting that these really are people living in desperate poverty. The majority of people (almost 60%) fall into the middle group.

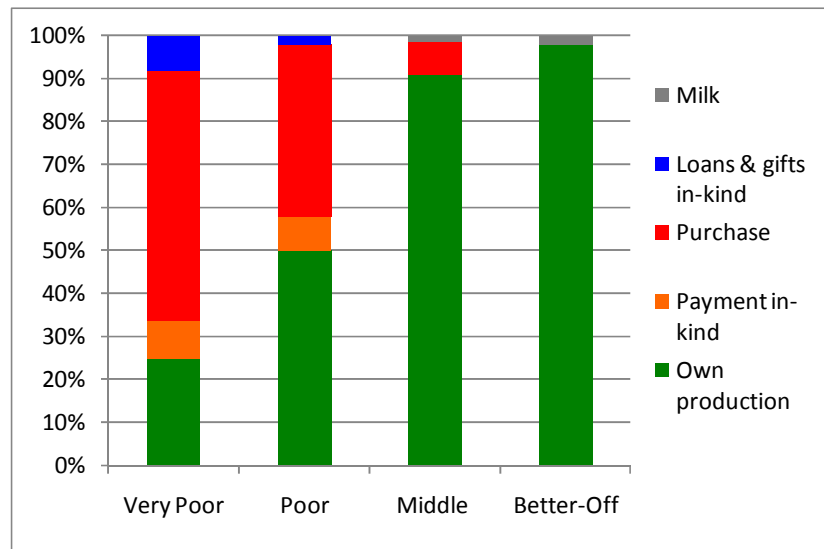
In an agricultural zone land area cultivated is an important indicator of wealth and it is significant that the better-off cultivate around two and half times more land *per capita* than the very poor. One effect of this is that wealthier households, more than poorer ones, are able to devote a larger proportion of their land to cash crops. The ability to cultivate also depends on access to agricultural inputs, such as fertilizer, to labor and to other assets such as plows, plow oxen and seeding machines. Access to and ownership of these is concentrated among the middle and better-off; agricultural inputs, for example are expensive. The poorest households commonly use a traditional 'daba' (hoe) for cultivation. Poor households often own a plow, but no plow oxen and therefore must hire them from wealthier households. (A typical middle household owns four oxen while a typical better-off household owns ten; these have been included in the number of cattle owned in the table above). A household's ability to access inputs and equipment not only determines their productivity and the amount of land they can cultivate, but also the crops they can grow. Labor-intensive and input-intensive cotton cultivation is essentially restricted to the middle and better-off (some poor households may cultivate to a limited extent, the very poor not all). The middle and better-off also own orchards; these have not been included in the total land cultivated, but are nonetheless very important in this fruit-growing zone.

Livestock holding is indicative of wealth and it is significant that cattle, the most valuable livestock, are owned only by the middle and better-off. Indeed this illustrates the gap in wealth both between the poor and the middle and between the middle and better-off (who own over three times more cattle than the middle). Livestock sales provide money for agricultural activities, such as buying inputs and employing laborers. They are also a source of cash drawn upon for specific needs; for example to pay for school fees and construction or to buy clothes. In some parts of the zone very poor and poor households own beehives.

In the countryside as well as in the town, poorer people make sacrifices to send children to school, but the middle and better-off can and do invest more in absolute cash terms. Children from very poor and poor households are likely to receive only a basic primary education, sometimes little formal education at all. Children from middle and better-off households generally receive some secondary education and perhaps more.

### Sources of Food

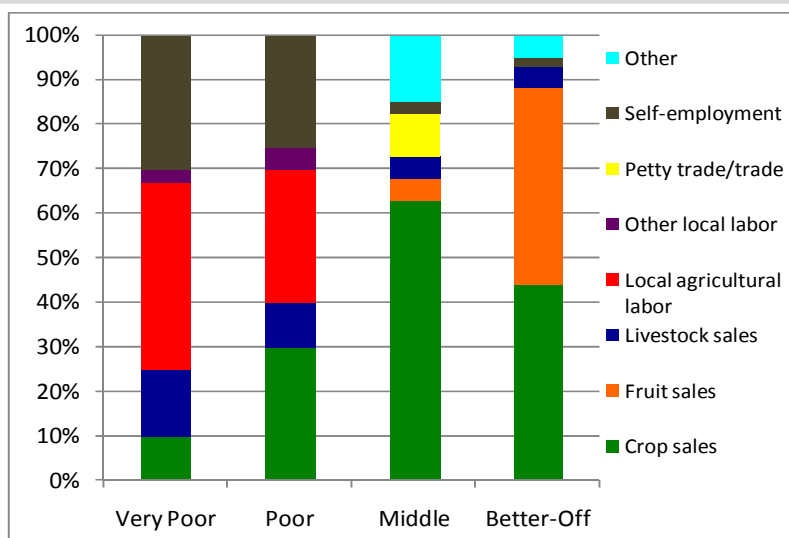
The most striking contrast is between the two upper wealth groups who depend very little on the market for their cereals and the two lower wealth groups who purchase a large proportion of their annual food requirement. Indeed the better-off do not typically buy cereals at all, since they cultivate enough both in terms of quantity and variety on their own fields.



The difference between the very poor and poor is also large; the very poor are the only group to depend more on the market than on their own production. Their harvest feeds them for three months compared to six months for the poor. However, households in both groups buy mostly maize, the more expensive staple rice being reserved for special occasions. The poor and very poor receive gifts in-kind from the middle and better-off. This may involve being invited to harvest and keep part of a wealthier household's crop.

Finally, it should be noted that milk contributes very little to the annual food requirement of the middle and better-off and not at all to the food needs of the very poor and poor. Milk is mostly drunk during the rains.

## Sources of Cash



The middle and better-off receive the majority of their income from their own production (crop, fruit and livestock sales). Both groups sell cereals and cash crops (primarily cotton and groundnuts). If payment for cotton is late it is possible that households may be forced to sell more of their cereals to support themselves until the money is received. The differing importance of fruit sales is the main contrast between these two wealth groups; the graph illustrates the extent to which this activity is dominated by the better-off. Petty trade on the other hand is typically only undertaken by middle households who buy fruits and cereals from the better-off and re-sell them. The 'other' category includes income from loaning agricultural equipment (carts, plow, plow oxen etc.) to very poor and poor households.

The very poor and poor differ from the wealthier groups in receiving proportionally much less income from their own production. Households in both these groups sell cash crops (e.g. potatoes) and market gardening crops, but rely most heavily on a combination of labor and self-employment.<sup>24</sup> It should be noted, however, that there is also an important difference between these two wealth groups. The poor receive three times more of their income from crop sales than the very poor, who are barely farmers at all.

'Other local labor' involves brick-making and construction. Self-employment consists of gold-mining and wild products sales. (Wild products are also sold by the women in middle and better-off households.)

<sup>24</sup> A day's agricultural labor lasts from 9am to 4pm.

## **Hazards**

The following is a list of the principal hazards in the zone.

### **Periodic**

1. Flooding.
2. Crop insects and parasites.

### **Chronic**

1. Poorly distributed (i.e. irregular) rainfall. Insufficient rains are much less a problem in this zone than they are further north in the sahelian zones.
2. Increase in the price of agricultural inputs.
3. Late payment of farmers for cotton by CMDT.
4. Livestock diseases, for example trypanosomiasis, foot-and-mouth disease (most common from May to July), anthrax and pasteurellosis (affecting sheep and goats). Households use breeds of plow oxen that are not affected by trypanosomiasis.
5. Livestock theft.

## **Response Strategies**

In a bad year households commonly reduce their expenditure and try to bolster their income. However, the range of responses open to a household depends on its assets and its wealth as well as the timing of the hazard. Below is a list of wealth group specific coping strategies. It should be noted that this is not a food insecure zone and some respondents said that they were not used to the kinds of situation where coping strategies might be employed.

### **Very Poor and Poor**

- They migrate for labor which they don't do in a normal year. This generally involves young people who travel to Bamako or the Ivory Coast in search of work. Migration to Ivory Coast had become more difficult since the crisis there in 2002.
- They try to increase their income from goldmining (mostly from December-February).
- They increase their livestock sales if they are able.
- They receive gifts from the middle and better-off.
- Crops such as groundnuts may be sown earlier or cultivated along lakes and rivers (arachides de decrue).

### **Middle and Better-Off**

- They increase their fruit sales.
- They increase their livestock sales, particularly at the beginning of the rainy season and at harvest time.
- They may also prospect for gold or migrate for labor, neither of which they do in a normal year.