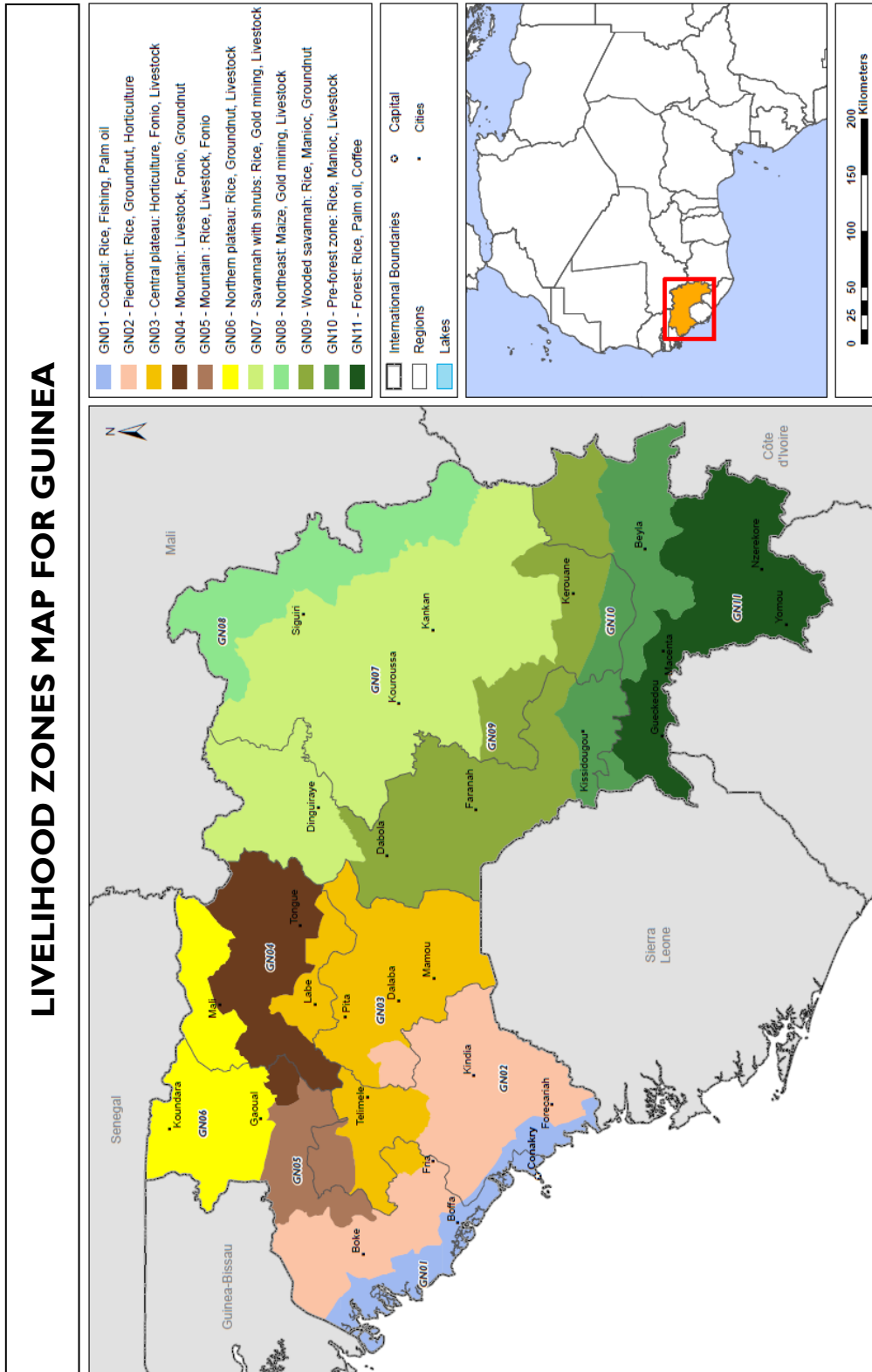


# GUINEA Livelihood Zone Map and Descriptions

May 13, 2013



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**ACRONYMS AND ABBREVIATIONS**

ACF	Action Against Hunger/ <i>Action Contre la Faim</i>
FEWS NET	Famine Early Warning Systems Network
h	Harvest
HEA	Household Economy Approach
ILRI	International Livestock Research Institute
lp	Land preparation
MP	Market purchase (of food)
NGO	Non-governmental organization
OP	Own production (of crops or livestock)
p	Planting
pppd	Per person per day
sp	Soil preparation
USAID	United States Agency for International Development
w/m	Weeding/maintenance
WFP	World Food Program
PK	Payment in kind for services rendered
G	Gathered products

## INTRODUCTION

The Famine Early Warning Systems Network, known by its acronym FEWS NET, is a worldwide project financed by the United States Agency for International Development (USAID). In cooperation with international, regional, and national partners, it provides timely and ample early notice of probable food-security trends. FEWS NET works in over twenty countries around the world, and remotely monitors at least ten additional countries from its regional offices.

*Action Contre la Faim*, or Action Against Hunger (ACF) is an independent international humanitarian organization that works to alleviate infant malnutrition while improving health conditions (hygiene, access to water) and means of subsistence for the most vulnerable populations. ACF has been operating in Guinea since 1995.

In 2013, FEWS NET plans to initiate remote monitoring of food security in Guinea from its regional office in West Africa. To this end, FEWS NET and its partners have developed this product concerning Guinea's livelihood zones and their descriptions, in order to make available the baseline data that will underlie the regular food security analyses. We would especially like to thank the Permanent Interstates Committee for Drought Control in the Sahel (*Comité permanent Inter-Etats de Lutte contre la Sécheresse dans le Sahel* -- CILSS) and its governmental partners from the Republic of Guinea (Ministries of Agriculture, Animal Husbandry, Fisheries and Aquaculture, Guinea's Institute of Agronomic Research, etc.), the United Nations System (WFP, FAO), and the NGOs.

This report was written by Abdou Karim Ouedraogo, Jennifer Coneff, and Yacouba Maman Bachir of FEWS NET, with Julius Holt of the Food Economy Group and in cooperation with Guinea's Ministry of Agriculture and the other partners listed in the appendix.

## ZONING METHODOLOGY AND LIVELIHOOD DESCRIPTIONS

Livelihood Zoning is based on the Household Economy Approach (<http://www.feg-consulting.com/resource/practitioners-guide-to-hea/practitioners-guide-to-hea/>). It includes a traditional livelihoods zoning component (as described in the same reference). In addition, populations are classified by socioeconomic group (relatively poorer and relatively better off) and we provide a certain minimum amount of information about all livelihoods, such as food sources and Main income sources for each group in each zone. A brief description of general characteristics includes seasonal and food access calendars for each zone.

This product is based on an assessment approach that aims to identify the livelihood trends and configuration likely to be used as a starting point for an early-warning analysis. This Livelihood Zoning activity in the Republic of Guinea was designed to establish food-security reference points and ultimately to indicate whether the conditions reported at any given time justify more in-depth assessment. It is not sufficient for a full food-security analysis. The results presented in this report provide an initial point of departure for estimating how households in the various parts of the country could be affected by various hazards. They supply a geographic context for interpreting existing monitoring data on production, prices, and other indicators in order to identify potential anomalies. Rapid assessment teams may be able to use the zones as a basis for sampling in their studies.

A study of secondary information was undertaken as background for the livelihood map development workshop and the subsequent field-verification mission. The secondary information included, among other things, agricultural/ecological maps; demographic, rainfall and production data; and the relationships among the partners.

The zoning workshop was held in Conakry from February 12-15, 2013. Participants included government departments, sub-regional and international institutions, and NGOs that work in the country. The workshop included representatives from each administrative region and officials from the capital. Participants came together in working groups to delineate livelihood zones on a map of the country, dividing it into regions having similar agro-ecology, subsistence activities, and market access. A summary form describing each livelihood zone was filled in by the participants as they identified the main characteristics of each livelihood zone, such as the seasonal calendar for production and trade activities. In this report, this information is grouped in the summary descriptions of the livelihood zones. A brief verification of the information was done in the field during the week following the workshop, during which technical experts and local resource persons were consulted, modifying and supplementing the information compiled during the national workshop.

For more information about household economy principles, visit the livelihood pages at [www.fews.net](http://www.fews.net) or download "[Application of the Livelihood Zone Maps and Profiles for Food Security Analysis and Early Warning](#)."<sup>1</sup>

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<sup>1</sup> [http://v4.fews.net/docs/Publications/Guidance\\_Application%20of%20Livelihood%20Zone%20Maps%20and%20Profiles\\_final\\_en.pdf](http://v4.fews.net/docs/Publications/Guidance_Application%20of%20Livelihood%20Zone%20Maps%20and%20Profiles_final_en.pdf)

## LIVELIHOODS IN GUINEA

The Republic of Guinea has an extensive coastal zone and shares long borders with six countries: Guinea-Bissau, Senegal, Mali, Côte d'Ivoire, Liberia, and Sierra Leone. This gives the country a strategic position with respect to the flow of trade for the region's staple products, including cereals and tubers, cash crops, and livestock. Its topography is also of regional importance. Runoff from the Fouta Djallon mountain range and the high plateaus in the western central part of the country (in the Middle Guinea agro-ecological region)—which is some of the most abundant in western Africa given the area's annual precipitation of 1200-1500 mm<sup>2</sup>—feeds three major international rivers (the Niger, Senegal, and Gambia), justifying the country's reputation as "western Africa's water tower." In addition to the mountainous area in Middle Guinea, the country has three other major agroecological regions: Lower (Maritime) Guinea in the west, with its long coastal strip and huge interior plains; Upper Guinea in the northeast, characterized by high plains with savannah grasslands; and Forested Guinea, which covers most of the country's southern region.

The total population was estimated at about 11.2 million in 2012, of which at least 70 percent live in rural areas. According to the 2000/2001 agricultural census,<sup>3</sup> women are significantly over-represented in the villages. More specifically, there is a difference of more than 25 percent among people 20 to 44 years old—the age group that corresponds to the working population. One can conjecture that this was because the men were away when the census was taken, having traveled either outside the country, to cities, or to the small-scale placer mining sites that are very widespread in the eastern part of the country—for even though Guinea is one of the world's leading bauxite exporters, it is actually the traditional placer-mining sector that employs thousands of rural men and women.

The almost universal food staple is rice, whether locally produced (mainly on hills and uplands, followed by exposed floodplains where the water has receded) or imported. Imported rice is generally less expensive on the country's markets than the better-quality local rice, which is preferred by the public. Maize is the second most frequently consumed cereal, with national production about half that of rice. There are a limited number of rather small areas, mainly in the far northeast, where maize is the main crop and the preferred staple food. Other cereals produced in significant quantities are fonio (the tiny seeds of *Digitaria*), millet, and sorghum in lesser quantities. Tuber production is also considerable throughout the country. Cassava makes up over 70 percent of the tuber harvest. Though less preferred than rice as a staple food, it is an important buffer food for many poor households in rural areas. Cassava production is estimated to be increasing each year, to such an extent that it may already be the second most-often consumed crop, ahead of maize. At the national level, extrapolation of agricultural production trends by the Ministry of Agriculture, based on the 2000-2001 agricultural census, suggests that the country has a surplus (this is calculated based on energy needs of 2100 kcal pppd for the country's current population). However, it is possible that hypotheses about the growth of agricultural production are too optimistic. What is certain is that Guinea imports significant amounts of rice each year, approximated at more than 25 percent of the amount the country produces itself. Given the lack of information about the volume of staple food exports (particularly to Liberia—but note that the rice comes into Guinea from Côte d'Ivoire), the extent to which rice imports correspond to a net national deficit in food production, or meet the high national demand for rice as a preferred food, is not clear.

Rural populations in the country's various livelihood zones do not suffer from acute food insecurity due to poor harvests—as caused by drought or pest infestations, for example. This differs from occasional adverse events such as localized flooding or other causes of crop damage and/or loss, or the livestock losses that occur in one place or another each year. Even a late start to the rainy season or a halt in the rains for two to three weeks at critical points on the agricultural calendar are relatively rare phenomena, especially in comparison to the semi-arid countries. The road system, which is generally of poor quality, can be a greater threat as far as temporary interruptions in the flow of food supplies to markets. Skyrocketing staple food prices in recent years—an international phenomenon—have certainly been more harmful. Still, Guinea has not seen any "food crises."

In contrast, the poorest households in all zones do suffer a lean period each year before the main harvest, when household food stocks are exhausted and it is difficult to find money to purchase food on the market. This is a symptom of the chronic

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<sup>2</sup> Source: FAO Document Repository (produced by International Livestock Research Institute (ILRI)) Chapter 4: Guinea—Average annual precipitation for Mid Guinea.

<sup>3</sup> *Recensement National de l'agriculture, Campagne de 2000/2001* [National Agricultural Census for the 2000-2001 Season]. Ministry of Agriculture, Animal Husbandry, and Water and Forest Resources.

poverty in rural areas where, first, access to land and opportunities to maximize production are inadequate; and second, money earned from (a very wide range of) sources other than the households' own farming activities is not regular or may not quite cover expenses for both food and non-food needs. If this symptom is called food insecurity, then it is a very widespread reality. (However, some people consider that the lean period has arrived when they cannot afford to eat rice instead of, for example, cassava – a food that is not preferred but is available). The World Food Programme (WFP) uses a definition of food insecurity based on the quality of the food—variety and nutritional balance—rather than on whether energy needs are being met. This index could also be considered a symptom of chronic poverty. On this basis, in 2009 the WFP determined that 32 percent of the rural population was moderately or “slightly” food insecure, with a little over a third of them being located in the southern region (Nzérékoré) with small concentrations at Labé (the north-central massif), Kindia (southwest), and Kankan (east/northeast).<sup>4</sup> Guinea is one of the African countries with a high level of infant malnutrition (1999 [FAO Country Nutrition Profile](#)), which can probably be described as malnutrition related to poverty factors: poor environment, poor sanitation, economic poverty, and a lack of health services and education. To date, there is not enough information to enable us to quantify the relative importance of the various causes of malnutrition; to date no complete malnutrition map is available to us.

Guinea has not suffered from periodic drought like its neighbors in the Sahel, nor from catastrophic civil wars like its southern neighbors. Still, it has experienced many years of tension and political instability, culminating in a series of coups d'état in 2008 and 2009. The political context has inevitably affected economic performance and probably diminished rural and urban investment in wealth creation and the spread of efficient services. A more stable period is expected subsequent to the 2010 presidential elections, and could lead to progress in the country's economy, and more specifically in the outlook for rural areas.

The livelihood zones represent rural populations that are agricultural producers, and therefore necessarily reflect the country's agroecological differences. The zones' distinct characteristics are presented in the descriptions that follow in this report. Yet it is possible to make some generalizations across the zones. It can be said that the poor are all poor in the same way, while the wealthy are wealthy in different ways. Poor households almost universally lack sufficient land to cover their basic food needs, sufficient resources to invest in increasing agricultural productivity, and, to an even greater extent, the opportunity to cover their essential expenditures through profits raised by selling their harvest. Generally speaking, such households own only a handful of small ruminants. Indeed, all of these things are what define “poor” households in the villages. The result is that these households depend on the market for their food supplies for four to six months of the year, and their main means of obtaining the money needed to make ends meet is working away from their own land. Most of them engage in casual day labor. However, “self-employment” increases their opportunities for earning income from activities such as selling wood for heating, charcoal, palm oil, gathered products, and handicrafts, and engaging in small-scale business. Casual employment is mostly local, but is also found at more distant farm operations, especially where rice (a very labor-intensive crop) is grown; in orchards; and in market gardens, a predominantly female activity. Opportunities for temporary employment also exist in urban areas: construction work, hauling products at markets, and other services based on physical strength. Small-scale, artisanal mining, particularly for gold in the northwest but also for diamonds in the south also attracts a large number of local, national, and cross-border workers, especially in the eastern part of the country.

There are also similarities across livelihood zones as far as the wealth of the most well-to-do rural residents is concerned. These residents are the largest landowners and the main owners of plows, carts, and motorcycles, which they rent out. They are the largest livestock owners, and almost the only cattle owners. They also employ their poorest neighbors from the village. Yet there are also major differences among the most well-to-do, depending on their geographic area. Some invest in growing rice or maize for sale, some in perennial cash crops, some in managing market gardens, and some are professional stockbreeders with large herds of cattle. Others invest in mining, particularly for gold, both by hiring workers and by supplying electronic metal detectors and other equipment; in other places some also invest in managing motor boats for fishing and coastal taxi services, and still others hire workers to cut wood in forested areas for use in construction and woodworking.

Finally, in a national economic context that is still suffering greatly from under-investment and having to deal with many problems related to poor management, there are still solid foundations underlying livelihoods in rural Guinea: plentiful natural resources watered by abundant precipitation, growing urban demand for rural products, and rural residents with a

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<sup>4</sup> *Enquête nationale de la Sécurité Alimentaire (ENSA)* [National Food Security Survey]. World Food Programme, Guinea 2009

keen interest in taking advantage of local conditions, whether they are the well-to-do who can invest in increasing their wealth, or poorer households trying to use all available resources to make ends meet and perhaps even set aside some savings for the future.



**LITTORAL: RICE, FISHING, PALM OIL (ZONE 1)**

<b>Main productive assets</b>	
Poor households	Better-off households
Land	Land
Cultivating tools (machete, hoe)	Cultivating tools
Poultry, sheep, goats	Cattle, sheep, goats, improved poultry
Dugout canoe	Motor boat
	Rototillers
<b>Main foods and sources</b>	
Poor households	Better-off households
Rice (OP, MP)	Rice (OP)
<b>Main income sources</b>	
Poor households	Better-off households
Agricultural production	Agricultural production
Fishing	Fishing
Small business	Livestock
Wood for heating, charcoal	Provision of services (transport, cart rental, etc.)
Agricultural labor	
Gathered products	
<b>Main markets</b>	
Koba	Boffa
Kamsar	Dubreka
Kolaboui	Conakry
<b>Main hazards, periods and frequency</b>	
Attacks by stinging caterpillars (annually)	
Rising sea level/reduction in size of mangrove swamps (continual)	
Livestock diseases and crop pests (annually)	
<b>Coping Strategies for Poor Households</b>	
Poor households' early dependency on the market for rice purchases	

This zone's resources are plentiful and varied, from marine fish and mangrove wood to fertile land and forest products. The coastal area is economically active and attracts many immigrants from inland. The city of Conakry adds high demand for farm and marine fishery products, as well as for casual labor. The high rural population density limits land available to poor households, which manage to cover only half of their basic food needs from their harvests and so must undertake various jobs and economic activities to ensure their livelihood.

This zone covers the entire coastal strip from north to south. It includes the western parts of Boke, Boffa, Dubreka, Coyah, and Forecariah prefectures. It shares a very short border with Sierra Leone in the South, and with Guinea-Bissau in the north. There is one rainy season, which lasts from May to October. Rainfall ranges from 2000 to 3000 mm/year, the country's highest. Soils are hydromorphic and fertile with lithosol inclusions. Long stretches of the seacoast are covered with mangrove forests.

The main livelihood activities are farming (mangrove rice and oil palm), small-scale fishing, salt production, forest products, and trading. Population density is highly variable within this zone (15-70 people/km<sup>2</sup> but up to 1200-7000 people/km<sup>2</sup> in Conakry and the surrounding area). Overall, the population density is considered very high compared to the national average. The average amount of land cultivated per household is one hectare, but there is a rather large disparity between the land holdings of better-off households and those of poor households. Pressure from immigrants coming from other areas of the country and wishing to settle here has led to a situation in which better-off households earn significant income by renting parcels of land on annual contracts.

Rice is the staple food in most households. The harvest covers six months of poor households' staple food needs (beginning in November), while better-off households' own production covers all of their food needs. Poor households purchase food, mainly rice, especially between May and October, and they have access to non-woody forest products between March and June to supplement their diet. The poor also eat some tubers. Fish is an important addition to the diets of all residents of the zone, but in principle only the better-off households can afford meat. The poor tend to eat *bonga*, the least expensive type of fish. Other staple food sources for poor households include purchased foods and non-woody forest products.

The main income sources for poor households are the sale of their agricultural products, fishing, labor (in rice paddies, fishing, etc.), self-employment (including making charcoal), the sale of gathered products, and the sale of livestock (poultry and small ruminants). They also sell sea salt. Better-off households earn income mainly from the sale of their agricultural products (food products and palm oil), followed by the sale of products from the sea, the sale of livestock, trading, and various services.

The smoking of fresh fish is an activity usually undertaken by women, and the sale of this product at the national level brings in significant income for men and women alike. However, some poor households smoke fish on a small scale. The women use mangrove wood shavings in their smokehouses. This type of wood is very flammable, which makes it useful for cooking in general. Mangrove wood is also used for construction scaffolding, which increases the commercial value of this natural resource.

All households raise livestock under semi-extensive conditions. Poor households raise poultry and small ruminants, while better-off households raise larger herds and flocks of small ruminants as well as cattle.

The main hazards recorded each year are attacks by stinging caterpillars (*chenilles urticantes*), rising sea levels/reduced areas of mangrove swamps, livestock diseases, and crop pests.

**Zone 1: Seasonal Calendar**

	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
<b>Seasons</b>												
Rains												
Lean season												
<b>Crops</b>												
Mangrove rice												
Plains rice												
Market gardening												
Fonio												
<b>Other activities</b>												
Agricultural labor demand												
Staple food sales												
Agricultural product sales												
Wood sales												
<b>Hazards</b>												
Malaria												
<b>Legend</b>												

**Zone 1: Food Access Calendar for Poor Households**

	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
<b>Main food sources</b>												
Rice												
Gathering												
<b>Main income sources</b>												
Fish												
Staple foods												
Gathering												
Petty trade												
Charcoal/wood												
Salt												
<b>Main expenses</b>												
Staple foods												
Education expenses												
<b>Legend</b>												

**PIEDMONT: RICE, GROUNDNUT, HORTICULTURE (ZONE 2)**

<b>Main productive assets</b>	
Poor households	Better-off households
Land Poultry and small ruminants Small tools (hoe, machete)	Land Cattle, small ruminants Draft cattle Plows Rototillers Motorized pumps
<b>Main foods and sources</b>	
Poor households	Better-off households
Rice (OP local, MP imported) Tubers (OP, MP) Gathered products (G)	Local rice (OP, MP) Fonio Tubers
<b>Main income sources</b>	
Poor households	Better-off households
Agricultural production Agricultural labor Gathered products Charcoal Poultry	Agricultural production Livestock Transportation services (motorcycle, cart rental) Small business
<b>Main markets</b>	
Sikhourou Kindia  Koukouré Conakry	Rice, groundnuts Fruits, market garden products Livestock Foods, fruits, vegetables, livestock
<b>Main hazards, periods and frequency</b>	
Bush fires Changes in rainfall Epizootic diseases/crop pests	
<b>Coping Strategies for Poor Households</b>	
Direction of commercial flows (urban center to villages) Movement of the population to urban centers	

This zone is a prolific producer of rice and horticultural products. It is well placed to meet commercial demand from the densely-populated coastal region, especially the city of Conakry. Nevertheless, poor households tend to depend more on the sale of their labor, because they have access to only relatively limited amounts of land and own few livestock.

The piedmont zone shares borders with Guinea-Bissau in the north and Sierra Leone in the south. It consists of higher areas and plains, covered with a combination of forests, gallery forests, and savannah grasslands. There is one rainy season (from May to October) which provides between 2000 and 2500 mm of rainfall per year. The sandy, clay soils are relatively fertile. The population density is rather high (15-100 people/km<sup>2</sup>, depending on the locale), but not as high as in the littoral zone (zone 1).

The main livelihood activities in this zone are agriculture, livestock and horticulture (market gardening and tree cultivation). Parcels of about 0.25-0.5 ha are worked by poor households, increasing to an average of 5 ha for better-off households. The production system varies according to the household's economic status: poor households have mainly hand tools, while in wealthy households animal power, rototillers, and motorized pumps predominate.

Local agriculture is dominated by rice growing; cassava and fonio are important staple foods; groundnuts are the main cash crop; and mangoes are the dominant horticultural crop. Pineapple, papaya, bananas, and citrus fruits are equally important crops in the center and south of this zone. Livestock are raised using migratory herding methods, and consist of cattle belonging to better-off households and the small ruminants (sheep and goats) found in most households (poor and better-off alike).

More well-to-do households obtain most of their food from their own production (local rice, cassava, and fonio), but also purchase food at the market to add variety to their diet. In contrast, poor households barely manage to cover five months of their food needs from their own production; the rest of the time they buy imported rice and eat gathered foods. So poor households spend a significant portion of their income on food for several months and are vulnerable to increases in staple food prices. The Sikhourou and Kindia markets, and Conakry's market in zone 1, are important outlets for this zone.

The main sources of household income in the zone vary depending on household economic status. More well-to-do households derive most of their income from selling the crops (rice and groundnuts) and livestock they produce and providing services (rental of rototillers and animal power). Poor households depend on selling labor, including through travel to Boké (market-gardening work) and to neighboring countries. They also earn income from selling fruits, gathered products, wood, and charcoal.

Poor households sell a large portion of the crops they grow to cover some non-food needs. Sometimes they sell their own rice harvest in order to purchase a larger quantity of imported rice, which is less expensive. There is a highly developed social support system consisting of groups of neighbors that travel around to each member's fields in exchange for one or two meals per day. Demand for unskilled labor arises only after recourse to the social support system.

The zone's main hazards are changes in weather patterns and the bush fires that occasionally destroy fruit plantations. In addition, there are fruit fly (*Drosophila*) infestations each year that lead to the cutting of fruit trees to make charcoal.

**Zone 2: Seasonal Calendar**

	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
<b>Seasons</b>												
Rains												
Lean season												
<b>Crops</b>												
Mangrove rice												
Plains rice												
Market gardening												
Fonio												
<b>Other</b>												
Agricultural labor												
Cereal sales												
Agricultural produce sales												
Wood sales												
<b>Hazards</b>												
Malaria												
<b>Legend</b>												

**Zone 2: Food Access Calendar for Poor Households**

	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
<b>Staple foods</b>												
Rice												
Gathering												
<b>Income</b>												
Fish												
Labor												
Wild food sales												
Charcoal sales												
<b>Expenditures</b>												
Staple foods												
Health expenses												
Education expenses												
<b>Legend</b>												

**CENTRAL PLATEAU: HORTICULTURE, FONIO, LIVESTOCK (ZONE 3)**

<b>Main productive assets</b>	
Poor households	Better-off households
Land	Land
Hoe, machete, axe	Plow, cart
Small ruminants	Draft oxen
Poultry	Small ruminants
	Poultry
<b>Main foods and sources</b>	
Poor households	Better-off households
Local rice (OP), imported rice (MP)	Local rice (OP, MP)
Fonio (OP, MP)	Fonio (OP, MP)
Maize (OP, MP)	Milk, meat (OP, MP)
Sweet potato, cassava, taro	
Gathered foods	
<b>Main income sources</b>	
Poor households	Better-off households
Agricultural and casual labor	Livestock
Market-garden products	Harvested crops
Heating wood/charcoal	Market-garden products
Handicrafts	Fruits
Fruits	Transport
<b>Main markets</b>	
Local	Regional/National
Timbi Madina	Potatoes
Douné, Labé, Dalaba	Market-garden products
Konkoure, Douné	Livestock
Dogomet	Livestock
<b>Main hazards, periods and frequency</b>	
Livestock and poultry diseases	
Localized flooding in August-September	
Delayed rains (May-June)	
Caterpillar attacks (June-September)	
Cercosporiosis in citrus crops (year-round)	
Fruit flies (May-July)	
Hail (localized)	
<b>Coping Strategies for Poor Households</b>	
Increased sale of small ruminants and poultry	
Increased migration from rural areas to urban centers to seek work (women as well as men)	

This zone specializes in animal husbandry and market gardening, and can take advantage of its strategic location to meet the demand for its products on Conakry's market and those in neighboring countries. Additionally, though mine employees are immigrants, their wages boost local business, profiting village residents.

The central plateau zone has high plains and rather temperate prairies that receive between 1500 and 2000 mm of rain each year. The relatively fertile soils are sandy, clayey, or loamy clay. The population density is average, allowing the density of game animals to remain relatively high.

This zone is rich in bauxite and other minerals. Mines in this zone are operated as industrial enterprises and do not offer much work for local labor. However, the purchasing power and demand arising from miners living in the zone are advantageous for local business.

Land is worked mainly by hand, with a minority of parcels cultivated using animal power. While one of the main constraints for poor households is a lack of draft cattle for use in working the land, the very steep topography often hinders the use of animal power (and is even more of a hindrance to the use of machines). A large majority of households keep animals as a form of savings. Small ruminants are the most common of the various animals owned by households, despite plague outbreaks in recent years; however, cattle ownership is concentrated in better-off households (which own large herds in the mountainous regions), while poultry ownership is concentrated more in poor households. Livestock from this zone supply both Conakry and the country's main livestock market (Dogomet), from which animals are sent to Sierra Leone and Liberia. The central plateau zone is a source of seasonal pasturage for migratory herds from the neighboring zones, especially in its southern part.

This zone specializes in market gardening, especially growing potatoes, for which it is a main source of supply for the national market. Sweet potatoes are grown as well, and tomatoes and eggplant are also common. Harvests of these products are more abundant between February and March. Oranges, mangoes, bananas, and avocados are the main fruits grown, and they are harvested from January to June. These products are collected at the Douné market (in Mamou) and the Timbi Madina market (especially potatoes) for distribution mainly in Conakry but also to the country's interior (Kankan). The main gathered food products include *nééré*, *koura*, *booto*, and *laaré* (with peak harvest between March and April).

More well-to-do households have access to the resources and capital necessary for storing and transporting harvested food products and horticultural products; they sell these products both wholesale (destined for Conakry) and retail. As a result, it is common to see higher prices on the markets in the production areas (retail markets) than on the main destination market for these products in Conakry. This means that better-off households (wholesalers) benefit from very low production prices and purchase prices (paid to small growers).

The demand for labor is concentrated in the urban centers of Labé, Timbi Madina (Pita) and Mamou, especially for domestic work and market-gardening work between December and April/May. The market-gardening labor force consists mainly of women; a significant proportion of male workers travel to gold mining zones or to Senegal, Guinea-Bissau, or Gambia. The main strategy for adapting to hazards is increased gathering and searching for work.

**Zone 3: Seasonal Calendar**

	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug
<b>Seasons</b>												
Rains	■	■						■	■	■	■	
Dry season			■	■	■	■	■					
Lean season										■	■	■
<b>Crops</b>												
Highland rice		■	■	■		■	■	■	■	■	■	
Fonio	■	■					■	■	■	■	■	
Maize	■						■	■	■	■		■
Market gardening, fruits			■	■	■	■	■	■	■	■		
<b>Other</b>												
Labor			■	■	■	■	■	■	■			
Firewood, charcoal, handicrafts	■	■	■	■	■	■	■	■	■	■	■	■
Gathering							■	■	■	■		
Livestock sales	Particularly during the lean season, at back-to-school season, and around holidays											
<b>Hazards</b>												
Flooding (1/5 years)	■	■										
Drought (1/10 years)		■	■							■	■	■
Worms (1/3 years)	■											■
<b>Legend</b>	■ land preparation				■ sowing		■ weeding		■ harvest			

**Zone 3: Food Access Calendar for Poor Households**

	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug
<b>Staple foods</b>												
Local rice		■	■	■	■	■	■					
Imported rice	■	■	■	■	■	■	■	■	■	■	■	■
Fonio	■	■	■	■	■	■	■	■	■	■	■	■
Maize	■	■	■	■	■	■	■	■	■	■	■	■
<b>Income</b>												
Labor			■	■	■	■	■	■	■			
Staple crop sales	■	■	■	■	■	■	■	■	■	■	■	■
Market gardening, fruit sales			■	■	■	■	■	■	■	■	■	■
Wild food sales							■	■	■	■	■	■
Firewood, charcoal, handicraft sales	■	■	■	■	■	■	■	■	■	■	■	■
Poultry sales								peak				
<b>Expenditures</b>												
Staple foods	■	■	■	■	■	■	■	■	■	■	■	■
Education expenses		■	■									
Health expenses	■										■	■
<b>Legend</b>	■ own production		■ market purchase		■ payment in kind		■ gathering					

**MOUNTAIN: LIVESTOCK, FONIO, GROUNDNUT (ZONE 4)**

<b>Main productive assets</b>	
Poor households	Better-off households
Land	Land
Small ruminants and poultry	Livestock (cattle, small ruminants)
Traditional beehives	Plow
Small tools	Kenya top bar beehives
<b>Main foods and sources</b>	
Poor households	Better-off households
Fonio	Rice
Cassava	Fonio
Sweet potatoes	Milk/meat
Taro	
<b>Main income sources</b>	
Poor households	Better-off households
Labor	Sale of harvested crops
Harvested crops	Transport (motorcycle-taxi service)
Small ruminants, poultry	Money transfers
Honey	
Firewood	
Gathered products	
Inland fishing in Koin/Tougué	
<b>Main markets</b>	
Koubia/Mali	Fonio, maize
Konah	Market-garden products
Matakaou/Thianguel, Bori	Livestock
Labé	Groundnuts
<b>Main hazards, periods and frequency</b>	
Livestock and poultry diseases	
Cercosporiosis in citrus crops	
Fruit flies	
Localized flooding	
Hail (infrequent)	
<b>Coping Strategies for Poor Households</b>	
Increased sale of livestock	
Increased out-migration from rural areas	

In this heavily populated zone, with its hilly terrain and soils of relatively low fertility, animal husbandry tops the list of ways to create wealth. However, households also manage to sustain a not insignificant agricultural effort, including good production of fonio and groundnuts, and even rice in the deep high-mountain soils.

Annual rainfall in the mountainous region, called the *Fouta*, is 1200-1500 mm, which supports shrub savannah with gallery forests. The soils are latosols, and rather poor, yet this zone has the country's highest rural population density (70-150 people/km<sup>2</sup>). It also experiences the lowest temperatures in Guinea, regularly reaching lows of 8°C, especially from December to February.

This mountain zone specializes in raising livestock, especially cattle in better-off households and poultry in poor households. Nearly all households own at least a few goats and sheep to sell when major expenses come up, especially during the lean period, back-to-school days, and Islamic holidays. The animal husbandry system is generally non-migratory but extensive. The main livestock markets are in Matakaou and Thianguel Bori (reseller markets), and in Labé/Conakry (end markets).

Given the extensive but local system for raising livestock, agricultural land is nearly all fenced. Better-off households use wire fencing, while poor households use wood. Generally speaking, poor households have access to a hectare of land (or often much less) and the most well-to-do households up to 4 ha, normally on community-owned land. Additional land can be rented, but the need for fencing is an important constraint on planting more crops. Better-off households purchase agricultural production factors, but in this zone rice is grown without fertilizer due to the long fallow period. Given the topography, mechanization and sometimes even the use of animal power are difficult on most plots of land; most agricultural work is done by hand. The recommended fallow period is from four to seven years, which is a problem for poor households that have only small plots of land.

The main crops are upland rice, fonio (which grows extremely well in this zone), and groundnuts, often with the rotation rice-fonio-groundnuts followed by 4 to 7 fallow years. Cassava can be grown

instead of rice in some areas. Though maize is less important as a staple food compared to zone 6 in the north, it is planted near dwellings. Part of the maize is harvested "green" in August/September to help get through the lean period. The small-scale gathering of honey for sale is also important in this zone. (The honey is sent to Diaoube in Senegal to be sold under a Senegalese designation.) Market gardening is also practiced (with products taking the commercial route: local market - Konah - Labé - Conakry). Labé is also an assembly market for groundnuts, some of which are exported to Senegal.

Poor households are reported to be larger than better-off households, but the difference tends to be due to a larger number of young dependents rather than a high number of able-bodied workers. Still, it is interesting to note that the terms of trade for labor/imported rice are rather unfavorable, at about 3 kg/day worked, or slightly less.

The main constraints on poor households' access to food (especially imported rice) during the lean period include:

- Informal food credit, which is infrequent in the zone.
- The cost of fencing and long recommended fallow periods are a hindrance to working more land.

- Poor management of food supplies and income related to low literacy levels.

School cafeterias (WFP) are widespread here. During the worldwide price crisis in 2008, the WFP distributed some food aid within the zone. In 2010, the FAO distributed agricultural production factors.

**Zone 4: Seasonal Calendar**

	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug
<b>Seasons</b>												
Rains	■	■							■	■	■	■
Dry season			■	■	■	■	■	■				
Lean season										■	■	■
<b>Crops</b>												
Rice		■	■	■			■	■	■	■	■	■
Fonio	■	■	■				■	■	■	■	■	■
Sweet potato, taro					■	■	■			■	■	■
Groundnut	■	■					■	■	■	■	■	
Maize	■	■					■	■	■	■		■
Honey									■	■		
<b>Other</b>												
Local labor	■	■	■	■						■	■	■
Migrant labor					■	■	■	■	■			
Firewood	■	■	■	■						■	■	■
Handicrafts	■	■	■	■						■	■	■
<b>Hazards</b>												
Hail	■	■								■	■	■
Livestock disease					■	■	■					
High price of staple foods							■	■	■	■	■	■
<b>Legend</b>	■ land preparation			■ sowing			■ weeding			■ harvest		



Zone 4: Food Access Calendar for Poor Households

	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug
<b>Staple foods</b>												
Local rice		own production	own production	own production								
Fonio	own production	own production	own production	own production	own production	own production	own production	market purchase	market purchase	market purchase	market purchase	own production
Sweet potato, taro					own production	own production	own production					
Imported rice	market purchase							market purchase	market purchase	market purchase	market purchase	market purchase
Gathering				Baobab fruit, orange			Mango	Avocado				
<b>Income</b>												
Labor												
Livestock sales									peak			
Staple food sales												
Firewood, handicraft sales												
Gifts												
<b>Expenditures</b>												
Staple foods												
Education expenses												
Health expenses												
<b>Legend</b>		own production						market purchase		payment in kind		gathering

**MOUNTAIN: RICE, LIVESTOCK FONIO (ZONE 5)**

<b>Main productive assets</b>	
Poor households	Better-off households
Land Small ruminants and poultry Small tools	Land Livestock (cattle, small ruminants) Plow
<b>Main foods and sources</b>	
Poor households	Better-off households
Fonio Sweet potato Taro	Rice Fonio Milk/meat
<b>Main income sources</b>	
Poor households	Better-off households
Labor Sale of small ruminants and poultry Sale of honey Sale of heating wood Sale of gathered products	Sale of harvested crops Sale of livestock Transport (motorcycle-taxi service) Money transfers
<b>Main markets</b>	
Koubia/Mali Konah  Matakaou, Thianguel Bori Labé	Fonio, maize Market-garden products Livestock  Groundnuts
<b>Main hazards, periods and frequency</b>	
Livestock and poultry diseases Hail (infrequent)	
<b>Coping Strategies for Poor Households</b>	
Increased sale of livestock	

Zone 5 shares characteristics with zone 4 to the east, especially in terms of the distribution of wealth and the seasonal and consumption calendars. This zone, however, is relatively more isolated and is distinctive in that rice is the most important source of income, ahead of livestock. Rural forestry (especially involving bamboo) is a source of both income and raw material for handicrafts. In this zone there is a community support system where field work is concerned, whereby poor households offer labor to neighbors and relatives. Groups of as many as 50-60 people work together in a single field; the owner offers the group one or two meals for a day of work. Otherwise, a payment-in-kind system for field work exists throughout the country, especially at harvest time, though cash payment is generally more common. During the field visit, payment of the *dime* (the tenth sheaf of rice harvested) was mentioned as the most common form of payment during harvest time within this zone.

The importance of agriculture in this sub-zone, and the scarcity of locally available pasturage, mean that, unlike zone 4, there is an annual migration of most cattle to zone 2, especially to Boké, from December/January to May.

For the seasonal calendar and main food, income, and expenditure cycles for zone 5, see zone 4.

**NORTHERN PLATEAU: RICE, GROUNDNUT, LIVESTOCK (ZONE 6)**

<b>Main productive assets</b>	
Poor households	Better-off households
Land	Land
Small ruminants and poultry	Cattle and small ruminants
Traditional beehives	Animal-drawn plows
Small tools	Sometimes tractors
	Motorcycles
	(Animal-drawn carts in Koundara)
<b>Main foods and sources</b>	
Poor households	Better-off households
Millet/sorghum	Local rice
Imported and local rice	Maize
Maize	Millet/sorghum
Cassava	Game/dried fish
Groundnuts	
<b>Main income sources</b>	
Poor households	Better-off households
Labor	Harvested crops
Poultry	Livestock
Palmyra palm wine	Plow rental
Harvested crops	Trading
Handicrafts (basketwork, pottery)	Transport
Wild foods: honey, fruit of the baobab tree	
Fish and wild game sales	
<b>Main markets</b>	
Sareboïdo	Rice, groundnuts
Koumbia	Livestock
<b>Main hazards, periods and frequency</b>	
Livestock/poultry diseases	
<b>Coping Strategies for Poor Households</b>	
Excessive animal sales	
Increased out-migration from rural areas	

This border zone at the foot of the mountains of zones 4 and 5 suffers from skeletal soils that affect cereal production, and from a shortage of land that remains moist in the off-season, a lack that hinders market gardening. Poor households depend heavily on the sale of their labor, whether locally or outside the zone. This zone is relatively poor.

The northern plateau is distinguished from the mountainous zones 4 and 5 in the south especially by a steep drop in elevation from 1200 m in the mountains to 400 m on the northern plateau’s sandy plains. Vegetation is of shrub-savannah and woodland-savannah types on alluvia, hills, plateau, and hard pan. The country’s lowest rainfall is seen here. Still, the zone receives between 1000 and 1200 mm/year, especially between June and October, which makes rain-fed agriculture possible, predominantly involving rice and maize, with millet, sorghum, and cassava as well. The soils are less fertile than in other areas of Guinea and population density is average. Indeed, this zone is similar to the neighboring zone in Senegal.

The main income-producing activities in the zone are agriculture (upland rice, millet/sorghum/maize, groundnuts, cassava) and trading (well-to-do households). Good rice production is generally possible only with the use of fertilizer; rice and groundnuts are grown mainly at Koundara and Gaoual. The zone achieves rather prolific maize production, especially at Mali (Toubas Bagadadji, Madina Wora, Lébékéré), and there is significant gathering of *dixin* (or “monkey bread,” the fruit of the baobab tree). These products are collected in Labé or sometimes exported directly to Senegal. The sandy soils are also favorable for growing Palmyra palms, used to make palm wine as well as mats and baskets. Poor households seem to sell their labor more than is done in the neighboring zones to the south, especially during the harvest. Most households, even poor ones, have at least a few small ruminants; better-off households also have cattle and poor households poultry, which serve as a source of savings for major expenses (ceremonies and holidays, schooling, health care, food during the lean period, construction).

Women are active on the markets, selling rice and groundnuts; men handle livestock trading (their livestock business extends all the way to Gaoual).

This zone is considered poorer than the southern zones, as there are no significant opportunities for market gardening during the dry season. Furthermore, the maize grown is a longer-cycle variety that is not harvested until September—a month later than the earlier varieties grown in the neighboring mountains of zones 4 and 5. This means that the northern plateau zone has a longer lean period than the others.

This zone’s labor force sometimes travels to zone 4 or 5, or even to Labé to work in dry-season market gardens. The workers return in August to harvest the maize (paid in kind) that helps mitigate the lean period. Some workers travel farther away, mainly to Guinea-Bissau, Senegal, and Gambia.

Zone 6: Seasonal Calendar

	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
<b>Seasons</b>												
Rains	■								■	■	■	■
Dry season		■	■	■	■	■	■	■				
Lean season										■	■	■
<b>Crops</b>												
Highland rice	■	■	■					■	■	■		
Millet, sorghum	■	■	■					■	■	■		■
Cassava		■	■	■								
Groundnut	■	■				■	■	■	■	■		■
Cotton	■	■				■	■	■	■			■
<b>Other</b>												
Labor		■	■	■	■	■						
Staple food sales	■	■										
Gathering (honey, dixta)		■	■	■		■	■	■	■	■	■	■
Firewood	■	■	■	■	■	■						
<b>Other</b>												
Livestock disease	■							■				
<b>Legend</b>	■ land preparation			■ sowing			■ weeding			■ harvest		

Zone 6: Food Access Calendar for Poor Households

	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
<b>Staple foods</b>												
Millet, sorghum	■	■	■	■	■	■	■	■	■	■	■	■
Local rice	■	■	■	■	■	■	■	■	■	■	■	■
Cassava		■	■	■	■	■	■	■	■	■	■	■
Imported rice						■	■	■	■	■	■	■
Groundnut	■	■	■	■	■	■	■	■	■	■	■	■
Gathering			■	■	■	■	■	■	■	■	■	■
<b>Income</b>												
Labor	■	■	■	■	■	■	■	■	■	■	■	■
Livestock	■	■	■	■	■	■	■	■	■	■	■	■
Staple foods	■	■	■	■	■	■	■	■	■	■	■	■
Honey								■	■	■	■	■
Firewood, handicrafts	■	■	■	■	■	■	■	■	■	■	■	■
Gifts							■	■	■	■	■	■
<b>Expenditures</b>												
Staple foods	■	■	■	■	■	■	■	■	■	■	■	■
Education expenses	■											
Health expenses										■	■	■
<b>Legend</b>	■ own production			■ market purchase			■ payment in kind			■ gathering		

**SAVANNAH WITH SHRUBS: RICE, GOLD MINING, LIVESTOCK (ZONE 7)**

<b>Main productive assets</b>	
Poor households	Better-off households
Agricultural land	Agricultural land
Poultry	Cattle
Goats, sheep	Goats, sheep
Cultivating tools	Plow
<b>Main foods and sources</b>	
Poor households	Better-off households
Cassava (OP, MP)	Rice (OP)
Maize (OP, MP)	Cassava (OP)
Fonio (OP, MP)	Fonio (OP)
Rice (OP)	Maize (OP)
<b>Main income sources</b>	
Poor households	Better-off households
Food products (rice, cassava, maize) and groundnuts	Food products (rice, cassava, maize, fonio) and groundnuts
Agricultural and mine labor	Livestock
Wood and charcoal	Trading
Gathered products	
Livestock	
<b>Main markets</b>	
Dabola	
Faranah	
Kerouane	
Mandiana	
M' Bonet (livestock)	
<b>Main hazards, periods and frequency</b>	
Fires (every year)	
Flooding (every three years)	
<b>Coping Strategies for Poor Households</b>	
Eating millet/sorghum instead of rice and maize	

Residents of this large, lightly-populated zone have significant areas of arable land, with moderately fertile soils on the vast alluvial plains and in the lowlands, enabling them among other things to be at least self-sufficient in the rice grown as the main staple food. However, gold mining draws young villagers (and thousands of immigrant workers) to such an extent that field workers have become expensive, causing well-to-do households to mechanize production and invest more in gold mining themselves.

This zone is located in the eastern part of the country and covers all of Kouroussa's sub-prefectures except Douako in the south, Kankan prefecture, and Komodou sub-prefecture north of Kérouané prefecture. It is Guinea's least hilly zone, consisting predominantly of vast plains on indurated alluvia, interrupted by lowlands and watercourses. One of the Niger River's sources lies in this zone. The Niandan range in the zone's north and east separates it from its neighbor, zone 8. The soils are not generally very fertile, and consist mainly of ferrisols and fersiallitic soils. The predominant vegetation is shrub savannah and woody vegetation growing on fallow land. The rainy season lasts from May to October, and average annual rainfall ranges from 1500 to 2000 mm. The population density is low, with 10-20 people/km<sup>2</sup>.

Agriculture and animal husbandry are the main livelihood activities for most households. The areas cultivated by households are the largest of all the livelihood zones: the average size of fields is 2 ha, with some better-off households working between 10 and 30 ha. Agricultural production is dominated by rice, cassava, maize, and fonio, but more maize is consumed in the northern part of the zone than elsewhere. There is a bit of yam-growing in the southern part of the zone (in Tinti-Oulen and Missamana). Rice production is significant in the shrub savannah zone; the crop is destined mainly for sale, and in order to get the benefit of good prices for their rice, the poor preferentially eat cassava, maize, and fonio. Market

gardening is practiced year-round by women from poor households, but intensifies during the dry season. The sale of market-garden crops provides them with income. Cashew orchards kept by better-off households also provide work opportunities for poor households during the harvest and, along with gold mining, help keep young people in the zone. They used to go to the forested area in the south during the dry season to work on coffee, palm, and other plantations and in the lumber industry.

Livestock is sedentary and consists mainly of poultry and small ruminants in poor households. Aside from poultry, the sale of small ruminants is generally used to meet expenses for ceremonies. The poor sometimes own a team of oxen, while those who are better off raise larger numbers of cattle, sheep, and goats.

The well-to-do eat rice as their first preference, followed by cassava, fonio, and maize. They purchase part of what poor households harvest to build commercial stocks or add to their own food stores (the poor are forced to sell their harvest to cover immediate needs, including repayment of loans). With their own crops, the poor can cover six months of their basic food needs and depend on the market for the rest, especially between March and August, while better-off households produce enough to cover most of their needs and sell the rest. For poor households, the lean period begins in July and ends in September as harvesting of early crops begins in that month.

Poor households derive their income from selling agricultural products, mine labor, gathered products, wood, charcoal, and poultry. Poor households in some parts of the zone, mainly along watercourses, are able to fish but this activity is not very

widespread. Hunting and selling bush meat is another income-generating activity for poor households. The main income sources for the well-to-do are selling crops and livestock and trading.

Artisanal gold mining is the third most important income source for local households, and attracts workers from all regions of Guinea as well as Mali and Burkina Faso. Small-scale gold mining is one of the characteristic activities in this zone, and also its neighbor zone 8. The work force consists mainly of members of the zone’s poor households who work throughout the year, with a peak from December to April, but also of many young people from zone 9 and other parts of the country who are seeking employment during the dry season. Women from poor households also engage in this activity by washing the aggregate. The activity has been modernized through the introduction of metal detectors, supplied by well-to-do owners, and small units for crushing and grinding aggregate have been installed in Kouroussa and at other sites.

This significant labor pool creates a strong demand for consumable goods, including staple foods, providing good business opportunities for producers in the zone. The zone is also supplied with rice, banana plantains, cassava, yams, sweet potatoes, taro, and palm oil from zones 9, 10, and 11. Income from gold mining (when it is high) also makes investment in agriculture possible. However, the mines’ attraction for labor is also a constraint on agriculture, for which finding labor is increasingly difficult. As a result farmers increasingly mechanize and intensify agriculture with mineral fertilizers, herbicides, and mechanical and animal power. In order to prevent accidents in mines and redirect workers to agriculture, the government officially stops work at traditional gold mining sites from June to September. This is effective for migrant laborers, though local laborers often continue work.

Households’ adaptive strategies in the face of economic hardships include growing more dry-season crops; selling wood, charcoal and labor; increasing consumption of gathered foods; and borrowing.

*Zone 7: Seasonal Calendar*

	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug
<b>Seasons</b>												
Rains												
Dry season												
Lean season												
<b>Crops</b>												
Rice												
Highland cassava												
Lowland cassava												
Maize												
Fonio												
<b>Other</b>												
Staple food crop sales												
Mining labor												
Agricultural labor												
Firewood, charcoal sales												
Wild foods												
Livestock												
Hunting												
Market gardening												
<b>Hazards</b>												
Bush fire												
Flood												
Crop disease/pests												
<b>Legend</b>												

Zone 7: Food Access Calendar for Poor Households

	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug
<b>Staple foods</b>												
Cassava	market purchase	market purchase	own production	own production	own production	own production	own production	market purchase	market purchase	own production	own production	own production
Maize	own production	own production	own production	own production	own production	own production	own production	market purchase	market purchase	market purchase	market purchase	market purchase
Fonio	own production	own production	own production	own production	own production	own production	own production	own production	market purchase	market purchase	market purchase	market purchase
Local rice		own production	own production									
Gathering						gathering	gathering	gathering	gathering	gathering		
<b>Income</b>												
Staple foods		own production	own production	own production								
Mining labor						peak	peak	peak	peak	peak	peak	peak
Agricultural labor		peak									peak	
Firewood, charcoal sales						peak	peak	peak	peak	peak	peak	peak
Wild food sales												
Livestock sales											peak	
Market gardening sales												
<b>Expenditures</b>												
Staple foods												
Education expenses												
<b>Legend</b>		own production		market purchase		payment in kind		gathering				

**NORTHEAST: MAIZE, GOLD MINING, LIVESTOCK (ZONE 8)**

<b>Main productive assets</b>	
Poor households	Better-off households
Agricultural land	Agricultural land
Poultry	Cattle
Goats, sheep	Sheep, goats
Cultivating tools	Plow, cart, motorcycle
<b>Main foods and sources</b>	
Poor households	Better-off households
Maize (OP, MP)	Maize (OP)
Millet/sorghum (OP, MP)	Rice (OP)
Rice (OP, MP)	Millet/sorghum (OP)
<b>Main income sources</b>	
Poor households	Better-off households
Foods (maize, rice) and groundnuts	Foods (rice, maize, sorghum, groundnut)
Agricultural and mine labor	Trading
Heating wood, charcoal	Sale of livestock
Gathered products	
Livestock	
<b>Main markets</b>	
Dinguiraye, Siguiri, Mandiana	Maize, rice, groundnuts
Niantanina	Fonio, poultry
Siguiri	Cattle
<b>Main hazards, periods and frequency</b>	
Bush fires (every year)	
Flooding, water rising early (every three years)	
Irregular rainfall at the beginning of the season	

The major difference between this zone and its neighbor zone 7 is heavy dependence on maize instead of rice—and the maize surplus that supplies the national market. Additionally, its long border with Mali offers the advantage of cross-border trading not only in agricultural products, but in livestock and poultry as well. As far as farming conditions and the characteristics of the gold mining sector, the above comments on zone 7 apply to this zone as well.

The zone covers all of Dinguiraye, Siguiri, and Mandiana prefectures. Except in the northern parts of Siguiri and Dinguiraye, it is also one of the country’s least hilly areas, with buttes, plateaus in the north, plains, and lowlands. Indurated alluvia cover a large part of Siguiri and Mandiana. In general, the soils are not very fertile, and consist mainly of ferrisols in higher-elevation areas and hydromorphic soils in the lowlands. The dominant vegetation ranges from shrub-savannah to woodland-savannah types associated with fallow land on which woody vegetation is growing, and patches of forest. The rainy season runs from May to September, with rainfall varying between 1000 and 1500 mm/year. The population density is 6-15 people/km<sup>2</sup> in the north and south of the zone, and 16-30 people/km<sup>2</sup> in the center, so generally speaking it is relatively low.

Crop and livestock farming are the main livelihood activities for most households. The average size of fields is 2-3 ha, with better-off households working 10-20 ha, which means that in a nationwide comparison the areas worked by households are relatively large. Agricultural production is dominated by maize, with millet/sorghum and rice coming second. Poor households’ harvests cover six months of their basic food needs, so these households depend on the

market from March to August, while more well-to-do households cover most of their needs and sell what is left over. Poor households tend to raise and sell goats and poultry, while better-off households raise cattle, sheep, and larger numbers of goats.

Poor households derive their income from selling their crops, mine labor, gathered products, wood, charcoal, poultry, and small ruminants. Better-off households sell their crops and livestock and engage in trading as their main income sources. As in zone 7, cashew orchards kept by better-off households also provide work opportunities for poor households.

Also as in zone 7, rice is grown mainly for sale. Poor households preferentially consume maize, followed by millet/sorghum. More well-to-do households prefer maize followed by rice, and also eat millet/sorghum—all of which come mainly from their own crops. Market gardening, which is practiced mostly during the dry season, involves the women, who work areas averaging 0.1-0.25 ha in size. Selling their produce brings them substantial income. Better-off households purchase part of what poor households harvest to build commercial stocks or add to their own food stores.

Again as in neighboring zone 7, gold mining—with the addition of diamond mining in the central and southern parts of the zone—is an important income source for local households (ranked third) and attracts labor from all regions of Guinea as well as from Mali and Burkina Faso. Small-scale mining is one of the zone’s main characteristics, involving exactly the same production factors and effects on farming as in zone 7 (see above).

This zone was also formerly an important center for cotton production, which has been declining for over a decade. Estimates indicate that between 1990 and 2012, the number of cotton-growing households has declined from 40,000 to about 5,000.



Livestock raising is semi-extensive in nature, involving mainly poultry, small ruminants, and donkeys in poor households. Poultry aside, the sale of small ruminants generally pays for ceremonial expenses.

Household strategies for adapting to (rather rare) crop failures or other economic misfortunes include growing more dry-season crops; selling labor, wood, and charcoal; consuming more gathered foods and/or less-preferred foods, and borrowing.

**Zone 8: Seasonal Calendar**

	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug
<b>Seasons</b>												
Rains	Blue								Blue	Blue	Blue	Blue
Dry season		Gold	Gold	Gold	Gold	Gold	Gold	Gold				
Lean season											Red	Red
<b>Crops</b>												
Maize	Dark Green	Dark Green	Dark Green				Light Green	Light Green	Light Green	Light Green	Light Green	Dark Green
Millet, sorghum	Light Green	Light Green	Light Green	Light Green			Light Green	Light Green	Light Green	Light Green	Light Green	Light Green
Rice	Light Green	Light Green	Light Green	Light Green			Light Green	Light Green	Light Green	Light Green	Light Green	Light Green
<b>Other</b>												
Staple food sales		Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue
Mining labor		Light Blue peak										
Agricultural labor	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue
Market gardening sales				Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue
Wild food sales							Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue
Firewood, charcoal sales		Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue
Livestock sales	Light Blue										Light Blue	Light Blue
<b>Hazards</b>												
Bush fire				Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue
Flood										Light Blue	Light Blue	Light Blue
Crop disease/pests	Light Blue	Light Blue									Light Blue	Light Blue
<b>Legend</b>		Light Green land preparation					Light Green sowing		Dark Green weeding		Dark Green harvest	

*Zone 8: Food Access Calendar for Poor Households*

	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug
<b>Staple foods</b>												
Maize												
Millet, sorghum												
Rice												
<b>Income</b>												
Staple food sales												
Mining labor						peak						
Agricultural labor	peak										peak	
Livestock sales												peak
Firewood, charcoal sales						peak						
Wild food sales												
Market gardening sales												
<b>Expenditures</b>												
Staple foods												
Education expenses												
<b>Legend</b>												
		own production				market purchase		payment in kind				gathering

**WOODED SAVANNAH: RICE, MANIOC, GROUNDNUT (ZONE 9)**

<b>Main productive assets</b>	
Poor households	Better-off households
Agricultural land	Agricultural land
Poultry	Cattle
Goats, sheep	Goats, sheep
Cultivating tools	Plow
<b>Main foods and sources</b>	
Poor households	Better-off households
Rice (OP, MP)	Rice (OP)
Cassava (OP, MP)	Cassava (OP)
Maize ( OP, MP )	Fonio (OP)
Fonio ( OP, MP )	Maize (OP)
<b>Main income sources</b>	
Poor households	Better-off households
Crop sales (rice, cassava, maize, groundnut)	Crop sales (rice, cassava, maize, fonio, groundnut)
Agricultural, mine labor	Livestock sales
Wood, charcoal sales	Trading
Gathered product sales	
Livestock	
<b>Main markets</b>	
Dabola	
Faranah	
Kerouane	
Dagomet, Maréla (livestock)	
<b>Main hazards, periods and frequency</b>	
Fires (every year)	
Flooding (every three years)	
Crop pests (every year)	
Livestock diseases (every year)	
<b>Coping Strategies for Poor Households</b>	
Eating sorghum instead of rice	

This zone, criss-crossed with rivers, represents an ecological transition between the forested region in the south and the savannah plains and placer-mining region to the north. It is self-sufficient with respect to food, rather than supplying commodities for the national market. It produces large quantities of groundnuts as a cash crop, and good cassava crops that are used to mitigate the lean period in poor households during the time of year when their supplies of cereals and resources to purchase them have run out.

This zone is located in the eastern and central part of the country and covers all of Dabola prefecture; all of Faranah prefecture except for Kobikoro sub-prefecture; the northern sub-prefectures of Kissidougou; the central, eastern and western sub-prefectures of Kérouané; the northern sub-prefectures of Beyla, and the south of Kouroussa and Kankan. Except in Faranah, where there is gently rolling terrain with scattered buttes, the landscape is hilly with small lowlands hemmed in by steep banks. The predominant soils are latosols near Dabola and Faranah, vertisols near Kérouané, and ferrisols associated with fersiallitic soils. Vegetation ranges from shrub-savannah types to woodland-savannah types associated with fallow land on which woody plants are growing. The rainy season lasts from May to October, and average annual rainfall ranges from 1500 to 2500 mm.

Agriculture is mainly rain-fed and, along with livestock raising, is one of the main livelihood activities for most households. However, the proximity of gold mining sites in zones 7 and 8 allows many able-bodied members of poor households to go there during the dry season to sell their labor. The main crops grown are rice, groundnuts, cassava, maize, and fonio. This zone is in the heart of the groundnut basin (Dabola, northern Faranah, western Kouroussa, southern Dinguiraye, and eastern Mamou) and is home to a groundnut oil extraction facility that is currently under renovation

after sitting idle for many years. (In the immediate vicinity of Faranah there was once a cassava-processing plant.)

All categories of households preferentially eat rice and cassava, followed by maize and fonio, with a preference for fonio among the well-to-do. Better-off households produce most of their staple food needs, while poor households' own crops cover six months of their needs beginning in September. Livestock are raised using a semi-extensive system and consist mainly of poultry, goats, and sheep (in rather small numbers) among the poor, with the addition of cattle in better-off households, which have larger numbers of all types of animals. At harvest time, between October and December, when poor households are selling part of their crops to meet other expenses, those who are better off purchase these products to build commercial stocks or add to their own food stores.

Poor households derive their income from selling agricultural products, mine labor—by going to zones 7 and 8 (Siguiri, Dinguiraye, Mandiana) during the dry season—, heating wood and charcoal, poultry, and gathered products. Low-paid farm labor is declining in the zone in favor of placer mining. Poor households in some parts of the zone hunt and fish, which brings them some income. The main source of income for better-off households is selling their crops and livestock, and trading.

The livestock markets in Dogomet, the country's largest, and Marela, in the western part of the zone near zone 3, are an important source of supply for Sierra Leone and neighboring Liberia.

This zone’s lean period begins in June and ends in August, and for poor households corresponds to exhaustion of their supplies of rice and the consumption of more cassava in all its forms. Even after supplies have run out, access to food on the market is not a major constraint for households.

Household strategies for adapting to economic hazards include dry-season crops, increased sale of heating wood and charcoal, the sale of labor, and increased consumption of gathered products.

*Zone 9: Seasonal Calendar*

	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug
<b>Seasons</b>												
Rains	Blue	Blue							Blue	Blue	Blue	Blue
Dry season			Yellow	Yellow	Yellow	Yellow	Yellow	Yellow				
Lean season											Red	Red
<b>Crops</b>												
Rice	Green	Green	Green	Green			Light Green	Light Green	Light Green	Light Green	Light Green	Light Green
Highland cassava	Green	Green	Green	Green	Green	Green	Light Green	Light Green	Light Green	Light Green	Light Green	Light Green
Lowland cassava			Light Green	Light Green	Light Green	Light Green	Light Green	Light Green	Light Green	Light Green	Light Green	Light Green
Groundnut	Green						Light Green	Light Green	Light Green	Light Green	Light Green	Light Green
Maize	Green	Green	Green				Light Green	Light Green	Light Green	Light Green	Light Green	Light Green
Fonio	Green	Green					Light Green	Light Green	Light Green	Light Green	Light Green	Light Green
<b>Other</b>												
Staple food sales		Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue
Livestock sales				Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue
Agricultural labor	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue
Migratory labor			Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue
Firewood, charcoal sales			Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue
Market gardening sales			Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue
Wild foods							Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue
Hunting		Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue
<b>Hazards</b>												
Bush fire				Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue
Flood										Light Blue	Light Blue	Light Blue
Crop disease, pests	Light Blue	Light Blue									Light Blue	Light Blue
<b>Legend</b>		land preparation				sowing		weeding		harvest		

*Zone 9: Food Access Calendar for Poor Households*

	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug
<b>Staple foods</b>												
Cassava	market purchase	market purchase	own production	own production	own production	own production	own production	market purchase	market purchase	own production	own production	own production
Maize	own production	own production	own production	own production	own production	own production	own production	market purchase	market purchase	market purchase	market purchase	market purchase
Fonio	own production	own production	own production	own production	own production	own production	own production	own production	market purchase	market purchase	market purchase	market purchase
Local rice		own production	own production									
Wild foods							gathering	gathering	gathering	gathering		
<b>Income</b>												
Staple food sales		payment in kind	payment in kind	payment in kind	payment in kind	payment in kind	payment in kind	payment in kind	payment in kind	payment in kind	payment in kind	payment in kind
Livestock sales	payment in kind	payment in kind	payment in kind	payment in kind	payment in kind	payment in kind	payment in kind	payment in kind	payment in kind	payment in kind	payment in kind	peak
Agricultural labor	peak	payment in kind	payment in kind	payment in kind	payment in kind	payment in kind	payment in kind	payment in kind	payment in kind	payment in kind	peak	
Migratory labor		payment in kind	payment in kind	payment in kind	payment in kind	payment in kind	payment in kind	payment in kind	payment in kind	payment in kind	payment in kind	payment in kind
Firewood, charcoal sales			payment in kind	payment in kind	payment in kind	payment in kind	payment in kind	payment in kind	payment in kind	payment in kind	payment in kind	payment in kind
Market gardening sales			payment in kind	payment in kind	payment in kind	payment in kind	payment in kind	payment in kind	payment in kind	payment in kind	payment in kind	payment in kind
Wild food sales							payment in kind	payment in kind	payment in kind	payment in kind	payment in kind	payment in kind
Wild game sales	payment in kind	payment in kind	payment in kind	payment in kind	peak	payment in kind	payment in kind	payment in kind	payment in kind	payment in kind	payment in kind	payment in kind
<b>Expenditures</b>												
Staple foods								market purchase	market purchase	market purchase	market purchase	market purchase
Education expenses		payment in kind	payment in kind									
<b>Legend</b>		own production		market purchase		payment in kind		gathering				

**PRE-FOREST ZONE: RICE, MANIOC, LIVESTOCK (ZONE 10)**

<b>Main productive assets</b>	
Poor households	Better-off households
Land	Land
Small tools (machete, hoe)	Plows Carts
Small ruminants	Draft cattle
Poultry	Motorcycles Rice hulling machine, mill
<b>Main foods and sources</b>	
Poor households	Better-off households
Rice (OP, MP)	Rice (OP)
Cassava (OP, MP)	Maize (OP)
Maize (OP, MP)	Cassava (OP)
<b>Main income sources</b>	
Poor households	Better-off households
Artisanal mining labor	Mine production
Agricultural production	Agricultural production
Livestock by-products	Livestock
Gathered products	Trading in wood
<b>Main markets</b>	
Sinko: rice and maize	
Beyla: livestock, food products	
Komodou/Kerouane: cassava	
Konsankoro: groundnuts	
<b>Main hazards, periods and frequency</b>	
Changes in rainfall patterns	
Livestock diseases	

In this zone, the profitability of mineral extraction tends to reduce households' efforts in the fields and makes part of the rural population heavily dependant on the market for its food security.

The pre-forest zone consists of plains, lowlands, hills, and mountains with woodland vegetation. It shares borders with Cote d'Ivoire to the east and Sierra Leone to the west, a position that gives it high potential for commercial exchanges with these countries.

Annual rainfall ranges from 1500 to 2000 mm, with rains from May to October. Cultivated land has sandy, clay soils and is relatively fertile. Cultivated areas range from 0.5 ha for poor households to 2 ha for better-off households. The main livelihood activities are agriculture, animal husbandry, artisanal mining (mainly diamonds), and handicrafts. Agriculture is mostly rain-fed and produces a surplus of food products each year, using a manual production system for poor households and animal- or motor-powered systems for better-off households. Livestock raising of small ruminants (and poultry) is widespread, with cattle in well-to-do households only. Handicrafts are done all year, mainly by women.

Diamond mining plays an important role in household life in this zone. In addition to the guaranteed demand for labor it offers the poor, it constitutes the main income source for the better-off households that operate the mines and sell the gold or diamonds. But the mining labor force also includes workers from neighboring zones and foreigners. Better-off households also engage in small-scale diamond mining in some parts of the zone and trade in wood, all involving hiring the poor as laborers.

The market is a decisive factor in the pre-forest zone's food security. Despite the zone's surpluses, poor households buy food (imported rice, cassava, and maize) over a five-month period (from March to July) and receive payments in kind during harvest time. The nature of the lean period can explain poor households' relatively high food expenses. More well-to-do households eat what they grow themselves, and often buy livestock products such as milk and meat on the market.

The Sinko and Beyla markets control the marketing of food products; these markets supply Conakry with rice and maize.

The most common hazards in this zone are changes in weather patterns and livestock diseases.



**FOREST: RICE, PALM OIL, COFFEE (ZONE 11)**

<b>Main productive assets</b>	
Poor households	Better-off households
Land	Land
Small ruminants	Draft cattle
Poultry	Small ruminants
Machete	Poultry
Hoe, axe	Plow
Oil press	Cart/handcart
	Processing machines
<b>Main foods and sources</b>	
Poor households	Better-off households
Rice (OP, MP)	Local rice (OP)
Cassava (OP)	Banana (OP)
Taro	Cassava (OP)
Sweet potato	
Banana (OP, PK)	
<b>Main income sources</b>	
Poor households	Better-off households
Agricultural products (food and cash crops)	Agricultural products (food and cash crops)
Palm oil	Sale of livestock
Handicrafts	Trading in palm oil
Animals	Trading in food and cash products
Gathered products	Trading in wood
Forest-derived essential oil	
Charcoal	
<b>Main markets</b>	
Lola: Local rice, maize, groundnuts	
Zoo (Lola)	
Nzérékoré: coffee, hevea, and palm oil	
<b>Main hazards, periods and frequency</b>	
Changes in weather patterns	
Epizootic diseases/crop pests (especially caterpillars)	
Livestock diseases (pseudorinderpest of small ruminants)	
<b>Coping Strategies for Poor Households</b>	
High staple food prices	
Rarity of food products on the market	

In addition to its forest resources, this zone enjoys especially favorable conditions for agriculture—especially perennial crops grown for cash—namely high rainfall totals and very fertile soils. So it is relatively wealthy, yet there are still many poor households that cannot live off their land alone and must depend on palm oil extraction and the sale of their labor, among other things.

The forest zone is characterized by lowlands, plains, hills, and mountains, with both dense and open forest. On the east, it shares a border with Cote d’Ivoire, on the west with Sierra Leone, and on the south with Liberia. In addition to its wood and game resources, it contains iron deposits.

Average annual rainfall ranges from 2000 to 2500 mm (from April to October). Vertisols, soils known to be very fertile in humid areas, are widespread, with inclusions of equally fertile brown soils and some ferriferous soils and latosols. Well-to-do households work parcels of about 1 ha, poor households parcels of 0.4 ha. The main livelihood activities are agriculture, fish farming, livestock, and trading.

Two types of farming are practiced in this zone: rain-fed and irrigated. Food crops are mainly rice, maize, cassava and groundnuts. Cash crops are also widely grown in this zone, namely coffee, cocoa bean, kola, palm oil, and hevea. As shown by its crop diversity, this zone’s productivity is high, accounting for the significant volume of cross-border trade.

Wealthy households eat mainly what they grow themselves (rice, cassava, banana, etc.). They also buy food for the sake of variety in their diet, unlike the poor, who must buy staple foods during the several months not covered by their harvest.

Wealthy households derive their income from selling and trading in food and cash products, and from selling livestock and trading in palm oil as well. Swine are the predominant livestock, with a few groups of sheep and goats. Poor households’ income is derived mostly from extracting palm oil, selling labor to do forestry work, and selling food and cash products.

The Nzérékoré market is where cash crops such as coffee and hevea are traded with neighboring countries and European countries (France) while the Lola market supplies Conakry with local rice and other food products (maize, groundnuts, etc.).

The most common hazards in the zone are changes in weather patterns and livestock diseases.





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