Ejo Heza Livelihood Baselines: Southern and Western Provinces
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<th>Description</th>
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<tr>
<td>CHF</td>
<td>Cooperative Housing Foundation</td>
</tr>
<tr>
<td>CPC</td>
<td>Central Plateau Coffee and Cassava Zone</td>
</tr>
<tr>
<td>Co-op</td>
<td>Cooperative</td>
</tr>
<tr>
<td>DRC</td>
<td>Democratic Republic of Congo</td>
</tr>
<tr>
<td>ECN</td>
<td>East Congo Nile Highland Farming Zone</td>
</tr>
<tr>
<td>FAO</td>
<td>Food and Agriculture Organization</td>
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<tr>
<td>FEWSNET</td>
<td>Famine Early Warning System Network</td>
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<td>GoR</td>
<td>Government of Rwanda</td>
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<tr>
<td>HEA</td>
<td>Household Economy Approach</td>
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<tr>
<td>HH</td>
<td>Household</td>
</tr>
<tr>
<td>ISLG</td>
<td>Internal Saving and Lending Groups</td>
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<tr>
<td>Kcal</td>
<td>Kilocalories</td>
</tr>
<tr>
<td>KOAKAKA</td>
<td>Karaba Coffee Cooperative</td>
</tr>
<tr>
<td>LKC</td>
<td>Lake Kivu Coffee Zone</td>
</tr>
<tr>
<td>LZ</td>
<td>Livelihood Zone</td>
</tr>
<tr>
<td>MINAGRI</td>
<td>Ministry of Agriculture and Animal Resources</td>
</tr>
<tr>
<td>MINALOC</td>
<td>Ministry of Local Government</td>
</tr>
<tr>
<td>NGO</td>
<td>Non-Government Organization</td>
</tr>
<tr>
<td>PPPD</td>
<td>Per Person per Day</td>
</tr>
<tr>
<td>Rwf</td>
<td>Rwandan Francs</td>
</tr>
<tr>
<td>USAID</td>
<td>United States Agency for International Development</td>
</tr>
<tr>
<td>USD</td>
<td>United States Dollar</td>
</tr>
<tr>
<td>UNDP</td>
<td>United Nations Development Program</td>
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<tr>
<td>WCT</td>
<td>West Congo-Nile Crest Tea and Mixed Farming Zone</td>
</tr>
</tbody>
</table>
Executive Summary

The *Ejo Heza* HEA livelihood baselines aim to provide a quantified picture of the household economy for the pre-project reference year, disaggregated by gender where possible (i.e., for income and labour). The baseline will serve as a yardstick against which to measure change created by the project. The baseline survey, hence, is tied to the project planning cycle of the *Ejo Heza* project. The start of a new phase in eight districts of Southern and Western Provinces requires that a baseline picture of household income and food access be established. This will allow project planners to assess the impact of activities mid-way through the project as well as to assess livelihood impacts at the end of project implementation.

### Main Findings

The following are the main findings of the livelihood baseline study:

- Initially, the study was to target *Ubudehe* Categories 3, 4 and 5. However, the latter Category did not exist in the rural areas. Therefore, the study mostly focused on Categories 2, 3, and 4.

- All wealth groups in all zones fell below the $1.25 per person per day (pppd) poverty line.

- Interventions aimed at improving agriculture will benefit Category 2 households minimally. Therefore, on-farm interventions should focus on Category 2 and Category 3 households.

- Interventions involving dairy production would mostly benefit Category 4 households as they have the means to maintain more animals.

- Given their small land-holdings, interventions targeting Category 2 households should look at off-farm income generating activities. Human capital is Category 2’s main strength. Therefore, interventions should strengthen labor opportunities for these households.

- All Category 2 households across the four livelihood zones fell short of meeting their annual energy requirement of 2100 kcal per person per day.

- All Category 2 households depended heavily on paid labor as means of sourcing significant portions of their food and cash income.

- Many households have kitchen garden plots. Focus should be on improving kitchen garden production technology and marketing.

- The increased production, marketing and better use of post-harvest storage technologies of root crops should be re-examined as a potential food security strategy for Category 2 and some Category 3 households.

- Wealthier households (most Category 4 and some Category 3 households) engage in some type of cooperative or ISLG scheme. Category 2 households lack the startup capital and land to participate.
Background

Program background

_Ejo Heza_ addresses the problem of low incomes and weak market integration in the target districts of Western and Southern Provinces. Target beneficiaries are those who earn less than USD $1.25 pppd. The _Ejo Heza_ technical team identified several constraints facing the target group. One is small land holdings: this results in small harvests and minimal surpluses for sale. Another constraint is poor access to agricultural extension services and limited exposure to knowledge about market-responsive agricultural approaches. There is also limited private sector involvement. As the Government of Rwanda (GOR) is reducing its participation in the market, this opens up the opportunity to help input providers develop new markets with small-scale farmers. Furthermore, farmers have limited access to finance. Hence there is a need to increase the depth and breadth of service coverage by microfinance institutions (MFIs) as well as mobile money. Finally, weak demand for financial services means that many rural Rwandans do not have the financial literacy to generate a demand for financial services.

_Ejo Heza_ will use the livelihood profiles listed in this document to identify target population in the areas of program operation; tailor project activities according to community resources, capacity and needs; and focus on sectors that have the greatest potential return on farm and off-farm income.

The _Ejo Heza_ Program has four primary elements:

1. Increased Demand for Financial Services
2. Increased Supply of Financial Services to Rural Rwanda
3. Behavior Change and Social Marketing
4. Health and Nutrition

Evaluation Objectives

The objective of the HEA baseline study is four-fold:

- To provide the analytical framework for the _Ejo Heza_ Monitoring and Evaluation (M&E) system in support of the project planning and implementation process.

- To establish a household economy baseline of _Ejo Heza_ beneficiary households; to document household income and food sources and expenditure patterns prior to project activities; and to establish a benchmark against which to measure associated gains and losses.¹

- To identify gender constraints and opportunities by using seasonal labor calendars and by disaggregating income data by gender.

- To measure household gains in market-based on- and off-farm income at the mid-term and end of the project. Measure food access gains through production improvements as well as dietary diversity gains (from garden produce, dairy, poultry and/or income gains) and analyze whether the change in rural income and food meets the project’s livelihood security goals.

¹ The baseline data will be disaggregated by socio-economic group defined in part by wealth but also be gender, age and HIV-status. Coverage will be sub-national, concentrating in Western and Southern Provinces (8 specific districts) which fall into 4 livelihood zones.
The following livelihood baseline profiles\(^2\) provide a detailed overview of how households in various *Ubudehe* categories operate in a reference year\(^3\).

**Ubudehe**

The origin of *Ubudehe* comes the traditional way households would collectively take on the labor burden before the planting season. Households would work/dig their fields together until all villages would be prepared for the onset of the rains and the planting season that precedes it.

Based off the traditional meaning of community and collective assistance the Government of Rwanda (GoR) implemented *ubudehe* as a participatory approach to designing community driven poverty reduction strategies. At the cellule level, households collectively assess and identify the characteristics of poverty in their community. Once the characteristics of each category are identified, communities proceed to look at mobility between categories and the roots causes of poverty. Finally, after communities’ problems have been identified and analyzed they develop an action plan to address priority problems.

Below are the categories:

1. Destitute - *Abatindi nyakujya*
2. Very poor - *Abatindi*
3. Poor - *Abakene*
4. Surviving - *Abakenebifashije*
5. Middle - *abakungu*
6. Rich - *abakire*

During the HEA baseline fieldwork, teams adopted the *ubedehe* categories to use as the basis for the wealth group breakdown exercise and household focus group interviews. Originally, the study was to target *Ubudehe* Categories 3, 4 and 5. However, the latter Category did not exist in the rural areas. Therefore, the study mostly focused on Categories 2, 3, and 4.

**Household Economy Approach**

The Households Economy Approach (HEA) analysis was developed in recognition of the need to complement information on food availability with information on access. It is now widely recognized that a failure of food supply (e.g. a reduction in crop production due to drought) does not automatically lead to food shortage. Likewise, food may be available, but many people may still go hungry if they do not have the means to access it (if, for example, food prices are high and household incomes low). HEA analysis is concerned the economic operations of rural *households* and how they succeed, and sometimes fail, in making ends meet from season to season, year to year. These days the story is increasingly based on the cash economy, which means not only the marketing of livestock, cash crops and surplus cereals, but also casual employment, which brings an important part of the overall income of the poorer half of the rural population.

It is not enough to know how people obtain food, we also need to know how much comes from each source. Total access can then be compared against a standard or minimum requirement figure to determine just how food secure a given population is. It is for this reason that considerable importance

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\(^2\) Field work was undertaken in November and December of 2011. The information refers to December 2010 to November 2011, an average year for food security by local standards. Provided there are no fundamental and rapid shifts in the economy, the information in this profile is expected to remain valid for about five years (i.e. until 2016).

\(^3\) A defined period (typically 12 months) to which the livelihood baseline information refers, needed in order to analyze how changes in the future (in production, for example) can be defined in relation to the baseline.
is attached in HEA work to the *quantification* of food access. The focus is usually on access to food energy (measured in kilocalories), mainly because it is a deficit in energy intake that is the most common nutritional cause of acute malnutrition. For these purposes the minimum food energy requirement is generally taken as 2,100 kcals per person per day⁴.

Clearly, we cannot consider food in isolation, since a household that is unable to feed itself will also have difficulties meeting other basic needs, such as shelter, clothing, water, health and education. Likewise, when a hazard strikes, there will be many competing demands on household resources, and meeting all the household’s basic needs – not just food – will be increasingly difficult. It is only through utilizing a livelihoods-based approach that such linkages can be explored. One hazard in particular, that of HIV/AIDS, is of increasing concern, since it is likely to profoundly alter the balance between household production and consumption, either through a productive household member falling sick or because assistance is offered to others suffering the effects of the epidemic (such as AIDS orphans or relatives requiring additional care). Again, these linkages are best understood in the context of the overall pattern of local livelihoods.

There are three steps in the HEA. The first two are concerned with dividing the population into groups of households that share similar characteristics in terms of their access to food and income. The assumption underlying these two steps is that access to food and income is determined by two factors; *geography* and *economic status* (i.e. relative wealth). While geography (where a household lives) determines the options for obtaining food and income, wealth generally determines a household’s *ability to exploit those options*. The third step involves developing a baseline picture of food access, income and expenditure for each wealth group.

**Step 1: Livelihood Zoning.** This involves mapping out areas that share similar options for obtaining food and income. The approach is to identify those factors (such as climate, soil, proximity to rivers, access to markets etc.) that determine the basic food and income options (the crops that will grow, the livestock that can be raised, the wild plants that can be collected, the fish that can be caught, and so on) and then to group similar areas together. In the case of Rwanda, CHF Ejo Heza, used the livelihood zone map that was created by USAID’s FEWSNET Project. This was done through a review of available secondary source material, a workshop at national level involving local experts and relevant technical personnel. **Map 1** shows the livelihood zones identified for the Ejo Heza Livelihood baseline assessment. The geographic scope of the baseline, spans across eight districts across the Southern and Western Provinces in Rwanda. The area of study was disaggregated into four livelihood zones: (1) Lake Kivu Coffee Zone; (2) West Congo-Nile Crest Tea Zone; (3) East Congo-Nile Highland Subsistence Farming Zone; and (4) Central Plateau Coffee and Cassava Zone.

**Step 2: Wealth Breakdown.** The objective here is to break down the population within a particular livelihood zone into groups of households according to their ability to exploit the local food and income

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⁴ This is an average across a developing country population, taking account of factors such as the age and sex breakdown and physical activity of the population.

⁵ The livelihood zoning was conducted by FEWS NET in May of 2011 in Kigali, Rwanda.
options. Critical factors included landholding, livestock holding, capital, skills and/or household labor. As well as defining the groups, the percentage of the population falling into each group is also estimated.

**Step 3: Baseline Analysis.** The objective of this exercise is to develop an in-depth understanding of access to food and income for each wealth group and each food economy zone in ‘normal’ or typical non-crisis years. The process is one of:

- Identifying sources of food and income and their relative importance to the household’s total food and income access.
- Quantifying access to food and income over a 12 month baseline period

The basic method of field data is that of a Rapid Rural Appraisal (RRA). Two features of this approach are that the field enquiry is semi-structured (i.e. it is sufficiently flexible to allow the enquiry to take an unexpected direction, should this be necessary), and that at least the preliminary analysis is carried out on the spot (allowing information to be cross-checked or important leads to be followed up before the team leaves the field). In the field, information was gathered primarily through key informant and focus group interviews undertaken at various levels. The key informants selected were experts in a range of sectors including agriculture, livestock, community planning, cooperatives, etc. Information on agricultural production, dairy production, hazards that affect production, current and past development initiatives, and market information and price data was collected in each district. To strengthen and add value to information collected at the national level, the boundaries of the four livelihood zones were verified, as well as the villages selected for interview, in order to assess the representation of the sample. This data served as a starting point for the baseline and was used to inform the subsequent steps of the fieldwork. In total, eight districts were visited, with interviews consisting of three to six key informants.

The teams also performed market and trader interviews in each of the districts. Price information on key commodities was collected for the reference year and used to cross check the prices for which households are buying and selling. Medium and large scale traders were also interviewed to identify value chains and trade routes of key commodities produced in the area.

A total of 35 community-level key informant interviews were conducted across the eight target districts. The community level interview consisted of focus group discussion with six to eight participants who know their respective areas well. Information pertaining to crop yields, milk production, area hazards, labor, seasonality, and gender calendars was collected. With the guidance of the key informants, teams disaggregated each community into three wealth groups listing the characteristics that defined wealth. This wealth breakdown exercise used the national Ubudehe categorization process as a basis for disaggregation. The majority of the rural population encountered fell into Ubudehe categories 2 and 3 (Abatindi (Category 2) and Abakene (Category 3)). In certain villages, Category 4 (abakenebifashije) households were also present and were included in the analysis. Having been considered outside the target population for Ejo Heza, those falling into Category 1 (abatindi nyakujya) were excluded from the
analysis. Once the wealth groups were identified, teams organized household level interviews for the following day.

The teams also conducted semi-structured focus group discussions with each of the wealth groups identified during the community level key informant interviews. These discussions examined food and income sources and expenditure patterns over the 12-month reference period. In addition to household level interviews the teams conducted a series of individual household interviews with cooperative and ISLG (Internal Saving and Lending Groups) members.

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6 The abokungu and abokire Ubudehe categories (Ubudehe categories 5 and 6) are not present in the baseline study. This does not necessarily mean these two categories are totally absent from the rural areas in the LZs. There will be people who have been able to reach this status and who have moved to cities or peri-urban areas, yet they may continue to invest in local agriculture in their villages of origin or employ local labor to manage their property and cultivate their fields in their absence.
Zone Description

This densely populated livelihood zone borders the length of Lake Kivu’s eastern shore and spans eastward, encompassing sectors in Rubavu, Rustiro, Karongi, Nyamasheke, and Rusizi Districts.

Small but relatively fertile agricultural plots dominate the zone’s hilly savanna landscape, which is mingled with avocado, mango, and eucalyptus trees. Two rainy seasons support agricultural activities through the annual deposition of 1300mm to 1700mm of rainfall. The first rainy season occurs from September to December, while the second occurs from March to May. Nearly all households engage in traditional farming practices, using hoes and machete to till their land. Though some wealthier households own cattle, they do not use them for plowing. The main crops households produce for food are maize, beans, cassava, sweet potatoes, and bananas, while the main crop produced for income is the Bourbon variety of Arabica coffee.

Though this zone is considered relatively food self-sufficient poorer households, Abatindi (Category 2), must purchase over a third of the annual food needs. The limiting factor in terms of crop production in this zone is the lack of land. The amount of land an Abatindi household cultivates averages to roughly 0.1 hectares of land. This shadows in comparison to the Abakenebifashije (Category 4), who cultivates 1.2 hectares. The most apparent difference between the crops cultivated by households from each end of the wealth spectrum is the crop type. Most Abatindi households reserve all of their land to produce food crops, whereas Abakenebifashije (Category 4) have the ability to allocate some of their land to produce coffee.

A number of shifts in agricultural practices occurred over the past 10 years. Local government agriculture officials have been pushing resident farmers to move away from the local varieties of maize and to start using hybrids7. Similarly, households are encouraged to limit the production of local cassava varieties and move toward the cultivation of virus resistant varieties from West Africa. As of late, local officials are also introducing a new type of sweet potato (orange-fleshed) that offers higher nutritional

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value than local varieties. Finally, the application of inputs for coffee has reduced due to the discontinuation of government programs that provided inputs, resulting in households having to buy their own.

Livestock is kept by most households, though the number and type of animals households can keep is dictated by wealth. Wealthier households may have goats, sheep (in the northern part of the zone), pigs and cattle, while poorer households can only afford smaller animals such as poultry, rabbits and a few ruminants.

Though situated along the shores of Lake Kivu, fishing is uncommon among the majority of households. Those who are engaged in fishing use nets to catch small silverfish and tilapia (Nile perch). The fish are then sold fresh locally or dried and transported to the DRC and communities further inland.

Markets and Price Data

Market access in the zone is relatively good since a major road runs through the length of the zone, connecting the southern-most sectors in Rubavu district to the Rusizi District. The zone’s location along Lake Kivu offers residents trade ties with households living in the Democratic Republic of Congo (DRC). In addition, the zone is linked to the larger national market in Kigali by a tarmac highway that runs from Karongi District via Muhanga.

Arabica coffee, mainly the Bourbon variety, is the primary cash crop in this zone. From the farm-gate, coffee cherries are bought by private sellers or cooperatives, taken to various washing stations across the zone then taken to coffee factories for processing and international sale. Given the scarcity of land, some households, mainly Abatindi households, do not have the resources to cultivate coffee, though they do benefit from labor opportunities that coffee production provides.

In addition to coffee, households sell beans, soya, cassava (both fresh and flour), bananas and avocados, only on a smaller scale. Most crops are sold in varying quantities; households capable of producing more are able to sell more. To sell, households take their crops to local markets, purchased by traders then taken to the larger trading centers in Rutsiro, Karongi, Nyamasheke and Rusizi before they are taken to the DRC, Kigali and regional trading hubs.

Prices for both cash crops and food crops have seasonal variations. Throughout Rwanda, prices are generally affected by the supply and demand for the commodity. Immediately after a normal harvest period, the supply of a commodity is highest, resulting in lower prices. Conversely, during the period before the harvest when households’ food stocks have run out and they rely more on the market, prices of commodities increase. Table 1 outlines this price change in Karongi market.

<table>
<thead>
<tr>
<th>Staple</th>
<th>Low price Rwf/kg – month(s)</th>
<th>High price Rwf/kg – month(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cassava flour</td>
<td>150 – March</td>
<td>200 – September</td>
</tr>
<tr>
<td>Bananas</td>
<td>150 – September/October</td>
<td>180 – June/July</td>
</tr>
<tr>
<td>Beans</td>
<td>250 – December - February</td>
<td>350 – June-September</td>
</tr>
<tr>
<td>Coffee (wet)</td>
<td>300 – March-July</td>
<td>350 – March-July</td>
</tr>
<tr>
<td>Coffee (dry)</td>
<td>800– March-July</td>
<td>1200– March-July</td>
</tr>
<tr>
<td>Milk (liter)</td>
<td>500 – October</td>
<td>600 – June-August</td>
</tr>
</tbody>
</table>

8 Washing stations in Rwanda has increased from 1% to 20% during the 2002 to 2007.
Coffee production is the main driver of the zone’s economy. Most coffee is harvested from March until July and is either sold wet or dry. Labor opportunities associated with coffee production include pruning and harvesting. The introduction of new washing stations and the promotion of coffee cooperatives by local officials and NGOs have made it easier for producers to get a better rate for their beans, especially if they sell dry.

Seasonal Calendar

The zone’s first agricultural campaign starts with the onset of the rainy season in September and ends with the harvest of beans, maize, and cassava in January and February. The beginning of the consumption year commences with the green harvest of maize and beans in December. The first rainy season in September and October supports the flowering of coffee. The second agricultural campaign starts in March with the second rainy season and finishes with the harvesting of beans and bananas. Bananas are harvested twice annually and serve as a significant food and income source for most households in the zone. Other crops such as beans, maize and cassava are sold after the harvest, according to the household’s economic means and ability to sell. The coffee harvest starts in March and can continue until June. During this period, many poorer households find labor opportunities picking coffee.

Rainfall is also important for the zone’s livestock. Rain instigates the growth of natural grasses, which serve as a food source for the livestock. In bad years, when an extended dry season or late rains results in less natural grasses for grazing, animal health declines. Livestock are sold throughout the year according to need, but some households prioritize sales during the lean period when food and cash
becomes increasingly unavailable and/or when school fees are due. The production of milk is consistent
with rain seasons or when fodder and crop residues are available.

Farm labor opportunities are available for most of the year and serve as the primary source of income
for Abatindi households. Digging and sowing occurs in September and October and is followed by
harvesting in the winter months. Land preparation for the second agricultural campaign occurs in March
and April and is followed by the coffee harvest in April.

All households purchase food to varying degrees, though Abatindi and Abakene (Category 3) households
especially rely on purchases during the lean season, when household reserves of flour, pulses, and root
crops are generally in short supply.

The Wealth Group Breakdown

Table 2. Description of Wealth Groups

<table>
<thead>
<tr>
<th>Wealth Group</th>
<th>HH size</th>
<th>Land owned</th>
<th>Land cultivated</th>
<th>Livestock</th>
<th>Other</th>
<th>Average annual/daily income</th>
</tr>
</thead>
<tbody>
<tr>
<td>Abatindi (Category 2)</td>
<td>6-7</td>
<td>0.1 ha</td>
<td>0.1 ha</td>
<td>0-2 goats</td>
<td>Kitchen garden: 4m2</td>
<td>Per HH: 241,500 Rwf ($402)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Per capita: 40,300 Rwf ($67)</td>
<td>Per HH/day*: $1.10</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Per capita/day: $0.18</td>
<td></td>
</tr>
<tr>
<td>Abakene (Category 3)</td>
<td>6-7</td>
<td>0.4 ha</td>
<td>0.4 ha</td>
<td>0-2 cattle</td>
<td>Kitchen garden: 4m2</td>
<td>Per HH: 593,000 Rwf ($988)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1-3 goats</td>
<td>Coffee trees: 25-100</td>
<td>Per capita: 84,700 Rwf ($141)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>2-6 chicken</td>
<td>Timber trees: 3-5</td>
<td>Per HH/day: $2.70</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Per capita/day: $0.38</td>
<td></td>
</tr>
<tr>
<td>Abakene bifashije (Category 4)</td>
<td>6-7</td>
<td>1.2 ha</td>
<td>1.2 ha</td>
<td>1-3 cattle</td>
<td>Kitchen garden: 4m2</td>
<td>Per HH: 1,200,000 Rwf ($2,013)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1-3 goats</td>
<td>Coffee trees: 100-500</td>
<td>Per capita: 171,000 Rwf ($290)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>2-6 chicken</td>
<td>Timber trees: 5-15</td>
<td>Per HH/day: $5.50</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Per capita/day: $0.79</td>
<td></td>
</tr>
</tbody>
</table>

* Exchange rate 600Rwf = 1 USD

Note: The names of the groups are relative to the zone only and do not refer to any poverty thresholds. The use of the same names in different livelihood zones does not necessarily indicate any similarity in their standard of living.

The amount of land households cultivate is the main determinant of wealth in the zone. Households
owning more land have the potential to produce more crops for consumption and sale. Wealthier
households tend to be more food secure, as they are capable of meeting the bulk of their annual food
needs from their own fields. They also have the capacity to hire the labor needed for optimal crop

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9 A wealth group is a set of households that employs the same general strategies for obtaining food and income. They live at roughly the same level of wealth and have the same capacity to cope with hazards. We use local not international measures of wealth.
production and can maintain and preserve larger herd sizes, as they are less prone to resort to selling animals for food during times of food shortages. They sell animals throughout the year according to need, but the number they sell is generally less than livestock reproduction rates, allowing positive herd growth.

*Abakenebifashije* (Category 4) households cultivate about 1.2 hectares of land and produce over half their annual energy requirements. They own cattle and therefore get a portion of their food needs from milk. Small ruminants are also kept by this wealth group and are sold throughout the year to purchase essential and non-essential food and non-food items. Another distinctive characteristic about the *Abakenebifashije* (Category 4) is that they own between 100 and 150 coffee trees. The income earned from coffee sales supplements other crop sales and livestock product sales. Many within this wealth group are cooperative members that have access to washing stations and essential inputs for optimal agricultural production.

*Abakene* (Category 3) households cultivate less land and therefore do not produce food crops in the same quantities as their *Abakenebifashije* (Category 4) neighbors. Out of the total amount of land cultivated, they allocate about 0.1 hectares of land for the production of coffee and own about 25 to 100 coffee trees. *Abakene* (Category 3) households may own the same types of animals as the *Abakenebifashije* (Category 4), only fewer. The amount of fodder they provide for their animals is dictated by how much crop residue they have after the harvest. Furthermore, the time needed to collect grasses when crop residues have expired strains this group’s intra-household labor force since they are working their own plots while remaining working for other households.

*Abatindi* (Category 2) households own and cultivate very small plots of land (0.1 hectares). Lack of land limits the amount of food they produce for both food and for cash. The majority of households in this wealth group do not have sufficient amount of land to cultivate coffee, reserving all they own for crop production. The *Abatindi* rely solely on intra-household labor to perform all agricultural duties on their plots. They also work on the fields of some *Abakene* (Category 3) and *Abakenebifashije* (Category 4) households, which may contribute to untimely cultivation of the own fields and limited crop yields. These households struggle with food security and are unable to keep significant number of livestock.
The graphic to the left represents the amount of food households consume during the reference year.

For Abatindi (Category 2) households, food is sourced three ways: it is produced, earned as in-kind payment, and purchased from the market. Given that these households have limited land, they are only capable of producing a third of their annual needs. To compensate production short-falls, they also work on some Abakene (Category 3) and Abakenebifashije (Category 4) fields for grains (mostly maize), beans, cassava, and/or sweet potatoes. They also purchase about 35% of the annual needs from the market as food reserves expire and in-kind payments are reduced.

Cultivating more land, Abakene (Category 3) households are able to produce nearly half of the annual food needs from crop production, which is the most significant source of food for households. The second most significant source comes from market purchases. The Abakene (Category 3) also work for food, mostly females or younger laborers, but the amounts earned from this source are far less, roughly 5%, compared to their Abatindi neighbors. This group also benefits from livestock products such as eggs, meat and milk, which accounts for a small portion of their annual food needs.

The Abakenebifashije (Category 4) exceed their annual kilocalorie requirement, sourcing the bulk of it from their own fields. As their own food stock expires, they rely more on the market to fill additional gaps or to purchase non-essential food items. The contribution of livestock products is minimal but means that this group, like the Abakene (Category 3), has a more diverse diet than the Abatindi (Category 2).
Figure 3 to the right shows the amount of cash households earned during the reference year.

As reflected in the graphic, Abatindi (Category 2) households have minimal income earning options. Most of the cash they earn comes from working both on and off-farm in exchange for cash. Most of the on-farm work is land preparation (digging) and harvesting both food crops and coffee. Off-farm labor includes construction or transporting coffee. A smaller portion of their total income comes from petty trade activities, such as selling avocados and beans. If available, they may also sell a few hens or a goat.

The cash earning portfolio of the Abakene (Category 3) is more diverse than that of the Abatindi (Category 2). Nearly a quarter of their annual earnings come from crop sales, mainly coffee but also some food crops. Livestock and livestock product sales combined account for another quarter while labor and petty trade account for the remainder. Like the Abatindi, these households must work for cash, though the number of months and the frequency they work for others is less.

Abakenebifashije (Category 4) earn double the amount of the Abakene (Category 3) and nearly five times that of the Abatindi (Category 2). Most of the Abakenebifashije’s cash come from crop sales (33%), but also from livestock sales (29%), and livestock and crop trading (30%). Smaller proportion of their cash is derived from milk sales and credit.

It is clear that the ownership of land and the ability to diversify the types of crops produced for food and cash allows wealthier households to dedicate more time to other income generating activities.
The figure to the left shows the proportion of crops sold by the various wealth groups. For *Abatindi* (Category 2) households, most of the crops they sell are avocados, followed by beans. The *Abakene* (Category 3) sell a wider variety of crops but in small proportions. Most of the income earned from crop sales came from coffee. Like their *Abakene* (Category 3) neighbors the *Abakenebifashije* (Category 4) households sell mostly coffee but also earn significant portions from their banana harvest, which accounts for nearly 30% of all of their crop sales.

The two graphics to the left show both expenditure patterns as a percentage of total annual income and relative annual expenditure according to wealth group. **Figure 6** shows that *Abatindi* (Category 2) are spending proportionally more on staple and non-staple foods. As wealth increases, the proportion of money spent on staple and non-staple foods decreases. Comparing the amount of cash spent on inputs, it is evident that the wealthier households spend more than poorer groups. This is
because they have more land but also because the cost associated with coffee production is higher.

Looking at relative expenditure, input cost of Abakenebifashije (Category 4) households is the highest, followed by “other.” For the other two wealth groups, expenditure on staple and non-staple food accounts for a large sum of cash.

“Other” in these graphs represents a range of expenditures including: transportation, beer, mobile phone costs, gifts, festival cost and cigarettes.

Hazards

Hazards affecting agricultural production affect all households living in the zone, though to different degrees. Wealthier households are more resilient to crop hazards because they have other resources such as livestock, grain reserves, and access to credit to offset any harvest deficit. The poorer a household is the fewer options they have to compensate for losses. The main hazards listed below not only affect household access to food from crop production, but also the array of income earning activities associated with agriculture.

The four main hazards in the zone are listed in Table 4:

<table>
<thead>
<tr>
<th>Table 4: Main hazards of the zone</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Agriculture</strong></td>
</tr>
<tr>
<td><strong>Livestock</strong></td>
</tr>
</tbody>
</table>

**Excessive rain** is the most common hazard in the zone and affects the population in a number of ways, including water logging of crops; creating landslides that destroy crops, block market access and destroy homes.

**Hail**, like other hazards typically damages crops during the early stages of the growing cycle resulting in poor yields.

**Crop pests** affect crops every year impacts households’ ability to maximize their yields. Like the other hazards that affect production crop pests result in food and cash deficits across all wealth groups. Poorer households are more vulnerable to the impact of this hazard as they often lack sufficient cash.
and grain reserves to compensate for losses.

**Livestock diseases**, particularly poultry diseases, leading to outbreaks can push livestock poor households further into poverty while at the same time increase livelihood insecurity of wealthier wealth groups.

### Response Strategies

Agricultural-related hazards, such as excessive rain and/or crop pests result in below average harvests for all households and reduced demand for agricultural labor. The impact of hazards on household food and cash access forces many to implement one or more coping strategies. **Table 5** showcases examples of response strategies by wealth group.

Table 5: Response Strategies by Wealth Group

<table>
<thead>
<tr>
<th>Coping strategies</th>
<th>Abatindi</th>
<th>Abakene and abakenebifashije</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Reduce expenditures</strong></td>
<td>Maize flour, salt, agricultural tools, clothes, social contributions, school materials, medicines</td>
<td>Meat and fish, rice, salt, clothes, social contributions and gifts, livestock restocking, labor, fertilizer, school, medicines</td>
</tr>
<tr>
<td><strong>Additional sources of income</strong></td>
<td>Work for food&lt;br&gt;Temporary migration in search for work&lt;br&gt;Sale of small stock</td>
<td>Increase livestock sales&lt;br&gt;Secure off-farm employment&lt;br&gt; Increase petty trade and other commercial activities</td>
</tr>
</tbody>
</table>
Rwanda Livelihood Profile

West Congo-Nile Crest Tea Livelihood Zone

Zone Description

This non-contiguous mountainous livelihood zone sits in the elevated areas of Nyamasheke, Nyamagabe, Nyaruguru, Karongi, Ngororero, Rutsiro, Rusizi and Nyabihu District. To the east, this zone borders the Eastern Congo-Nile Highland Farming Zone while to the east; it borders National Parks, Forest Reserves and the Lake Kivu Coffee Zone.

The landscape of the zone consists of rolling hills and terraces, mixed with eucalyptus and pine trees, savanna grasses, and bush shrubs. The texture, depth, and drainage of the moderately fertile soils vary throughout the zone. Rust color peat soils dominate higher elevations while black dirt is common in the lower areas.

Most of the zone’s 488,423 residents cultivate small plots of land, ranging from 0.2 to 1.3 hectares. Densely populated mud constructed houses surrounded by gardens and banana trees dot the hill. Rain-fed agriculture is the foundation of rural livelihoods in the zone. Bimodal rains deposit between 1000mm to 1500mm of precipitation annually. All households cultivate maize, beans, sweet potatoes, Irish potatoes, and wheat. Tea is sold in different areas throughout the zone, mostly by Abakene (Category 3) and Abakenebibashi (Category 4) households.

The first rainy season starts in September and continues through December, while the second season begins in February and finishes in April. Like neighboring zones, the agricultural campaign starts before the onset of the first rainy season in August with land preparation (digging) and ends in May with the harvest of staple grains. The majority of households in the zone work their own lands. Those who cultivate larger plots, however, contract laborers to perform most of the labor required. This includes digging, sowing, planting, weeding, and harvesting. All households hand plow their land using panga and hoes.

The majority of households are limited to raising small ruminants, such as pigs, rabbits, goats and poultry. Wealthier households are typically more food secure and have the resources available to feed and water more animals. Additionally, compared to their poorer neighbors, there is less necessity for

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10 The population of the livelihood zone is from the 2002 Census.
them to sell animals to purchase essentials. Therefore, wealthier households tend to have more and a wider range of animals.

Labor is the main source of income for half of the zone’s population. *Abakenebifashije* (Category 4) and some *Abakene* (Category 3) households employ *Abatindi* (Category 2) households to perform the bulk of labor associated with crop production. Most of the labor is paid in cash, but some laborers are paid in-kind.

### Markets and Price Data

Geography, poor road networks, and inadequate transportation limit market access in the zone. There are no large markets within the zone, so most households rely on small local markets to sell and buy commodities. During the rainy season, excessive rain and landslides causes many roads to become difficult to pass or blocked, creating a challenge for in and out commodity flows.

Though tea is not grown entirely throughout the zone, it is the primary cash crop. Those that currently produce tea pick it throughout the year and haul the leaves in burlap sacks to the weighing station. Tea company buyers then weigh the leaves and recording the weight and the name of the household that owns it. After weighing, the tea is transferred to company sacks and loaded onto a truck bound for one of the zone’s tea factories (Nyabihu, Rubaya, Pfunda, Gisovu, Gisakuva or Shagasha). Given the scarcity of land, some households, mainly *Abatindi* households, do not have the resources to cultivate tea. They do, however benefit from the labor opportunities associated with tea picking, hauling and related factory work.

Local government is encouraging farmers who live in areas climatically suitable for tea to start producing it. The price for tea, as reflected in Table 5, has increased by 50% over the past five years. The price per kg of tea in 2009 translates into 90.84 Rwf. Currently, households are earning 250 Rwf per kilogram of leaves harvested, which means the price has already increased by 175%.

<table>
<thead>
<tr>
<th>Table 6: Rwandan Tea Price per Ton (2005 to 2009)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Price in USD</strong></td>
</tr>
<tr>
<td>$100.70</td>
</tr>
<tr>
<td><strong>Year</strong></td>
</tr>
<tr>
<td>2005</td>
</tr>
</tbody>
</table>

In addition to tea, most households sell Irish potatoes, beans, maize, sweet potatoes, and wheat. Most of the crops are sold in varying quantities and according to what households are capable of producing. The two main food crops sold are Irish potatoes and beans. Both crops are sold locally and then are transported to regional trading hubs (Musanze, Rubavu, Nyamagabe and Muhanga) then to the destination markets (Kigali, Huye, Goma – DRC, Rusizi).

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11 This calculation uses the exchange rate of 600Rwf per 1 USD.
Similar to other zones, prices for commodities sold and bought change throughout the year. Poorer households stressed for cash sell right after harvest to cover immediate food and non-food needs. Typically during this period, prices for crops are at their lowest due to higher supply and less demand in the market. Wealthier households are less-prone to sell when prices are at their lowest but rather wait until they can fetch a better price.

Most of the staples purchased originate within the zone at small local markets or kiosks. As food stocks deplete, very poor and poor households rely on the market to fill remaining annual energy needs. During this period, mid-August through November, staple food prices increase as the demand increases.

Livestock sales represent an important income source for all wealth groups. However, income earned is contingent on the type of livestock sold and the number of animals households are capable of selling without negatively affecting the number of animals owned. Abatindi households may have a handful of hens, rabbits, goats, and sheep and may sell a few locally throughout the year. Abakene (Category 3) and Abakenebifashije (Category 4) households sell the same types of animals but in higher quantities. They also sell milk and cattle locally. Once sold locally, the animals head to a variety of destinations, including DRC via Karongi, Rusize, Rubavu and Musanze. During peak production periods (mid-October through April), households sell milk at small markets located throughout the zone.

The labor market is limited to agriculture-based activities provided by the wealthier households in the zone. The poor and very poor provide most of the labor needed in exchange for cash and in-kind payments. Some households may find labor opportunities in the small towns doing construction or off-farm tea processing activities. A minority of the zone’s residents may engage in small-scale mining, mostly wolfram.

Charcoal is another source of income for some, mostly Abatindi (Category 2) households. Those residing closer to the main road for consumers passing through the zone mostly performed this activity.

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**Seasonal Calendar**

*Figure 7. Seasonal calendars - CHF Rwanda Ejo Heza - December 2011

Livelihood Zone: West Congo-Nile Crest Tea Zone*

**LEGEND**

- **SEASONS**
  - Rainy Season
  - Casual off-farm labor
  - School fee expenditures

**CROPS**

- Maize
- Irish Potatoes (Season 1)
- Irish Potatoes (Season 2)
- Beans (Season 1)
- Beans (Season 2)
- Vegetables
- Tea

**LIVESTOCK**

- Peak milk sales
- Livestock sales

**OTHER**

- Agricultural labor
- Staple food purchases (peak period)
- Health expenditure (peak period)
The zone’s agricultural activities are dictated by two rainy seasons. This first season starts in September and continues through December. This rainy season support the crop growth of the zone’s main staples, Irish potatoes, beans, maize, and vegetables. The second rainy season commences in March and finishes at the end of May. These rains facilitate the growth of the second season of Irish potatoes, beans and vegetables. Tea, which is a perennial crop, is harvested throughout the year.

Most of the labor opportunities occur during the digging and harvest period of all the zones crops. Households are less busy with on-farm agricultural activities in April-May and in August. For project implementation purposes, this time will least likely affect normal household operations. Households with casual off-farm activities the program should engage them in January/February, May/June, and July/August. During these periods, household perform a variety of income earning activities, including construction, casual labor in towns, charcoal burning, etc.

Peak milk production also depends on rainfall. Households that own or care for cattle rely on both rainy seasons to recharge pasture growth. From mid-October until May, households sell milk to supplement their annual income. Livestock sales occur throughout the year and according to need. However, there are points within the calendar year when households may sell livestock, mostly small ruminants, to cover food costs or school fees.

### The Wealth Group Breakdown

<table>
<thead>
<tr>
<th>Table 7. Description of Wealth Groups</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wealth Group</td>
</tr>
<tr>
<td>---------------</td>
</tr>
<tr>
<td><strong>Abatindi</strong> (Category 2)</td>
</tr>
<tr>
<td><strong>Abakene</strong> (Category 3)</td>
</tr>
<tr>
<td><strong>Abakene bifashije</strong> (Category 4)</td>
</tr>
</tbody>
</table>

Note: The names of the groups are relative to the zone only and do not refer to any poverty thresholds. The use of the same names in different livelihood zones does not necessarily indicate any similarity in their standard of living.

A household’s ability to produce sufficient amounts of food from their own resources is vital in rural economies. Once food security is attained, households are more likely to focus on earning livelihoods
rather than just surviving. Like other livelihood zones, the limiting factor for many rural Rwandans is the ability to produce sufficient amounts of food from their land. In this densely populated area, the majority of households have small land holdings, and therefore are limited to how much they can harvest for food and for cash. In an effort to augment yields during the harvest periods, many households have little alternative but to rent-in additional parcels. Renting-in land does not always translate into food self-sufficiency and livelihood security, but does help get them closer to these thresholds.

*Abatindi* (Category 2) households own on average about .15 ha of land and rent-in an additional .05 ha. Most of the land they cultivate is dedicated for the production of food crops. Upon harvest, they opt to sell a small portion of their harvest to finance immediate needs. Despite mostly growing food crops and selling small portion of their yields, the amounts harvested fail to meet all of their annual food needs. Therefore, *Abatindi* (Category 2) households must get food from various sources. A major source of food is via the market. To finance the cost of market purchased food, *Abatindi* (Category 2) households work for others or sell animals. The latter option is largely dictated by the households’ ability to maintain enough animals for a neutral or positive reproductive growth rate. Livestock maintenance has a number of associated costs, including veterinarian fees, drugs, fodder and the cost equivalent of time spent caring for the animals. The amalgamated costs restrict the number of animals the *Abatindi* are capable of keeping.

The indicators of wealth for *Abakene* (Category 3) and *Abakenebifashije* (Category 4) households are also determined by land cultivated. They face the same issues as their *Abatindi* neighbors. However, their ability to be more food self-sufficient allows them to focus more on livelihood security. *Abakene* (Category 3) households cultivate .7 ha of land and allocate .2 ha for the production of tea. This amount of land equates to the same area of land the *Abatindi* cultivate for survival. Though the *Abakene* (Category 3) cultivates and produces more land, they also must lean on the market to meet their annual needs.
The graph to the left highlights the different sources of food for the three wealth groups in the zone.

Crop production is one of the main sources of food of all wealth groups accounting for close to half of their annual food needs. Maize, beans, sweet potatoes, and Irish potatoes account for most of the crops households grow for food. The main difference between the wealth groups is what they do with their crops once they are harvested. Nearly all the food produced by Abatindi (Category 2) households is consumed whereas the Abakene (Category 3) and Abakenebifashije (Category 4) households sell significantly larger portions of their harvests.

Market purchases are an equally significant source of food for all households, though the types of food households purchase varies. Poorer households purchase cheaper calorie rich foods while the wealthier sector of the zone’s population buys higher-valued foods such as rice, sugar, and vegetable oil.

Both Abatindi and Abakene (Category 3) households source a portion of the annual food needs by working for other households, mainly Abakenebifashije (Category 4). Root crops and beans are the main crops given as payment.

Owning cattle, the wealthier households are able to supplement their diets with milk.

Income Sources (December 2010 – November 2011)

Figure 9 highlights the increase of annual cash earned from one end of the wealth spectrum to the other.

Abatindi (Category 2) households earn most of their cash working for others, mostly on-farm labor but also from some off-farm. They sell a few small stock throughout the year according to need and engage in petty trade.\textsuperscript{13}

Abakene (Category 3) households also work for others but they do so less frequently over a five-month period (compared to the nine months Abatindi households labor for others). Owning more livestock the Abakene (Category 3) are capable of selling more

\textsuperscript{13} Note: crops sales is an income source, even though it contributes minimal amounts to their annual total.
during the reference year without negatively affecting their herd composition. Crop sales, which include tea, Irish potatoes, beans and maize, is a significant cash earner for the Abakene (Category 3) accounting for nearly 20% of their total income. Self-employment, which makes up nearly a quarter of the Abakene’s total income, is a mix of timber and charcoal sales and petty trading.

Expenditures (December 2010 – November 2011)

Examining the proportion of cash spent, it is clear that over 70% of the Abatindi households’ earning goes towards staple and non-staple foods. Abakene (Category 3) households spent slightly over 40% on food while Abakenebifashije (Category 4) spent close to 20%. Comparing amounts spent on social services (school and medicine), it is true that as wealth increases the proportion of money spent on social services increases. Abatindi households spend about 6% on social services whereas Abakene (Category 3) and Abakenebifashije (Category 4) spent 10% and 18% respectively.

Looking at the relative expenditure pattern, the actual amount of money spent on staple foods is higher for Abatindi households. The other two wealth groups are spending more on food but on higher valued non-staple foods. Input expenditure is higher for the wealthier households that have more land and have the capacity to afford to invest in agricultural production.

<table>
<thead>
<tr>
<th>Wealth Group</th>
<th>Annual Income Range (Rwf)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cat 2</td>
<td>270,000 – 300,000</td>
</tr>
<tr>
<td>Cat 3</td>
<td>570,000 – 600,000</td>
</tr>
<tr>
<td>Cat 4</td>
<td>1,150,000 – 1,250,000</td>
</tr>
</tbody>
</table>

Table 8: Annual household income ranges by wealth group
Hazards

Table 9 highlights the three main hazards identified in the zone:

<table>
<thead>
<tr>
<th>Table 9: Main hazards of the zone</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agriculture</td>
</tr>
</tbody>
</table>

**Hail**, like other hazards typically damages crops during the early stages of the growing cycle resulting in poor yields.

**Crop pests** affect crops every year and impacts households’ ability to maximize their yields. Like the other hazards that affect production, crop pests result in food and cash deficits across all wealth groups. Poorer households are more vulnerable to the impact of this hazard as they often lack sufficient cash and grain reserves to compensate for losses.

**Inadequate rain** is a not chronic problem in the zone, thought it can affect crop production, livestock, and assets. Poorer households are most susceptible to this hazard as they depend heavily on agricultural production for food. Crop production is not the only activity affected by drought; livestock also suffer. Lack of rainfall translates into insufficient crop residues and pastures for fodder as well as a failure to recharge livestock watering locations.

Response Strategies

After a shock, households engage in one or more coping strategies to offset any cash or food deficit created by a hazard. Poor households increase the sale of labor, sell yard animals and reduce the amount and frequency of meals consumed. Better-off households may sell larger livestock, such as cattle, and increase the sale of crops in order to purchase cheaper grains.

<table>
<thead>
<tr>
<th>Table 10: Response Strategies by Wealth Group</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Coping strategies</strong></td>
</tr>
<tr>
<td>Reduce expenditures</td>
</tr>
<tr>
<td>Additional sources of income</td>
</tr>
</tbody>
</table>
The East Congo-Nile Highland Farming livelihood zone (ECN LZ) stretches from north to south along the mountain ranges in the west of Rwanda. It covers four of Ejo Heza’s target districts. From north to south these are: Ngororero (all sectors except Muhanda), Karongi (Manihira, Rusebeya and Mukura sectors), the eastern half of Nyamagabe and parts of Nyaruguru (Ruramba, Muganza, Kibeho, Munini and Busanze sectors).

The topography of the livelihood zone ranges from hilly terrain in the central areas to high altitudes towards the northern and southern extremes. The Congo-Nile Ridge has an altitude between 2500m and 3000m. As a result, villages in Ngororero are more remote and more difficult to access. Long, winding earth roads lead uphill to the villages, which can become inaccessible after even some moderate rains. Average annual rainfall is 1200 to 1600mm.

The soils in this livelihood zone are sandier, more acidic and relatively less fertile than the central plateau to the east. Although marshlands exist along the valley floors, only those villages located at lower altitudes have access to these more productive lands. Villages located along the mountain tops have very steep agricultural land, which is difficult to cultivate and is more prone to landslides.

Population density is high as many villages are located along the hill tops. The limited space is evident in the smaller land sizes per household. It also restricts the amount and type of livestock households can own. Interestingly, a number of the villages visited resembled compact villages (i.e., a product of villagization policies) rather than the more traditional structure of Rwandan villages made up of houses which are dispersed over one or more hills.

Livelihoods are based on marginal, rain-fed agriculture which meet subsistence level requirements but provide little additional agricultural surplus for commercial activities. Crop production methods are very rudimentary and are limited to a small variety of crops.
For the poorest households, migratory labor is an annual activity. This zone has higher mobility than in the Lake Kivu Coffee, West Congo Nile Crest and Central Plateau zone. Workers search for off-farm labor opportunities (construction work, employment in security, mining) in the main urban centers within their districts and in neighboring districts. Respondents from Ngororero mentioned travelling to the Eastern Province where farm employment can be found more easily.

The main food crops and cash crops produced in the zone are identified below:

<table>
<thead>
<tr>
<th>Main food crops</th>
<th>beans, sweet potato, cassava, plantains</th>
</tr>
</thead>
<tbody>
<tr>
<td>Main cash crops</td>
<td>Irish potatoes, cassava, plantains, maize</td>
</tr>
</tbody>
</table>

Sweet potatoes are being phased out throughout the ECN livelihood zone and replaced by Irish potatoes (to be cultivated for household consumption and as cash crop) as well as maize. In the northern areas, wheat is also a priority crop. Free seeds (maize, and in some cases wheat) have been distributed by district agronomists to all farmers, with the condition of using subsidized fertilizers. In the southern areas priority crops also include millet. Here a strong terracing policy is being implemented. In Nyaruguru District, there is a demonstration sites in every sector.

In a small number of villages, the wealthier households own coffee trees. Whilst this is not representative of the area, in the future the importance of growing coffee will most probably increase. Tea is grown in certain areas along the western boundaries of the livelihood zone. Increased production in this second cash crop is also expected.

The zone is self-sufficient in most staple crops. Ngororero District is close to the Irish potato producing regions in the north of the country and trading of this staple takes place across districts. Along the rest of the zone, markets are supplied with local produce and with supplies from the neighboring Central Plateau Coffee and Cassava livelihood zone which is more productive.

Markets and Price Data

Like in the neighboring West Congo Nile Crest Tea livelihood zone, market access in this zone is very poor. The poor conditions of the earth tracks the large distances to the main tarmac roads and the steep terrain make trips to the market difficult and contribute to a larger proportion of goods being sold at local markets, rather than at Nyamagabe, Gakenke or Remera town markets. Only wealthier households with larger quantities of produce to be sold find it profitable to travel to more distant, bigger markets. Nevertheless, agricultural produce from this zone is exported to other regions of Rwanda. For example, beans, cassava and sweet potatoes from Ngororero District are traded in Kigali.
Local food prices fluctuate along with seasonal supply and demand. Data collected at Ngororero market, for example, shows the lowest and highest prices for a variety of staple goods during the reference year. Households’ shopping baskets vary in relation to the changes in price. Prices for a number of staple foods are lowest between September and November, and become more expensive from the end of the year.

### The Seasonal Calendar

<table>
<thead>
<tr>
<th>Staple</th>
<th>Low price Rwf/kg – month(s)</th>
<th>High price Rwf/kg – month(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dried beans</td>
<td>250 – Jan-April</td>
<td>350 – Nov/Dec</td>
</tr>
<tr>
<td>Irish potatoes</td>
<td>120 – Sept-Nov</td>
<td>150 – Dec/Jan</td>
</tr>
<tr>
<td>Sweet potatoes</td>
<td>45 – Sept-Nov</td>
<td>60 - April</td>
</tr>
<tr>
<td>Maize</td>
<td>350 – July</td>
<td>400 - Oct</td>
</tr>
<tr>
<td>Cassava</td>
<td>60 – Oct</td>
<td>100 – June-Sept</td>
</tr>
</tbody>
</table>

Table 11: Example of seasonal price variations in Ngororero market (2010-2011)

Season A begins in August/September with the land preparation for the cultivation of beans and sweet potatoes, which is harvested between November and January. Season B’s harvest is collected between June and July, although planting times vary depending on the crop. Agricultural extension services should be provided at the beginning of each season, in time to assist with the planting of the new harvest.

There are two lulls in the agricultural labor calendar, between March and April and around November.
Potentially these periods can be appropriate times for the implementation of certain program activities. During the second half of the year, off-farm labor opportunities provide an additional source of income.

The lean season falls towards the end of the rains, as crops are not yet ready to harvest. However, households from all wealth groups resort to consuming part of their bean harvest before full maturity. Additionally they eat fresh maize from their kitchen gardens. Staple food purchases are highest, yet on average most expensive, before the harvests, in April and October/November. Other vulnerable times coincide with the payment of school fees (or school materials, uniforms and so on if children are still in free primary education), at the time of health insurance payments and around special annual events (Easter and Christmas) when social obligations - such as buying more expensive foodstuffs or new clothes - put households under heightened pressure.

The Wealth Group Breakdown

Despite smaller land sizes, land ownership continues to be the main variable in the definition of poverty in the ECN livelihood zone. Typically no households have the possibility to rent in additional land, as is the case in other zones. Due to higher population densities and the more pronounced topography of the area, the stress on land is particularly visible in this livelihood zone.

<table>
<thead>
<tr>
<th>Wealth Group</th>
<th>HH size</th>
<th>Land owned</th>
<th>Land cultivated</th>
<th>Livestock</th>
<th>Other</th>
<th>Average annual/daily income</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Abatindi</strong> (Category 2)</td>
<td>6-8</td>
<td>0.08 ha</td>
<td>0.08 ha</td>
<td>0-1 pig</td>
<td>Kitchen garden: 3m²</td>
<td>Per HH: 240,000 Rwf ($400)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Per capita: 34,300 Rwf ($57)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Per HH/day: $1.10</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Per capita/day: $0.16</td>
</tr>
<tr>
<td><strong>Abakene</strong> (Category 3)</td>
<td>6-8</td>
<td>0.35 ha</td>
<td>0.35 ha</td>
<td>0-2 cattle 1-2 goats 0-3 pigs 0-2 chicken</td>
<td>Kitchen garden: 4m² Timber trees</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Per HH: 455,300 Rwf ($760)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Per capita: 65,000 Rwf ($108)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Per HH/day: $2.10</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Per capita/day: $0.30</td>
</tr>
<tr>
<td><strong>Abakenebifashije</strong> (Category 4)</td>
<td>6-7</td>
<td>0.9 ha</td>
<td>0.9 ha</td>
<td>1-2 cattle 1-3 goats 0-1 pig 0-2 chicken</td>
<td>Kitchen garden: 4m² Timber trees Banana trees (sale)</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Per HH: 684,400 Rwf ($1,140)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Per capita: 105,300 Rwf ($175)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Per HH/day: $3</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Per capita/day: $0.48</td>
</tr>
</tbody>
</table>

Table 12: Description of Wealth Groups

Note: The names of the groups are relative to the zone only and do not refer to any poverty thresholds. The use of the same names in different livelihood zones does not necessarily indicate any similarity in their standard of living.

Income levels for the first two categories are similar to their counterparts in the other three livelihood zones. The main difference lies in the income levels of the *abakenebifashije* (Category 4) which are 30% to 50% lower than their counterparts in neighboring zones. The main reason behind this stark contrast in wealth is the near absence of cash crops in this livelihood zones. For example, only a minority of better-off households own coffee trees or banana trees – which cannot be considered representative of the livelihood zone. However, their situation could change in the near future as the impact of agricultural intensification policies shapes agricultural production. Better-off households are typically the first to take advantage of these kinds of policies; they are usually less risk adverse and become first movers.

Land is organized into small fragmented plots. Some consolidation of land has taken place in more fertile areas along the valley floors. Most of available land is devoted to agriculture; some land is
reserved for timber trees and forest land. Cattle do not graze in pasture lands and are kept in sheds close to the house. Most cattle belong to the abakenebifashije (Category 4), who also own goats, pigs, rabbits and chicken. The abakene (Category 3) have less livestock and the abatindi (Category 2) may only have one pig. This reduces their access to organic manure considerably and ensuring soil fertility is limited to composting agricultural and kitchen waste and mulching.

Average daily household incomes are as follows: abatindi (Category 2) households $1.10, abakene (Category 3) households $2.10 and abakenebifashije (Category 4) households $3.

### Food Sources

The following graph shows different food sources expressed as a percentage of total annual household food energy needs (2100 kcal per person per day) for each wealth group.

There are three main sources of food: own harvests, in-kind payments and market purchases. The label “livestock products” refers to milk, which is only accessible to abakene (Category 3) and abakenebifashije (Category 4) households who own a cow.

Poor households have very small plots of land and supplement their harvest by working for others in exchange for food. There rates of payment in kind for the abatindi (Category 2) Category are high (36% of the households’ annual energy requirements). Poor market access can make working for food more efficient than working for cash to later be exchanged for food. Additionally, in Ngororero District, as well as working for food, abatindi (Category 2) households participate in sharecropping systems (ikibara system). The abakenebifashije (Category 4) rent land to poorer households. Instead of paying for the rented plot, the beneficiary prepares it

![Figure 12: Source of Food by Wealth Group](image)

![Figure 13: Total agricultural production and use](image)
for cultivation. The harvest is shared between the two parties, most often in equal parts.

The proportion of the harvest reserved for household consumption is much higher in the ECN zone (85%, 80% and 60% for each wealth group), reflecting the main characteristic of the livelihood zone, subsistence farming. Only a small percentage of the harvest is sold, partly due to limited market access in the higher altitude regions, but also to the proportionally smaller representation of cash crops.

### Income Sources

<table>
<thead>
<tr>
<th>Source of income</th>
<th>Cat 2</th>
<th>Cat 3</th>
<th>Cat 4</th>
</tr>
</thead>
<tbody>
<tr>
<td>other (savings, credit, gifts, etc)</td>
<td>100,000 - 150,000 Rwf</td>
<td>150,000 - 200,000 Rwf</td>
<td>200,000 - 250,000 Rwf</td>
</tr>
<tr>
<td>self-employment (inc petty trade)</td>
<td>50,000 - 100,000 Rwf</td>
<td>100,000 - 150,000 Rwf</td>
<td>150,000 - 200,000 Rwf</td>
</tr>
<tr>
<td>employment (farm and off-farm)</td>
<td>50,000 - 100,000 Rwf</td>
<td>100,000 - 150,000 Rwf</td>
<td>150,000 - 200,000 Rwf</td>
</tr>
</tbody>
</table>

As outlined in the previous section, crops sales are of small significance as a source of income for households in this livelihood zone. For the abatindi (Category 2), crop sales - sweet potatoes and sorghum, sold in similar proportion provide an average of 6,000 Rwf which is hardly visible on the graph (Figure 13). Households in this Category depend largely on farm and off-farm employment.

Agricultural employment is available for seven to nine months of the year within the villages and in neighboring villages. Wage rates vary between 500 and 800 Rwf/day. These rates are lower in the northern part of the zone. Off-farm employment is available for two to four months of the year and provides a more profitable average daily wage rate of 1,000 Rwf.

The abatindi (Category 2) do not produce enough quantities of beans to sell some of the harvest. Sweet potato, the staple crop, is sold by all wealth groups. The opportunity costs of producing cassava are high as they have longer growing periods and one same harvest occupies the land for longer. All wealth groups produce cassava, but only two sell part of the harvest. Cassava grown for flour requires a longer maturing time, 24 months or longer. As a result, only better-off households can devote part of their land to this use.

Livestock sales and livestock product sales (milk and eggs) provide an average income of 180,000 Rwf for abakene (Category 3) households and up to 250,000 Rwf for the abakene bifashije (Category 4). If a household has the possibility to sell a productive female cow, the rewards are high. Abakene (Category 3) households tend to sell more pigs, chickens and rabbits. The advantage of having small livestock is
that the reproductive cycles are shorter.

The relative shortage of employment opportunities and low revenues from crop sales means all households need to show some entrepreneurial spirit to meet their annual cash requirements. Self-employment represents a considerable source of income and includes the sale of banana and sorghum beer, sale of handicrafts (such as pottery) and transporting different crops to the main road networks (for example sugar cane).

### Expenditures

The *abatindi* (Category 2) spend proportionately more on food than the other two wealth groups. About 65% of the households’ expenditure goes towards the purchase of staple foods. Together with spending on other food, over 70% of the *abatindi* (Category 2)'s annual expenditure is devoted to securing food. This total reaches 60% for the *abakene* (Category 3) and about 30% for the *abakene bifashije* (Category 4). Staple foods include: cassava and maize flour, beans, sorghum and sweet potatoes. Non-staple foods are: Irish potatoes, sugar, rice and oil.

The *abakene bifashije* (Category 4) spend considerably more on inputs and social services. Some households in this Category send their eldest child to secondary boarding schools.

Health insurance payments are fixed. These figures represent payment of insurance for seven people, although it is not always the case that the entire household is covered.
Hazards

The main hazards in the livelihood zone are linked to severe weather conditions. Heavy rain and, during the colder months of the year, hail, can destroy large percentages of the harvest. Additionally, heavy rainfall causes landslides, which not only ruin crops and accelerate soil erosion, but also block access to the villages. In a number of occasions access to the villages included in the survey was blocked and large numbers of villagers had been called upon to remove the mountain debris. Tree planting has been introduced to manage soil erosion.

During the 2009 agricultural season B, drought dramatically reduced harvests in Nyaruguru District.

In the northern parts of the livelihood zone, insect plagues periodically affect maize. Potato blight also affects Irish potato harvests. With regards to livestock, African swine flu presents a threat every two or three years and can kill up to 90% of the pig population. Cows and goats are often infected with ticks. Project targets should take account of these hazards, as well as the impact of agricultural policies (priority crops, promotion of chemical inputs, terracing or land consolidation) which can have both positive and negative effects on rural livelihoods and may advance or delay reaching proposed targets.

Response Strategies

Agriculture-related hazards, such as heavy rain and/or crop pests result in below average harvests for all households and reduced demand for agricultural labor. The impact of these hazards on households’ access to normal-year food and cash sources force many to implement one or more coping strategies. The most common strategies are to reduce expenditures as well as to replace the lost agricultural income with farm labor income from areas less badly affected by the hazard or with off-farm labor income. Households with the sufficient capital to engage in petty trade buy food from surplus areas to be sold locally. Some households may sell additional livestock. Given the small livestock holdings, the animals sold have to be replaced after the hardship so as to restore and protect future livelihoods.
<table>
<thead>
<tr>
<th>Reduce expenditures</th>
<th>Maize flour, Irish potatoes, salt, agricultural tools, clothes, social contributions, school materials, medicines</th>
<th>Meat and fish, rice, salt, clothes, social contributions and gifts, livestock restocking, labor, fertilizer, school, medicines</th>
</tr>
</thead>
<tbody>
<tr>
<td>Additional sources of income</td>
<td>Work for food, Temporary migration in search for work</td>
<td>Increase livestock sales, Secure off-farm employment, Increase petty trade and other commercial activities</td>
</tr>
</tbody>
</table>
The Central Plateau Coffee and Cassava Livelihood Zone (CPC livelihood zone) covers a large proportion of Rwanda’s Southern Province. It includes four of Ejo Heza’s target districts: Huye and Gisagara (all sectors), Nyanza (except Nyagisozoni sector) and the eastern half of Nyaruguru (Ngera, Rusenge, Cyahinda, Nyagisozoni and Ngoma sectors).

This zone is an extensive plateau with an altitude ranging between 1500m and 2000m. The soils are fertile and the abundant rivers and streams of the Nile basin give way to marshlands along the floors of the valleys. Traditionally these marshland areas would be used to cultivate food crops (sweet potatoes, vegetables...) especially during the dry seasons when access to water is more difficult on the hills. Today, varieties such as maize, soya and rice are increasingly being cultivated in these areas, typically under mono-cropping systems. The rehabilitation of marshland is one of the priority areas for the Ministry of Agriculture and Animal Resources (MINAGRI). The existence of swamplands with high agricultural productivity and potential makes this livelihood zone a food surplus area. As such, crops produced in this area are sold to areas to the west of the livelihood zone, where production is lower, as well as to the capital, Kigali.

There are two main seasons (each with a wet and a dry period). However, rainfall is generally well distributed throughout the year (annual average rainfall of 800 to 1200mm). Despite the tropical climate, the average temperatures are not as high as in the central and eastern regions of Rwanda.

There is a good network of tarmac roads, with a main artery linking Kigali with Burundi’s capital,
Bujumbura. Villages are relatively easy to access as they are closer to the main roads and the altitude is not as pronounced. Market access is also better than in other livelihood zones. However, all eight villages visited were off tarmac, down windy earth tracks. There are a number of large commercial and administrative centers in the livelihood zone: Nyanza - the capital of the Southern Province – Huye, Gisagara and Nyaruguru towns. Additionally, Nyamagabe town, the major centre in Nyamagabe district, belongs to a different livelihood zone but given its location close to the border with Huye, it is also an important commercial point for the CPC livelihood zone.

Nyaruguru District provides a small exception in the livelihood zone. This is an area of higher altitude, with steeper agricultural land and more vulnerability to soil erosion and landslides. Historically, this district has suffered higher levels of poverty. However, a very active local government is trying to reverse this pattern. Cross border trade opportunities with Burundi also provide some economic advantages to the region.

Rural livelihoods in this livelihood zone are based on agriculture. Whilst they have not changed considerably in the last decade, the Government of Rwanda’s (GoR) Strategic Plan for Agricultural Transformation\(^{14}\) (PSTA) has started to have an impact on the agricultural products favored in this livelihood zone. Particularly evident is the phasing out of sweet potatoes and the promotion of coffee. The main priority crops for this livelihood zone are: coffee, cassava, maize, rice and beans. Millet is also grown in Nyaruguru.

<table>
<thead>
<tr>
<th>Main food crops</th>
<th>beans, sweet potato and cassava</th>
</tr>
</thead>
<tbody>
<tr>
<td>Main cash crops</td>
<td>coffee, cassava, rice and maize</td>
</tr>
</tbody>
</table>

The impact of the new agricultural policies\(^{15}\) differs across wealth groups. For example, in this livelihood zone, the abakene (Category 3) wealth group typically plants enough maize for household consumption and only a small amount (20%) of the harvest is sold. The better-off wealth group (abakene bifashije Category 4) produces no maize for sale. On the other hand, both wealth groups cultivate rice and sell over 75% of the harvest. A more detailed description of crop production and sale patterns is provided below.

Crop production methods are very rudimentary. The main tools used are hoes and panga machetes. Monocropping systems are used in the cultivation of cash crops, most importantly coffee, although poorer households tend to intercrop coffee with beans. Indeed, monocropping is more widespread among better-off categories where farmers have willingly adopted the system on their cassava and coffee plots.

There is no use of animal traction in farming, nor the use of animals to transport goods to the market. A minority of rural households have a bicycle for transporting goods, but given the hilly terrain, this is only common in villages very close to the tarmac roads.

In terms of livestock ownership, households in all three wealth groups own one or more goats, pigs, rabbits and chickens. Additionally, the abakene (Category 3) and abakene bifashije (Category 4)\(^{14}\) The Strategic Plan for Agricultural Transformation identifies as a main challenge the “transformation of subsistence agriculture into commercial agriculture with all its involvements in terms of institutional, social changes of behavior and distribution of roles and responsibilities between different stakeholders” (GoR 2004, p.33).

\(^{15}\) PSTA I was adopted by the Cabinet in January 2005. PSTA II will cover the period from 2008 to 2012 (GoR 2009).
households own one or two cows. Ownership of livestock is important as a source of income, but most importantly as a source of organic manure to maintain and increase the productivity of small, overexploited plots of land. The no-grazing policy is closely followed. Households plant grasses for animal fodder around the boundaries of their house and their agricultural land and, when possible, in the marshlands.

Economic activities are dependent on agriculture, whether that may be crop sales or farm employment. Coffee provides an important source of income, both for growers and agricultural labor, especially during the harvest time between April and June. The Rwandan coffee sector is undergoing a process of expansion and liberalization. Farmers (especially wealthier farmers) have more choice about whom to sell their berries to and how to market their product. Investment from the private sector is increasing. Coffee-sector stakeholders (public and private) are upgrading the capacity of coffee associations and farmers by building new coffee washing stations, replanting aging tree stock, improving the quality control and, overall, strengthening the Rwanda brand with the international export market in mind (GoR 2008). NGOs such as PEARL and SPREAD have helped farmers establish cooperatives and have provided members with training (World Bank 2010). Further details about coffee production in Rwanda and case study material can be found in the section on cooperatives.

### Markets and Price Data

Markets play an important role in the zone. Farmers sell part of their produce after the harvest. They also purchase food from the market throughout the year and especially during the lean season, prior to the next harvest.

Staple food price dynamics have both a seasonal and an annual element. Data collected at Nyanza market, for example, shows the lowest and highest prices for a variety of staple goods during the reference year. The prices are lowest after the main harvests (January-February) when the availability of produce is high. Prices are the highest prior to the start of the new harvest, when stocks are low. It is interesting to note the rise in the price of meat in December, coinciding with the Christmas celebrations. Sales of vegetables and marshland crops, firewood, charcoal, livestock and labor are important sources of income during the dry seasons. However, given the high availability of these products at this time, prices are competitive.

<table>
<thead>
<tr>
<th>Staple</th>
<th>Low price Rwf/kg – month(s)</th>
<th>High price Rwf/kg – month(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dried beans</td>
<td>250 – Jan/Feb</td>
<td>450 – Nov/Dec</td>
</tr>
<tr>
<td>Irish potatoes</td>
<td>100 – Feb/March</td>
<td>150 – Nov/Dec</td>
</tr>
<tr>
<td>Sweet potatoes</td>
<td>40 – Feb+June</td>
<td>100 – Oct/Nov</td>
</tr>
<tr>
<td>Cassava flour</td>
<td>150 – July</td>
<td>200 – Nov</td>
</tr>
<tr>
<td>Milk</td>
<td>180 – Oct-May</td>
<td>200 – June-Sep</td>
</tr>
<tr>
<td>Beef</td>
<td>1500 – Jan</td>
<td>1800 - Dec</td>
</tr>
<tr>
<td>Firewood (bundle)</td>
<td>500 – June-July</td>
<td>1500 – Nov/Dec</td>
</tr>
<tr>
<td>Charcoal (sack)</td>
<td>3000 – June-July</td>
<td>5000 – Nov/Dec</td>
</tr>
</tbody>
</table>
The agricultural economy of the CPC livelihood zone rests on its two cash crop pillars: coffee and cassava.

Since 2008, the production of cassava has increased considerably, yet new markets are still to be found. A new cassava flour processing factory is to be opened in Nyanza district in 2012 to meet the increase in agricultural output. Interest from European markets (especially France) is already apparent and flour is being exported via Kigali.

With regards to coffee, although Rwanda only holds a humble place in the global coffee market, coffee has become a priority in the efforts to spur economic development. A steady increase in the price of coffee (see Figure 1 and Table 1) provides an attractive incentive for coffee growers to expand their capacity. Table 2 shows coffee price information gathered during a trader interview at Nyamagabe market. Farm-gate prices for coffee cherries have tripled in the last 5 years and the same is true of semi-processed dried beans. The current outlook for prices is good. Although direct price supports to coffee farmers ended in 1992, technical support continues to be provided by district agronomists and national organizations such as Technoserve.

Table 1: Nyamagabe coffee trader - price trends

<table>
<thead>
<tr>
<th>Year</th>
<th>Wet cherries (kg)</th>
<th>Dry beans (kg)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2006</td>
<td>100-120 Rwf</td>
<td>$0.16-0.20</td>
</tr>
<tr>
<td></td>
<td>500-700 Rwf</td>
<td>$0.83-1.16</td>
</tr>
<tr>
<td>2010</td>
<td>120-160 Rwf</td>
<td>$0.20-0.26</td>
</tr>
<tr>
<td></td>
<td>820 Rwf</td>
<td>$1.36</td>
</tr>
<tr>
<td>2011</td>
<td>300-350 Rwf</td>
<td>$0.50-0.58</td>
</tr>
<tr>
<td></td>
<td>1,600 Rwf</td>
<td>$2.60</td>
</tr>
</tbody>
</table>

The seasonal calendar in the Central Plateau Coffee and Cassava zone is dominated by the agricultural cycle which follows two rainy seasons. The agricultural season A begins with land preparation and planting in September. After the rains, in January, the harvesting of beans and sweet potatoes starts. However, in order to cope with food shortages, abatindi (Category 2) and some abakene (Category 3) households will have already started eating fresh beans from their fields and fresh maize from their kitchen gardens before the crops reach their full maturity (this feature is referred to as “green consumption” in the baseline storage spreadsheet).

16 Source: GoR 2008 National Coffee Strategy 2009-2012
Land preparation for agricultural season B starts between December and January and leads to a very busy first half of the year. From April to the end of July households are occupied collecting the second harvest of sweet potatoes and beans, as well as sorghum. Cassava is a long cycle crop. It is planted towards the end of the year. It must remain in the soil for ten to twelve months after which it may be consumed fresh. If the intention is to dry the cassava tuber and pound or mill it into flour, the plant requires a much longer growing time, twenty four months or longer. Cassava can be considered a reserve crop which households may draw on throughout the year depending on their needs; it is rarely harvested all at once.

The lean season is the period of maximum food insecurity. It falls before the two main harvests and coincides with high market prices. Poorer households who find it nearly impossible to stock food will be the most affected. Other vulnerable times during the year correspond with the beginning of the school terms (January, April and August) when non-food expenditures are high. Whilst primary education is free, households face expenditures on school materials and clothes. Health insurance can be paid at any time of the year; this represents one of the most important annual expenditures for families. Program activities which aim to promote the access to small credit facilities would support the poorest households at this vulnerable time.

Program activities which focus on expanding the reach of agricultural extension services should ensure the provision of services respects the agricultural calendar. The promotion of kitchen gardens (complementing MINAGRI’s projects in this area) through sensitization campaigns or the provision of inputs is the most viable option to expand the households’ access to cultivated land. As well as diversifying the household diet and increasing the diets’ nutritional profile, the efficient use of kitchen gardens may help to reduce seasonal food gaps.

The quieter months of the summer (July to September), when agricultural tasks are few, is the most appropriate time for program interventions that require people to devote a large part of their day to a
certain activity (e.g. financial literacy workshops). However during this time, the dependence on off-farm labor is greater and some household members may be away from the village during the day in search of work.

The Wealth Group Breakdown

Table 20: Description of wealth groups

<table>
<thead>
<tr>
<th>Wealth Group</th>
<th>HH size</th>
<th>Land owned</th>
<th>Land cultivated</th>
<th>Livestock</th>
<th>Other assets</th>
<th>Average annual/daily income</th>
</tr>
</thead>
<tbody>
<tr>
<td>Abatindi (Category 2)</td>
<td>5-7</td>
<td>0.2 ha</td>
<td>0.2 ha</td>
<td>0-2 goats 0-1 pig 0-5 rabbits</td>
<td>Kitchen garden: 3m² 40-60 coffee trees</td>
<td>Per HH: 213,200 Rwf ($355)* Per capita: 35,500 Rwf ($59)  Per HH/day: $0.96  Per capita/day: $0.16</td>
</tr>
<tr>
<td>Abakene (Category 3)</td>
<td>6-7</td>
<td>0.6 ha</td>
<td>0.7 ha</td>
<td>1 cow 1-3 goats 1 pig 0-5 rabbits</td>
<td>Kitchen garden: 6m² 250-280 coffee trees Timber trees</td>
<td>Per HH: 393,500 Rwf ($655) Per capita: 60,540 Rwf ($100)  Per HH/day: $1.80 Per capita/day: $0.28</td>
</tr>
<tr>
<td>Abakene bifashije (Category 4)</td>
<td>6-7</td>
<td>1.2 ha</td>
<td>1.3 ha</td>
<td>1-3 cattle 1-4 goats 0-1 pig</td>
<td>Kitchen garden: 11m² 350-450 coffee trees Timber trees</td>
<td>Per HH: 936,500 Rwf ($1,560) Per capita: 144,080 Rwf ($240)  Per HH/day: $4.27 Per capita/day $0.66</td>
</tr>
</tbody>
</table>

* Exchange rate: 600Rwf/$

Note: The names of the groups are relative to the zone only and do not refer to any poverty thresholds. The use of the same names in different livelihood zones does not necessarily indicate any similarity in their standard of living.

Differences in land ownership define poverty levels in this LZ. Abatindi (Category 2) households own, by far, the smallest amount of land. On average, abakene (Category 3) households own three times the amount of land, whilst the abakene bifashije’s (Category 4) land is six times the size of that of the poorest wealth group. Due to the hilly topography of the country, land is organized in small fragmented plots. Households may own one single plot or a variety of plots. The majority of households have a kitchen garden next to their house. For the higher categories, part of the agricultural land is also used for growing vegetables for household consumption. The differences between “land owned” and “land cultivated” reflect the households’ ability to rent in additional land on which to, most commonly, cultivate cash crops. It is interesting to note that even the poorest Category owns some coffee trees.

Ownership of livestock is also very limited and the poorest wealth group may only have some rabbits. Those abatindi (Category 2) households who own a pig it is most often thanks to the solidarity of a better-off household who lends them a pig and allows them to keep the offspring. This system is also common amongst the Abakene (Category 3), who borrow a cow and are allowed to keep the first born calf. Inspired by this element of Rwandan culture, the GoR developed the Girinka program (one cow per poor family). The most common form of implementation of this program is the Girinka y’ingabirano (cow donation) by which a poor family receives a cow free of charge. The first calf is given to a neighbor.
who keeps it and gives the next calf to the next neighbor and so on.

Taking into account the high costs related to maintaining a cow - farmers need sufficient space for a stable as well as some border land to grow fodder grass or, alternatively, the physical labor to collect fodder - ownership of cattle represents a considerable level of wealth.

Average daily **household** income for *abatindi* (Category 2) households is close to $1, for the *abakene* (Category 3) it nears $2 and for the *abakenebifashije* (Category 4) it is $4.27.

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**Food Sources (December 2010 – November 2011)**

There are two main sources of food for all wealth groups: own crop production and market purchases. For the poorer households, food purchases mean buying staple foods to ensure that survival food needs are met. For the Abakene (Category 3) and abakenebifashije (Category 4), a certain portion of food purchases also goes toward diversifying what they eat (they can afford to buy small quantities of fresh and dried fish and meat, for example). Abakene (Category 3) households have access to a little fresh milk in season from either their own cow or from the cow that they take care of for better-off households. For the abatindi and, to a much lesser extent, for the Abakene (Category 3), in kind payments are a third source of food. Local farm labor can be paid in grain, beans and sweet potatoes.

The following graph shows different food sources expressed as a percentage of total annual household food energy needs (2100 kcal per person per day) for each wealth group.

*Figure 20: Sources of food by wealth group*

This LZ is relatively food secure. All wealth groups can cover their annual energy needs, even if the abatindi are slightly below the required 100%, highlighting the precariousness of their livelihoods. The length of the lean period, prior to the start of the harvest, will be longer and more acute for the abatindi. All wealth groups cultivate beans, sweet potatoes, cassava, sorghum and bananas. Additionally, Abakene (Category 3) and abakenebifashije (Category 4) cultivate maize and soya. The latter also cultivate Irish potatoes and rice – both cash crops.
The vast majority of crops produced by *abatindi* (Category 2) households are consumed by the household. *Abakene* (Category 3) and *abakenebifashije* (Category 4) households sell just under half of their harvest and are able to keep part of it in the form of seeds for the next harvest or distribute it to family and friends.

Cultivating sweet potatoes is of great importance to the poorer households as it allows them to have a stock from which they may harvest throughout the year. Additionally it is an important source of food for young children (we often saw children chewing on a cooked sweet potato during our focus group interviews).

Expanding access to land is a near impossible feat for the Ejo Heza program. However, a more efficient use of kitchen gardens could help to increase food security and the diversity of diets. The supply of staple foods in the LZ is stable and it is mostly self-sufficient. Price fluctuations have been described above, but they are not extreme enough to represent a major threat to the food security of the majority of rural households. Additionally, long shelf-life goods like cassava flour is produced in the region and maize flour can be imported from other regions or from Uganda in times of need.

### Income Sources (December 2010 – November 2011)

<table>
<thead>
<tr>
<th>Table 21: Annual household income brackets</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><em>Abatindi</em></td>
<td>190,000 - 220,000 Rwf</td>
</tr>
<tr>
<td><em>Abakene</em></td>
<td>370,000 - 410,000 Rwf</td>
</tr>
<tr>
<td><em>Abakenebifashije</em></td>
<td>910,000 – 950,000 Rwf</td>
</tr>
</tbody>
</table>

Differences in annual household income levels show a great inequality of income across wealth groups. Total cash incomes double in size with each wealth group, mostly due to the greater amount of income derived from crop sales by the higher categories. Crops sales are in fact, the single most important source of income for the *abakene* (Category 3) and *abakenebifashije* (Category 4) who have larger quantities of crop surplus to sell at the local markets. Better-off households profit from local crop surpluses and shortages by waiting to sell their crops when prices are high. Poorer households remain relatively powerless in the trading chain as they have very small quantities of produce to take to the market.

Keeping in mind the very different total amounts of crop sales for each wealth groups shown in figure 5, figure 6 shows the proportional importance of certain crops. Only the most significant crops have been colored in. Not surprisingly, coffee provides the biggest source of income for all three groups. Vegetables can also be considered a cash crop for the *abakenebifashije* (Category 4). Whilst *abatindi* (Category 2) and *abakene* (Category 3) households sell avocados (one single tree provides a large harvest). This graph also shows the wide variety of crops cultivated in this zone, especially in comparison to the previous livelihood zone profile (ECN).
In order to supplement the small income derived from crop sales, households in the *abatindi* (Category 2) Category are obliged to work for others in exchange for food (as seen in the previous section) or for cash. Abakene (Category 3) households are also occasionally employed as farm labor. Agricultural labor is available for 6 to 8 months of the year and wage rates average 500 – 600 Rwf/day. Off-farm activities, most commonly construction, report a much higher wage rate of 1,000Rwf/day.

Self-employment refers to economic activities where the individual is responsible for the daily profits. The sale of firewood, brewing banana and sorghum beer and the petty trade of food stuffs or small household items are some examples. Beer brewing is an attractive market activity for *abakenebifeshiye* (Category 4) households especially. Typically, traders come to the village to buy the beer, providing the jerry cans for transporting it, incurring no additional costs to the household.
Figure 24: Total annual expenditure by wealth group

Figure 25: Proportional annual expenditure patterns by wealth group

Spending patterns differ greatly by wealth group. The *abatindi* (Category 2) spend proportionately more on food than the other two wealth groups. About 60% of very *abatindi* (Category 2) households’ expenses go towards the purchase of staple foods. When combined with spending on other food, nearly 80% of the *abatindi* (Category 2)’s annual expenditure is spent on food. This amount totals 40%

for the *abakene* (Category 3) and less than 20% for the *abakenebifashije* (Category 4).

The label “staple foods” includes: cassava and maize flour, sweet potatoes, dried beans and sorghum. “Non-staple foods” include: Irish potatoes, sugar, fish, meat, oil, rice, groundnuts and plantains. “Household items” are those items necessary for preparing food including kerosene and/or firewood as well as kitchen utensils and soap.

There is a stark difference in the availability of disposable income for other necessary items and services across wealth groups. Expenditure on inputs increases in relation to the size of the land. It is much higher for *abakenebifashije* (Category 4), who use larger amounts of fertilizer, especially to increase their coffee harvests (coffee yields per tree can be five times higher with the use of fertilizers). Other expenses on productive inputs, for all wealth groups, include seeds, agricultural tools and the restocking of livestock. *Abakene* (Category 3) and *abakenebifashije* (Category 4) households spend money on renting in land from poorer (or wealthier) households who do not have the physical ability (or have higher opportunity costs) to cultivate the land themselves. They also hire agricultural labor on a seasonal basis. In a bad year, these expenditures typically decrease, affecting the incomes of poorer laborers and creating pressure to look for work outside of the local area.

<table>
<thead>
<tr>
<th>Table 23: Average annual expenditure on social services</th>
</tr>
</thead>
<tbody>
<tr>
<td>Expenditure</td>
</tr>
<tr>
<td>Education</td>
</tr>
<tr>
<td>Health</td>
</tr>
</tbody>
</table>
Considering their limited resources, *abatindi* (Category 2) households spend a considerable amount on sending their children to school. Access to primary education is free; therefore the figure represents expenditure on school materials, clothes and, occasionally, a fee for school meals. Health expenses are fixed. Health insurance must be paid for each member of the household at 3,000 Rwf per person, per year. Some *abatindi* (Category 2) households receive state support to cover the family’s health insurance.

“Other” expenditure represents money spent on transport, beer, tobacco, celebrations and other social contributions, church offerings and, for the better-off, air-time.

### Hazards

Livelihoods based on rain-fed agricultural systems depend on the vagaries of the weather patterns. Farmers await the start of the rainy season. The amount of rain and the even spread of rainfall during the wet months determine the success of their harvest. As such, late or insufficient rains are one of the most common hazards affecting the livelihood zone. Equally, excessive rain increases soil erosion and, in the more extreme cases, may lead to landslides which can destroy large parts of the harvest.

Since 2005, a specific crop disease has affected the cassava harvest. The cassava mosaic virus, which causes the leaves of the cassava plant to wither, severely limits the growth of the edible root. The introduction of new species of cassava has helped to overcome this problem. However the spread of the disease has discouraged farmers from continuing to cultivate cassava. The main risks facing livestock are livestock diseases: black quarter, which affects cattle, and African swine flu.

<table>
<thead>
<tr>
<th>Table 24: Periodic hazards affecting the livelihood zone</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Agriculture</strong></td>
</tr>
<tr>
<td><strong>Livestock</strong></td>
</tr>
</tbody>
</table>

### Response Strategies

This zone does not regularly receive external food aid. Despite relative poverty, rural households resort to a variety of coping strategies that allows them to meet their food needs. In part, this is achieved by reducing their purchases of non-essential items, using that cash to purchase staple foods. The various non-food items, as well as non-staple food items, that are usually reduced during bad years are summarized in the table below, together with additional sources of income which are available during bad years.

<table>
<thead>
<tr>
<th>Table 25: Response strategies</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Coping strategies</strong></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Reduce expenditures</th>
<th>Meat and fish, clothes, social contributions and gifts, livestock restocking, school materials, medicines</th>
<th>Meat and fish, rice, clothes, social contributions and gifts, livestock restocking, labor, renting in land, fertilizer, school, medicines</th>
</tr>
</thead>
<tbody>
<tr>
<td>Additional sources of income</td>
<td>Work for food&lt;br&gt;Secure farm and off-farm employment in nearby villages and towns</td>
<td>Increase livestock sales&lt;br&gt;Secure off-farm employment&lt;br&gt;Increase petty trade and other commercial activities</td>
</tr>
</tbody>
</table>
Using the Baselines for Targeting, Monitoring and Evaluation

The rational for the *Ejo Heza* HEA baseline survey is to provide a quantified picture of the household economy for the pre-project reference year. The baseline serves as a benchmark against which to measure change created by the project and whether these changes meet project goals. The baseline survey is therefore linked to the project planning cycle of the *Ejo Heza* project. Now that a baseline picture of household income and food access is established, project planners can use the data to assess the impact of activities mid-way through the project as well as to assess livelihood impacts at the end of project implementation.

For the purpose of monitoring program impact, HEA can be used to focus on a particular aspect of the household economy – for instance crop sales – and how it may change over time and as a result of particular interventions, as well as how it compares among different wealth groups within the same livelihood zone. HEA not only provides a holistic view of livelihoods but also quantifies the various components of the household economy.

The baselines provide three different views of how the *Ejo Heza* project can impact the target population in Southern and Western Rwanda:

1. How the project or interventions have affected the household economy and access to services of the target group?
2. Has the intervention impact poverty at the community level? Were households able to shift up to higher wealth categories?
3. How may the impact of the intervention be affected by external changes or shocks, such as flooding or crop diseases? This allows project planners to see the likely affects of hazards or shocks and to assist in the appropriate project planning and preparedness.

**Targeting**

*Ejo Heza* is considering using $1.25/person/day as the benchmark for targeting beneficiaries. Using this threshold, 100% of the population of the three wealth groups across the four livelihood zones would be eligible for targeting.

<table>
<thead>
<tr>
<th>Table 26: Average daily income across wealth groups and livelihood zones</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>LKC</strong></td>
</tr>
<tr>
<td>-------</td>
</tr>
<tr>
<td><strong>HH</strong></td>
</tr>
<tr>
<td>Abatindi</td>
</tr>
<tr>
<td>Abakene</td>
</tr>
</tbody>
</table>
According to the “Progress out of poverty” data provided for Rwanda (www.progressoutofpoverty.org) regarding the percentage of the population which falls below the $1.25 pppd threshold: on average, 61% of those aged 0-74 fall below the $1.25 pppd line across Rwanda (see Figure 2).

**Figure 26: $1.25/day/2005 PPP poverty line**

A revision of the $1.25 targeting benchmark in line with the program’s objectives is necessary. For rural households in the four livelihood zones to reach the $1.25 pppd threshold it means a daily per capita income of 750 Rwf or an annual per capita income of over 270,000 Rwf. Essentially, this is the family income level not a single person’s income level.

With regards to particular interventions within the Ejo Heza program, interventions which promote access to agricultural extension services, as well as kitchen gardening could benefit households in all wealth groups. Equally, activities aimed at ISLGs would benefit households across the three wealth categories. However, interventions aimed at cooperative or at improving rural demand for financial services would mainly be targeted to *Abakene* (Category 3) and *Abakenebifashihe* (Category 4) households.
Outcome Analysis is the term used to describe the final three steps in HEA analysis. These steps are designed to produce a rational and defensible statement about the predicted effects of a hazard(s), or positive change(s) on household livelihood strategies (i.e. their ability to obtain food and cash income, and to acquire the non-food items they need to live).

As demonstrated in the graphic below, the outcome analysis is made up of the last three steps of the HEA framework. The following scenarios use the baseline information collected for the Ejo Heza Program and incorporates the intended affects of particular intervention and specific households may be affected.

Scenario A: CHF and partners aim to increase the production of maize by securing financial services for the purchase of input packages for households in the LKC livelihood zone

<table>
<thead>
<tr>
<th>Households</th>
<th>Category 2</th>
<th>Category 3</th>
<th>Category 4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Land size cultivated</td>
<td>.2 hectares</td>
<td>.7 hectares</td>
<td>1.3 hectares</td>
</tr>
</tbody>
</table>

**Given:**
- Maize production without inputs (kg per 1 ha)
  - 800 kg
- Maize production with inputs (kg per 1 ha)
  - 2500 kg

**Assumptions:**
- Rainfall the same as baseline year
- Increased access to inputs will increase production by 313%
- Households will use all cultivated land for maize production
- Selling of price for maize does not change from the reference year (235 Rwf/kg)

<table>
<thead>
<tr>
<th>Cost of input package:</th>
<th>Category 2</th>
<th>Category 3</th>
<th>Category 4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Improved maize seed</td>
<td>3200 Rwf</td>
<td>11200 Rwf</td>
<td>20800 Rwf</td>
</tr>
<tr>
<td>DAP</td>
<td>12000 Rwf</td>
<td>4200 Rwf</td>
<td>78000 Rwf</td>
</tr>
<tr>
<td>UREA</td>
<td>4800 Rwf</td>
<td>16800 Rwf</td>
<td>31200 Rwf</td>
</tr>
</tbody>
</table>
The intervention secures loans to cover the cost of the input package for each of the households. The interest rate of the loan is set at 18%. Below shows the total amount of the loan with interest included.

<table>
<thead>
<tr>
<th>Household</th>
<th>Category 2</th>
<th>Category 3</th>
<th>Category 4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Repayment Amount</td>
<td>77,800 Rwf</td>
<td>95,226 Rwf</td>
<td>214,170 Rwf</td>
</tr>
</tbody>
</table>

**The Outcome for Each Household**

**Category 2 households**
- Extra maize production from input package: 340 kg
- Income earned from maize production: 79,990 Rwf
- Expenditure on extra maize production: 77,880 Rwf
- Profit/loss: 2,020 Rwf
- Kcal equivalent: 0.6%

**ANALYSIS:** The impact of this intervention for Category 2 households is quite limited since the amount of land these households cultivate is minimal. This scenario also assume that all of the land that they cultivate would be dedicated to maize production only and not other crops. Furthermore, if the selling price of maize falls from 235 Rwf/kg (scenario price) they may see deficits.

**Category 3 households**
- Extra maize production from input package: 850 kg
- Income earned from maize production: 199,750 Rwf
- Expenditure on extra maize production: 95,226 Rwf
- Profit/loss: 104,524 Rwf
- Kcal equivalent: 30.1%

**ANALYSIS:** The impact of this intervention for Category 3 households is slightly better when compared with Category 2 households. This is due to the amount of land these households cultivate. The profit gained would be around 100,000 Rwf or 30% if we convert the profit into Kilocalories. Again, this scenario also assume that all of the land that they cultivate would be dedicated to maize production only and not other crops and the price does not drop.

**Category 4 households**
- Extra maize production from input package: 2,210 kg
- Income earned from maize production: 519,350 Rwf
- Expenditure on extra maize production: 214,170 Rwf
- Profit/loss: 305,180 Rwf
- Kcal equivalent: 87.9%

**ANALYSIS:** This intervention will impact Category 4 households the most since they cultivate more land. After the initial loan is repaid Category 4 households would profit around 300,000 Rwf or 88% of their annual kilocalorie needs.
Scenario B: CHF and partners provide artificial insemination practices, increased use of fodder supplements, and training in care taking technology. Promoting producer/buyer market linkages and linking livestock input vendors to producers.

<table>
<thead>
<tr>
<th>Households</th>
<th>Category 2</th>
<th>Category 3</th>
<th>Category 4</th>
</tr>
</thead>
<tbody>
<tr>
<td># of milking animals*</td>
<td>0</td>
<td>0-1</td>
<td>1-2</td>
</tr>
<tr>
<td>Given:</td>
<td>Milk production from baseline (2-3 liter per milking animal)</td>
<td>Milk production with inputs (4-6 liters per milking animal)</td>
<td></td>
</tr>
</tbody>
</table>

Assumptions:
- Increased use of fodder supplement, and training care technology will increase production by 100%
- Improved producer/buyer linkages will increase households’ selling price by 50%
- No disease outbreaks
- Same rainfall as reference year

The Outcome for Each Household

Category 2 households
N/A

ANALYSIS: Owning no milking animal this intervention will not affect these households

Category 3 households

- Milk sales increases from 4% from reference year to 6% in the current scenario
- Milk consumption increases from 3% from the reference year to 4% in the current scenario

ANALYSIS: The main impact for Category 3 households is minimal. If they double daily milk production their cash income increases slightly (2%) and their consumption increases by 1%. Since they already exceed their survival threshold income earnings should be focused on. This assumes that households will be able to sell their milk at prices 50% more than the reference year.
- Milk sales increases from 8% from reference year to 12% in the current scenario
- Milk consumption increases from 5% from the reference year to 7% in the current scenario

**ANALYSIS:** The main impact for Category 4 households is slightly better than Category 3 households. This is because they may have more milking animals. Even if they double daily milk production their cash income increases slightly (4%) and their consumption increases by 2%. Since they already exceed their survival threshold income earnings should be focused on.

Again, this assumes that households will be able to sell their milk at prices 50% more than the reference year.
Cooperative Case Studies

Cooperatives have become a common form of farmers association, encouraged by national agricultural policies and the joint efforts of MINAGRI and MINALOC to decentralize these policies to the umudugudu (village) level. The National Agricultural Extension Strategy sets out under its Specific Objective #1 to “promote farmer organizations and to encourage their participation in agricultural sector stakeholder « concentration » platforms.

Cooperatives are a large group of farmers and typically engage in entrepreneurial activities. In most cases, members contribute money to a common fund upon joining the co-op, which provides a capital base on which to build the association. Additional cash contributions may be provided by members every 3 or 4 years to maintain the capital base. Part of the profits from product sales is also re-invested into the co-operative. Common funds are used to buy inputs, tools, land or livestock for the co-operative or to provide credit facilities for members. Certain cooperatives have been supported by national and international NGOs throughout the set up process. However, this support is usually based on a commitment to pay back the investment.

Cooperatives are involved in the production of a large variety of goods, from animal products such as honey or milk, to agricultural produce such as soya or beans, as well as handicrafts. Below are three cases studies which provide examples of the types of co-operative that exist: a relatively new dairy co-operative in Kibilisi sector (Nyanza), a maize, soya beans and vegetables co-operative in Gasaka sector (Nyamagabe) and a coffee co-operative in Mbazi sector (also in Nyamagabe). Membership in a co-operative can be an important trigger for positive changes in households’ livelihoods. Not only do cooperatives give farmers access to modest credits and to economic assets, but also to new ideas in terms of livelihood strategies by working together with others and learning from each other. Additionally, working together within the framework of a co-operative allows members to communally defend their interests. The co-op may also provide a springboard to forming partnerships with private actors or with NGOs. Within the context of Rwanda’s new agricultural policy, cooperative could provide a viable alternative for smallholders in a (future) market dominated by large agricultural entrepreneurs.

On the other hand, chances to become a member of a co-operative are relatively limited. Although open to all Ubudehe categories, farmers must have a certain living standard to be able to join a co-operative. Typically entry requirements are: a minimum amount of land (or coffee trees), ownership of at least one cow (in the case of dairy co-ops), enough capital to cover the initial economic contribution or, at least, the physical capacity to work. As such, co-operative membership is most common for households in the Abakene Category (Category 3) or above. Additionally, decisions are taken by the collective which may not fit the individual needs and agendas of the poorest members.
The collective system requires that people cultivate at certain times and to certain standards in order to be able to sell the produce collectively. However, it is usually the individual responsibility of members to tend their fields or livestock. Profits from sales are distributed according to each farmer’s amount of produce. Certain cooperative have consolidated land plots or have rented or purchased land to be cultivated together, in which case, the profits from sales are shared out equally.

In general, those coffee co-op members from the Abakene (or Category 3) group who were interviewed had similar food and income patterns as other Abakene households. However, one case study from the CPC LZ stood out. The case study from Nyagisozi Sector (Nyaruguru District) features members from the Kaduha Coffee Co-op. Typically, Category 3 households in the co-op cultivate 2 ha of cash crops (and 1 ha of food crops). This is much higher than the 0.7 ha that a typical Abakene household in CPC LZ cultivates – of which 0.2 ha is used for cash crops. Access to more farmland has significant income and expenditure effects. These effects are illustrated in the graph below.

Not unexpectedly, with two-thirds of their land devoted to cash crops, the Kaduha co-op households earn approximately 3 times more income from crop sales than the typical Abakene (Category 3) group. With more cash earned, how was income typically spent in the reference year? The graph below shows the spending patterns of the Kaduha co-op members (Category 3 households) compared with the typical Abakene (Category 3) group from CPC LZ.

Some of the extra income went on Food (about 45,000 additional Rwf). However, the main difference is spending on productive inputs, social services and “other”. Where coffee prices are favorable, income more than covers the inputs. Higher income also means higher spending on education and health expenses. Finally, there is significantly higher “other” spending, including money used for transport and communication as well as tax, social obligations and beer.
Dairy co-operative- Gisika Village, Kibilisi Sector, district of Nyanza – CPC livelihood zone
Nov 21,2011

The co-operative was established in February 2011. It groups dairy farmers from Kibilisi and Muyira sectors (5 villages in total), both in Nyanza District. The co-op buildings are in Cyeru village (Kibilisi sector). There are 200 members, of which only 36 are women, from the *abatindi, Abakene and Abakenebifashije Ubudehe* categories.

The co-op has 200 dairy cows, one per member. Initially, 160 cows were provided by the UK based NGO Send a Cow, as well as, the *Girinka* program (one cow per poor family). Since then, 40 calves have been born which have been kept within the co-op. Additionally, the NGO invested 60,000Rwf for the construction of the cow sheds, which has been repaid by the members with the profits from the sale of the milk. Each member must tend to his cow everyday individually. They must also plant grasses on their land for fodder. Marshlands are used for this purpose during the dry season.

Milk is sold at Nyanza market directly by the members but also via traders who are paid a daily wage. The government buys a certain proportion of the milk at 170Rwf/litre; the rest is sold to local consumers at 150 Rwf/liter. According to the amount of litres produced and sold, members receive 20Rwf/liter. The rest of the profit is saved in a bank account. The monthly profit (after paying the traders) is divided equally amongst all the co-op members.

The conditions for membership are: to be selected as a recipient of a cow by the NGO (this is coordinated by the village chiefs) and to be able to contribute 10,000 Rwf. The co-op is expecting an increase in membership numbers next year; potentially 90 new members from 9 new villages. This will require the construction of new cow sheds.

The most common problems faced the members are not being able to afford veterinary services. The co-op has no central fund to cover these expenses and the members must meet them individually. However, on certain occasions, veterinary expenses are advanced by the NGO.
Agricultural co-operative, Gasharu village (Gasaka sector, Nyamagabe) ECN livelihood zone  Nov 14, 2011

Created in February 2004, this co-op has 30 members (21 female and 9 male) most of whom belong to *Abakene* (Category 3) and *Abakenebifashije* (Category 4) households. Each member contributed 500Rwf upon joining the co-op.

The co-op has access to 1 hectare of communal land on which maize, soya beans and vegetables (carrots and cabbages) are cultivated. In 2011, the recorded profits were, for season A: 96,000Rwf from fresh maize sales, and for season B: 50,000Rwf from carrot sales, 70,000Rwf from cabbage sales and 54,000 Rwf from soya bean sales.

An annual profit share of 9,000Rwf per member represents 30% of the average income from crop sales for *Abakene* (Category 3) households in the ECN LZ (or 15 days of paid agricultural labor). Presuming members continue to cultivate their own plots of land; this is an attractive additional source of disposable income. A percentage of this share is re-invested into the co-op to cover the running costs.

Harvests are sold at the main market in Nyamagabe town, which is about one hour walk away, and to petty traders in the local area. A local tofu processing co-operative buys all the soya bean harvests and provides soya bean seeds to the co-op.

The co-op covers health insurance for each member. Every Christmas, each member receives 5,000 Rwf. Other advantages of being a member which were mentioned by the interviewee are the access to information, including access to training on farming techniques and the friendships developed through the cooperation with her neighbors.
The coffee co-operative KOAKAKA covers 4 sectors (including Mbazi sector) in Nyamagabe District. It was created around 2004. Every household with coffee trees sells their coffee to the co-operative where it is processed at the co-op’s washing station and exported directly to foreign buyers. A private trader in Nyamagabe town also owns a coffee washing station which processes fresh cherries bought directly from farmers during the harvest season (March-April).

A typical abakenebifashije (Category 4) household in the Mbazi area owns about 200-300 coffee trees. In the 2010-2011 reference year, the typical income earned from coffee sales by this wealth group in the CPC livelihood zone amounted to approximately 182,000Rwf/household or around 19% of total annual income. Of their crop sales, coffee comprised about 40%. By contrast, sweet potato sales comprised less than 10% of crop income.

Better-off farmers with coffee trees showed higher expenditures per capita on education, health and clothes. Spending on inputs was higher (many farmers apply compost or fertiliser and some pay for seasonal labour to pick the cherries) but the government led initiative to aid washing stations to transform coffee husks, or pulp, into compost, may help reduce fertiliser costs.

During the project period, support to coffee co-operatives to improve the quality of their coffee grown, or to fully use washing stations, or to reduce mis-management, should have production, income and expenditure effects. The project should monitor whether the typical amount of coffee sold increases; the extent that income earned from coffee increases; and how the cash is spent.
ISLG Case Studies

ISLGs (Internal Saving and Lending Groups), also referred to as *tontines* in French, are informal groups of people who save communally. The success of ISLGs has spurred the development of many savings groups in most of the villages where the study took place. They have been promoted by the *cellule* administrative bodies in many sectors and by other key local actors, such as representatives from women’s organizations. Anecdotally, one interviewee mentioned the BBC’s radio program “*Urungana*” encouraging people to set up this kind of association.

The membership of the ISLGs interviewed ranged between 20 and 50 members, aged between 18 and 70 years old, mostly from the *abatindi* and *Abakene* (Category 3) Ubudehe categories. Some ISLGs are women only, some are mixed, yet women are usually the majority. We encountered no men-only ISLGs 19.

Typically, the internal structure of an ISLG will include: a president, a secretary, a treasurer and an internal auditor. These positions are appointed by members - in a very informal way. The treasurer, who keeps the ISLGs funds in a small safe at home, will be the most trusted member (sometimes two people share this task).

Members deposit an agreed fixed amount in the ISLG fund on a regular basis, most commonly every week, but some ISLGs deposit on a monthly basis. The quantities vary widely: from 200 to 550 Rwf for weekly installments; and from 350 to 1100 Rwf for installments on a monthly basis. ISLGs follow one of two mechanisms:

1) The sum of the members’ contributions is distributed to one member at a time on a rotating basis. Members who are in financial difficulties may ask for their turn in advance. The “financial year” runs from the first instalment to the moment every member has had the opportunity to benefit from the rolling funds. This time may exceed 12 months depending on the number of members. Additionally, part of the regular contributions (or extra contributions every 3 or 4 months, for example) may be saved in a separate fund from which members can ask for loans in times of need.

2) All contributions are saved in a common fund. Members have the possibility to access credit from this fund. Amounts vary from 2,000 – 10,000 Rwf and, typically, the time frame for repayment is 1 to 3 months. The “interest rate” attached to this loan is most commonly 10% (in some cases 5%). Interviewees explained this feature in fixed terms (i.e. “if you borrow 5,000 Rwf you must pay a 500 Rwf fee”). This indicates that they do not necessarily understand the mathematics behind interest rates. They may have been instructed by the cell representative (or other actor) to what their process should be. At the end of a certain period, normally 12 months, the total funds are divided amongst all the members and the contributions resume once more.

Most members’ contributions are derived from casual labor, crop sales and petty trade. Only a small number of female ISLG members ask their husbands for the money. In terms of household management

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19 According to one interviewee, men do not see the value of savings associations. Perhaps a more generalized reason for the prevalence of female members is that ISLGs provide a source of cash that women do not need to turn over to their husbands and therefore have greater control on deciding how to spend it.
of finances, in general, it is the husband who keeps the money and women must ask for money to cover the expenses. Any large expenses are paid for by the husband. In dysfunctional households (e.g. where alcoholism is present) it is the woman who manages the household’s finances. Women may and do ask for loans, but they must ensure their husband’s financial support in order to be able to meet the repayments.

ISLGs provide a kind of risk-reducing mechanism. Funds are used for a variety of purposes: to buy goods such as salt, soap, cosmetics, children clothes or shoes. They may also be used to buy small livestock (chicken, rabbits, sheep and goats), to rent in extra land or to carry out house repairs. The purchase of a mattress for each member was an important priority mentioned by many interviewees. However, in many cases, the main, and sometimes only, use of the funds is the payment of the annual health insurance for some, or all, members of the household. Because ISLG members depend on the contribution of other members who have similar - extremely limited - financial means, it is difficult to predict the effectiveness of the ISLGs in times of real crisis.

A small number of the ISLGs interviewed had links to local financial institutions, most commonly Banque Populaire du Rwanda, which has been operating in the rural areas of Rwanda for longest. A national network of saving cooperative(Umurenge SACCO) has begun to target the rural population, both individuals and associations, and will provide a number of financial services in the near future. Ejo Heza’s scheduled financial mapping exercise will be able to research these developments further.

Interviewees showed much interest in being linked to external financial institutions which would allow them to increase their capital base and expand the services they can provide to their members. However, access to such institutions is difficult and high value collateral is required to be eligible for a commercial loan. Interviewees are weary of the high risk involved in not being able to meet the loan repayments. Whilst there is always a penalty for not meeting the agreed savings rate in the ISLG, the consequences are not comparable.

Interviewees mentioned other types of organizations under the ISLG umbrella, which shared similar principles of association and household support. The most common were:

- Agricultural help groups: Small groups of farmers will help each other during the peak agricultural periods laboring together on each of their plots on a rotating basis.
- Savings groups for a specific purchase: Typically, the sole purpose of these groups is to help members save each month in order to be able to jointly purchase a certain good. Most commonly the purchase is a cow - in time for a big annual celebration like Christmas. The cow is slaughtered and the meat is shared out among the members.
Nov 15 2011

This new ISLG started up in 2010 as the result of a district mobilization initiative. Of the 30 members, 16 members are women and 14 members are men. At their weekly Thursday meetings, each member buys 4 shares. One share costs 100 Rwf. Thus, each member contributes 400 Rwf weekly. Over the year, the contribution adds up to a total payment of 20,800 Rwf. In addition, members pay 50 Rwf weekly, or 2,600 Rwf annually. Members did not withdraw money in 2010 as the income pool was still being built up. In 2011, members started taking loans. The most common use of loans is the timely payment of school expenses (including supplies and uniforms). Using loans to purchase essential household tools as well as clothes and food are also popular. One respondent (from the abakenebifashiye category) used a loan of 8,000 Rwf for wedding ceremony expenses. He re-paid the loan, and the 5% interest, after one month. With two children in secondary school and one child at University, in 2012 he plans to use his loan for school supplies.

The annual contribution of 23,400 Rwf to the ISLG represents about 2.5% of the typical income earned by abakenebifashiye (Category 4) households. In comparison with school expenses, a loan of 8,000 Rwf represents about 27% of baseline education spending by a typical abakenebifashiye household.
Mituga village (Hindiro sector, Ngororero) ECN livelihood zone Dec 12, 2011

This ISLG is one year old. It has 20 members, of which 16 are female. The oldest member is 59 and the youngest is 33. Most of the members belong to the abatindi and abakene Ubudehe categories. There is a lot of interest from other villagers to join the ISLG, but members have advised them to set up their own association so as not to become too large and run into management problems.

Members save 1100 Rwf per month. They already have 158,600 Rwf in their account with the local Umurenge SACCO, plus some extra capital which has been lent out to members. Loans of 500Rwf to a maximum of 15,000 Rwf are accessible to all members, depending on availability.

The interviewee herself received a 15,000 Rwf loan, which she used to hire a sewing machine. As the head of a female headed household, providing services as a tailor has become her most important source of income (she received training in dress-making from a local NGO).

The ISLG funds have allowed members not to sell off their livestock when faced with large expenses like school fees or health insurance. Yet, the social support goes beyond the merely financial one. During their meetings members discuss different lifestyle issues like family planning, gender issues, hygiene and counseling. And when one member became sick, each member contributed 500 Rwf and some maize flour for his hospitalization.

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The annual contribution per households is 13,200Rwf; considerably lower than in the previous case study. However, it is common for ISLGs to increase the amount of the contributions as members become more confident in their ability to meet the payments. This amount represents 5.5% of total annual household income for abatindi (Category 2) households and 2.9% for abakene (Category 3) households.
Women make up 53% of Rwanda’s population (GoR 2009). Ejo Heza is committed to promote gender equity by ensuring women are proportionally represented in the program’s activities. This program priority reflects the GoR’s “Vision 2020” strategy, in which gender equality is also a cross-cutting issue.

Table 1 below shows examples of daily schedules for men and women at two different times of the year: a day during the busy agricultural period (in Season B this may be September or October) and a day during the quieter months of the summer time (in this case, August). The table shows the inequalities among household members in their work burdens and the extent to which members of different gender would be able to engage in project activities.

Table 27: Daily schedule by gender and time of the year

<table>
<thead>
<tr>
<th>FEMALE</th>
<th>MALE</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Busy time: Sept/Oct</strong></td>
<td><strong>Quieter time: August</strong></td>
</tr>
<tr>
<td>Household chores</td>
<td>Wake up</td>
</tr>
<tr>
<td>Farm work (own land or for others)</td>
<td>Household chores, farm work in marshlands if available, petty trade</td>
</tr>
<tr>
<td></td>
<td>07:00</td>
</tr>
<tr>
<td></td>
<td>09:00</td>
</tr>
<tr>
<td>Prepare lunch</td>
<td>Prepare lunch</td>
</tr>
<tr>
<td>Eating</td>
<td>Eating</td>
</tr>
<tr>
<td>Farm work</td>
<td>Visit friends/relatives</td>
</tr>
<tr>
<td></td>
<td>Gather firewood/fodder</td>
</tr>
<tr>
<td></td>
<td>15:00</td>
</tr>
<tr>
<td>Prepare dinner</td>
<td>Prepare dinner</td>
</tr>
<tr>
<td>Eating</td>
<td>Eating</td>
</tr>
<tr>
<td></td>
<td>19:00</td>
</tr>
<tr>
<td>Rest</td>
<td>Rest</td>
</tr>
</tbody>
</table>

**Female-headed households**

Female heads of household are regularly targeted by development interventions. For example, after the war and genocide, land and livestock were distributed among women by relief and development organizations (Koster 2008). However, evidence on the assumed poverty of female-headed households in Rwanda is scarce.

The UNDP states that “nearly one-third, or 32.1%, of Rwandan households are headed by women... In terms of poverty gender disparities, 62% of female-headed households lie below the poverty line compared to 54% of male-headed households” (http://www.undp.org.rw/Poverty_Reduction.html).
However, it would be too much of a simplification to assume that female-headed households in Rwanda belong to the poorest of the poor. Data on the proportion of female headed households across the different wealth groups was collected during the proportional piling exercises\(^{20}\) and is show in Figure 1. Female headed households represent almost 60% of abatindi (Category 2) households across the four LZs and a similar proportion for abakene (Category 3) households. The percentage is considerably lower in abakenebifashije Category (4).

**Figure 1: Proportional representation of female headed households**

Female-headed households are typically disadvantaged in terms of access to resources like land, livestock, credit, education or health care, yet they are not necessarily poorer than male-headed households in terms of income poverty. Indeed, as is evident from Figure 1, female headed households are also present in the abakenebifashije (Category 4) wealth group.

Female-headed households perform well because female heads of households are able to make their own decisions about the resources they have access to, independently from male spouses, and because they use these resources more productively than male heads of households (IFAD 1999). Additionally, female-headed households tend to diversify their income-generating activities more than do male-headed households (ibis). Women participate more in associations, farming cooperative and credit groups. This is especially the case for female heads of households, who use these structures to compensate for lost family ties and to gain access to support networks.

On the other hand, different cultural practices may inhibit women from performing particular productive tasks. Interestingly, specific activities (for example activities related to cattle, such as milking cows and taking cattle to the well) are taboo for women in Rwanda. Widows may also lack knowledge about production technologies, they may have difficulty accessing markets for their produce and labor and remuneration may be lower.

Insightful research on female headed households has been carried out in Rwanda (Cf. Koster 2008, Schindler 2009, USAID 2000), which may be used to inform program design and targeting.

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\(^{20}\) Proportional piling is a rapid rural appraisal technique in which 100 beans are used to represent the total number of a particular set (e.g. households). Interviewees are invited to divide the pile and group according to the relative size of a particular category of interest (e.g. female headed households).


GoR 2009 “National Agricultural Extension Strategy” Ministry of Agriculture and Animal Resources


Koster (2008) Dr. M. Koster, “Linking Poverty and Household Headship in Post-Genocide Rwanda” Wageningen University, Netherlands

Progress out of poverty (2010) “Rwanda PPI, Indicators and look up tables”

