UNHCR
United Nations High Commissioner for Refugees
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EVIDENCE FOR DEVELOPMENT

Milk Solutions for Livelihoods and Self-Reliance

Baseline household economy study of project participants in Dori, Gorom Gorom and Deou

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Contents

Background to the study

This assessment complements a livelihoods survey conducted in UNHCR/Seeds for Solutions initial project sites in January 2015, and provides additional baseline data on beneficiaries in new project areas. The Seeds for Solutions (SfS) project is designed to enhance the economic security of both Malian refugees and the host community in the Sahel region of Burking Faso, through interventions in the dairy sector[1].

The 2015 baseline assessment was led by Evidence for Development (EfD) with the participation of UNHCR staff, students and staff from the University of Bobo Dioulasso and staff of partner agencies. Detailed information on household economy was collected using the Individual Household Method (IHM)[2]; classroom based training and supervision and mentoring in the field was provided by EfD.

The January 2016 assessment was designed to include baseline IHM interviews with a sample of new project participants in Gorom Gorom, Deou and Dori. Due to the security situation it was not possible for EfD to staff to travel to the Sahel. However, it was agreed that, by reducing the scale of the assessment and working with carefully selected enumerators, work could go ahead under the delegated leadership UNHCR's livelihoods assistant, who had been trained by EfD and had participated in all previous IHM work in Burkina Faso. The five most competent enumerators from earlier IHM studies were chosen make up the interview team, additional guidelines and instructions were prepared by EfD to assist the team leader, and arrangements were made to install the open-IHM software on local computers. A protocol was agreed whereby the team leader was in daily contact with EfD's director of operations. EfD checked all data which was emailed after it had been entered in the IHM database, and fed back queries within 24 hours. Using skype and email, instant messages could be relayed and direct communications maintained. This experiment in distance support proved to be highly effective.

In addition to the IHM interviews, shorter monitoring interviews were conducted with a random sample of project beneficiary households for which IHM data has already been collected in Goudebou, Metao, Dibou and Dibissi[3]. These interviews, backed by quantitative IHM data to collected in an end-line study, will provide information on changes within the household, the main external events that have affected the household and any project related activities that have taken place. This is documented in a separate report.

[1] See *Milk Solutions for Livelihoods and Self-Reliance of Malian Refugees and Host Communities in Burkina Faso: Baseline household economy data to support project monitoring and evaluation (*Evidence for Development/UNHCR August 2015)

[2] See www.efd.org/our-work/methods/the-individual-household-method-ihm/

[3] *Milk Solutions for Livelihoods and Self-Reliance of Malian Refugees and Host Communities in Burkina Faso*,(op. cit.)

Executive Summary

The IHM study was conducted among urban and peri-urban communities in Gorom Gorom, Deou and Dori. Based on initial enquiries into the local economy and livelihood systems of the study sites, the data we present in this report has combined information from all three communities. Livelihoods in these communities were based on a range of livestock related activities, agriculture, skilled and non-skilled work, petty trade and small business. Migration to the region's gold mines was also common in all sites.

The study included project beneficiaries only. Demographic information indicates that the project's targeting criteria are being met: The average age of the household head was 49 years. Of these, 23 heads of household (just under 25%) were 60 years of age or over. 17% of household heads were female and 25% of households reported that at least 1 family member was unable to work through disability.

Virtually all households in the study were able to meet their food energy requirements. Only 2 of the 94 households included in the final analysis of household income fell below the food poverty line. However, median disposable incomes[4] in the poorest 2 income quintiles were low. In the poorest quintile (Q1), a majority of households (17 out of 18) fell below the locally defined standard of living threshold and most households in Q2 were close to the threshold.

Most households were dependent on a combination of own food production and market purchase to meet their food energy needs. On average, households derived around 24% of their energy requirements from their own production; most of this was from crop production, with around 8% from livestock products. Very few cereal crops were sold on the market although some market gardening was carried out around the main trading centres.

The main sources of cash income were from livestock trading and the sale of livestock products, with petty trade and business also providing good returns for some households. Artisan work was not widely practiced among the sample: around 8% of households derived some income from work that could be described as 'artisanal' eg pottery, jewellery making, knitting and weaving, with generally low returns. Key informants reported that the artisan sector had been seriously affected by the security situation and absence of tourists in the Sahel, with the result that many artisans had turned to other sources of income, often involving migration outside the Sahel or work in the mining sector[5].

Around 15 % of households derived income from mining. Other cash income sources included trades

[4] See Appendix 10 for definition of Disposable Income and other terms and concepts used in IHM analysis
[5] See Appendix 8 for more detailed information on input costs and organisation within the artisan sector

such as carpentry and construction and, reflecting the urban context, small business and work as government officials, managers and professionals such as accountants.

Livestock were the most important productive assets owned by households, and with just 2 exceptions, all households held one or more of the main categories of livestock (goats, sheep, cattle, cows). Whilst livestock holdings were fairly evenly distributed among households in the lower half of the income distribution (Q1-Q3), the largest herds were found in the richest quintiles. Among the other tradable goods documented, ownership of motor bikes was high across the income distribution. Mobile phone ownership was also high in this well connected, trading region, with most households owning between 2 and 4 phones.

Analysis of data on loans taken out in the formal and non-formal sector indicated that while around 50% of households had borrowed money in the previous year, levels of indebtedness were not high. The amount borrowed varied across the income distribution; as would be expected, better off households generally took out larger loans. Most loans had been repaid within a 12 month period.

Additional information was collected on specific project monitoring indicators including: milk production from cows, cash income from milk sales, markets where milk products are sold, and beneficiary households' use of loans. This information has been disaggregated by site to gain a clearer picture of variables most relevant to the Seeds for Solutions project.

The highest volumes of cow's milk were produced by households in the Gorom Gorom sample, followed by Dori and Deou. Most of this milk was sold to markets and dairies in Gorom, Dori and Deou. Poorer households sold a smaller proportion of the milk they produced than better off households, and were more likely to sell within the village.

Finally, the relationship between beneficiary type (producers, collectors, processors) and the household's position on the income distribution chart was analysed. In all sites, the largest number of milk producers participating in the project was found in the richest half of the population. Collectors and processors were found in more or less equal numbers in the upper and lower half of the distribution. However, the number of households falling into these categories was relatively small, so no clear relationship can be drawn. 16 households were project participants but did not yet know what their role in the value chain would be.

Notes on survey sites: Gorom Gorom, Deou and Dori

Gorom Gorom is a market centre and a crossroad for traders coming from Mali, Niger and other parts of Burkina Faso. As well as livestock and agricultural products, manufactured goods, clothing and fabrics are sold. Around 90% of the population keep livestock and around 60% are involved in crop production in surrounding rural areas. Cereals are grown for animal fodder and household consumption and vegetables (tomatoes, onions, cabbages, aubergines, carrots and sorrel) are produced for sale in town. Migration is common throughout Gorom Gorom commune. This includes seasonal migration among pastoralists, migration to the region's mines (mostly young men aged 18-35 years), who are away for 6-9 months) and external migration involving travel for 12 months or

longer. Most of this is to Côte d'Ivoire, Ghana, Mali and Niger and is undertaken by young men facing unemployment at home.

Deou is classified as a department and a rural commune. It is made up of 14 villages; (Koukessi, Deou, Dibissi, Fererio, Gandafabou- Guelgobe, Gandafabou-Kelwelw, Gargassa, Gountawola, Gontoure - Gnegne, Gontoure-Kiri, Kitagou, Saba, Tiofa, and Toundre-Poli. Deou town has a weekly market; livelihood options are similar to those in Gorom Gorom commune.

Dori is an important market town, with a major livestock market used by traders from Niger and Ougadougou, as well as neighbouring provinces and local villages. It is also a gold mining centre with the large Essakane, Taparco mines and smaller informal sites in the nearby area. The town has a thriving informal sector and a branch of the national vocational training agency, which has programmes for young people who have been involved in the mining industry. The town is also a centre for development projects.

Study findings

1. Methodology[6]

The Individual Household Method (IHM) is a relatively new approach to measuring and monitoring income at household level, and like the well-established Household Economy Approach (HEA) which is used for less detailed, wide area food security assessments[7], is grounded in Amartya Sen's theory of exchange entitlements[8]. The IHM allows users to disaggregate and quantify the contribution made by specific activities to a household's overall economic status and its capacity to access the goods and services required for social inclusion and well-being. It can also be used to track change at household level over time, and to gain insights into the drivers of change. This information can be used for project monitoring purposes, including the measurement of changes in income sources, assets and other aspects of household economy relevant to project interventions.

The IHM methodology classifies all income as either 'food income', measured in kcal, or 'cash income' measured in the local currency. Software designed by Evidence for Development calculates the proportion of the household's total food energy requirement met by food income and the cost of purchasing the outstanding requirement, based on the mid-year market price of the most commonly consumed local staple foods. Any money remaining from the household's cash income after it has purchased this food is described as 'disposable income' (DI):

Disposable income=Sum of all household cash income-((Household food energy requirement [kcal]-Sum of all household food income [kcal]) × Price per kcal of staple diet)

[6] See www.efd.org
[7] Seaman, J. A., Sawdon, G. E., Acidri, J. and Petty, C. (2014): *The Household Economy Approach. Managing the impact of climate change on poverty and food security in developing countries*. Climate Risk Management, 4-5, 59–68, doi:10.1016/j.crm.2014.10.001.
[8] Sen A, *Poverty And Famines: An Essay on Entitlement and Deprivation* (Oxford 1981)

Households that do not have sufficient income to meet their WHO reference standard food energy requirement are considered to be below the food poverty line and to have a negative disposable income. To allow for comparison between households of different size and demography, income is further standardised by 'adult equivalent, giving disposable income per adult equivalent (DI/AE).

Finally, a 'standard of living threshold' (SoLT) is set. This represents the cost of a basket of essential items that are required to meet the local norms for social inclusion. Items are identified in consultation with groups of poorer women and men. They represent the minimum set of items that would be purchased annually by non-destitute poor households. This varies by locality, but will always include items such as clothes, soap and primary school costs. In some contexts social inclusion may require the purchase of tea or coffee to offer hospitality; in others blankets and fuel are a necessity; elsewhere health insurance may be mandatory. The IHM software calculates the cost of meeting the standard of living threshold for each household: personal costs (such as clothes, primary school costs, etc.) are allocated according to the age and gender of individuals in the household; other costs (eg batteries) are allocated per household. Households that cannot afford the full set of items are described as being below the standard of living threshold.

Data is generally collected for a twelve-month period covering the most recent 'agricultural year'. The agricultural year is established in consultation with the study community at the start of the assessment.

2. The sample[9]

In Deou, Dori and Gorom Gorom, a sample was drawn from a list of all SfS beneficiaries, supplied by the UNHCR's implementing partner, VSF.

In each case the sample was systematically drawn (i.e. every xth household according to the number of households listed), to give a sample size which could reasonably be surveyed in the time available. Additional households were drawn to provide alternative households in case selected households could not be contacted.

A total of 101 IHM interviews were conducted (Dori, 36; Deou, 33; Gorom Gorom, 32). Of these, 7 were excluded from the analysis of household income as data was incomplete.

3. IHM protocol

The same protocol was followed as in the previous IHM studies conducted in Burkina Faso[10] .

[9] For the IHM follow up interviews, in locations where IHM surveys were conducted in 2015 (Goudebou, Mentao, Debisse refugees and Debisse host populations) a sample was drawn for each location from lists of surveyed households (see *Report on IHM follow up interviews (2016)* and SfS monitoring spreadsheets).Only households that were project beneficiaries were selected for the follow up interviews.

[10] Livelihood baseline assessment of Malian refugees in Bobo Dioulasso, Burkina Faso: Quantitative analysis of urban household economies (2015); Baseline assessment of Malian refugees in Burkina Faso, Part II: Qualitative social and economic study (2014); Livelihood baseline assessment of Malian refugees in Burkina Faso: Quantitative analysis of household economies (2014), all available at www.efd.org/expertise/studies-and-reports/

Contextual information was collected on the activities through which households in the study area were able to generate food and cash income, and the returns from these activities, providing the team with a broad understanding of local livelihoods and economy. Information was also collected on the 'staple diet' – i.e. the basic food that a poorer household would buy when their own production and/or rations has out (in this case, millet) and the costs of essential items that households need to buy to reach the minimal 'standard of living' norms for their community.

Individual household interviews were conducted by experienced enumerators. Each enumerator was given a list of households from the sample, which included a number of 'reserves' to ensure that time was not lost if a selected household had moved or was unavailable for interview. Enumerators conducted between 2 and 3 interviews in the morning, then spent the rest of the day checking and consolidating survey information and entering this on spreadsheets. At the end of the day, data was uploaded into the open-IHM software and emailed to EfD, where it was reviewed and feedback given to the team leader. The turn-around time was generally 8-12 hours. Any queries were followed up immediately in the field.

The basic IHM dataset was collected following the same protocol used in the previous IHM baseline studies. IHM interviews are 'structured conversations' which allow for cross questioning and exchange between the interviewer and interviewee. Information is collected on household demography including the age and sex of all household members, the number of adults unable to work through disability and the period of time migrant workers were absent from the household; information on assets, including details of livestock and other productive asset holdings; and data on all sources and levels of food and cash income generated by the household during the 12-month period preceding the survey (the period covered in the present study was Jan –Dec 2015). In addition to this core data, the study also established the following household-level information for specific project monitoring purposes:

- The costs of all inputs used in livestock production, artisan work, petty trade and other commercial activities
- Specific questions on milk production and numbers of milk producing cows
- Credits and loans received by households, together with their purposes and levels of repayment.
- Markets where milk products were sold
- The household's own description of its ethnicity and social group;
- The highest level of education achieved by adults, and primary or secondary school attendance among children.

This data is recorded in the project monitoring spreadsheets.

Findings in this report are presented under the following themes:

- population demographics
- analysis of income distributions in the study population, with breakdowns of disposable income per adult equivalent by income quintiles
- the capacities of households in different sections of the income distribution to purchase items required to meet the locally defined standard of living threshold

- analysis of the main sources of food income across the study population, from poorer to better-off households
- analysis of the main sources of cash income across the study population, including the types of employment and self-employment and their returns among different households
- analysis of livestock assets and higher value tradable goods.

Other project monitoring indicators including milk production, income from the sale of milk products, levels of indebtedness have also been analysed and appear in the final section.

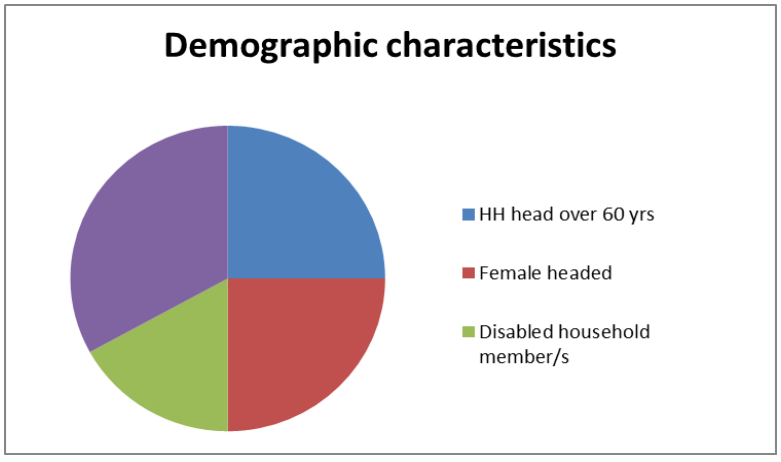
4. Demography

In line with the findings of the earlier assessment, the average size of households was large (8.5 members). The average age of the household head was 49 years. Of these, 23 heads of household (just under 25%) were 60 years of age or over.

The proportion of female headed household (17%) was relatively high. A majority of these women (n 10) were widows, the others were single, divorced or reported their husbands were out of the country. The high proportion of female headed households would be expected in a sample of project beneficiaries, where female headed households are among the target groups.

24 households (just under 25%) reported at least 1 family member was unable to work due to disability. Of these households, 5 reported 2 people were unable to work due to disability. This is also in line with the project's objective of targeting 'vulnerable households', as is the high proportion of household heads over 60 years of age.

Fig 1 Demographic characteristics



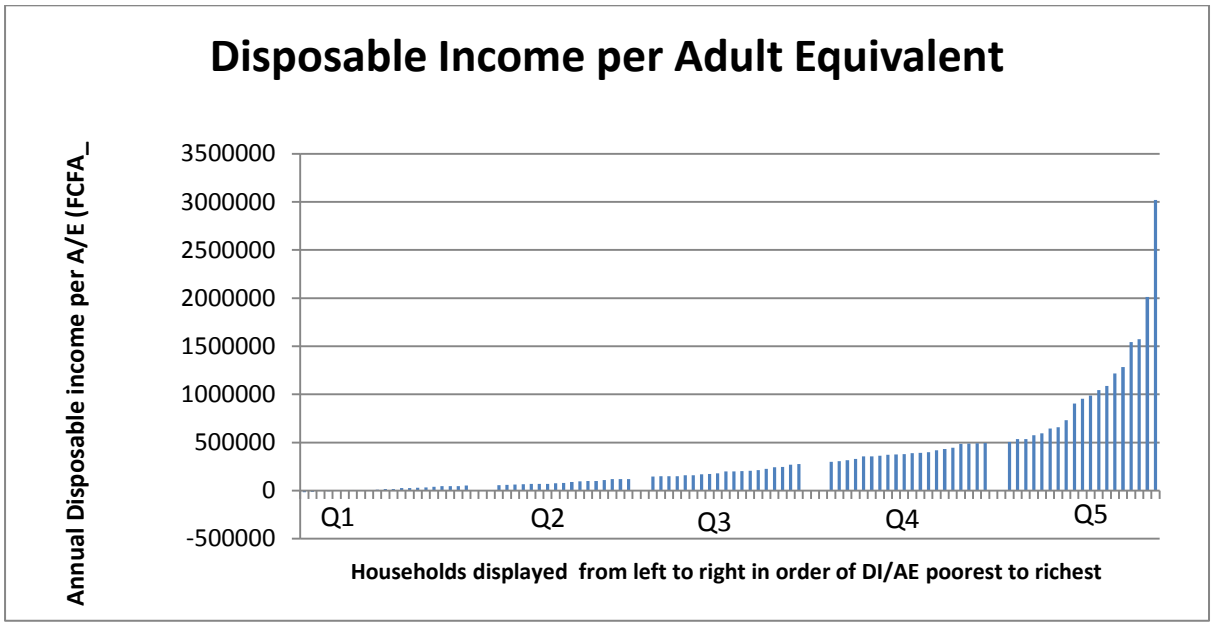
All households interviewed spoke Fulfulde. Over 85% of households described their ethnic group as Peulh. Other groups represented in the sample included Sonrai, Bella, Mossi, Arab, Tuareg, Bambara,

and Gourmache, with no more than 3 households in any of these groups
The highest level of education achieved within the household was as follows:
Tertiary education 3%
Secondary education 43%
Primary education 34%
No response- 21%

4.1. Income distribution

Fig 2 shows the distribution of Disposable Income/Adult equivalent in the study population ie the cash remaining to the household after it had met its food energy requirements (based on WHO reference standards), with results standardised per adult equivalent, to allow for comparison between households of different sizes.
In the study year, two households included in the survey fell below the food poverty line-their income was slightly below the level required to meet the reference standard. [11]

Fig 2 Annual Disposable income per adult equivalent (DI/AE)



Each blue bar represents a household. Whilst only 2 households fall below the food poverty line, the income remaining to households in Quintiles 1 and 2 after they have met their basic food energy

[11] We have excluded 7 of the 101 households interviewed from the analysis of Disposable Income as their recorded income was implausibly low. Each of these households was re-visited for further enquiry and explanation. It appears that they were all extremely poor and survived mainly by begging. It was not possible in the time available to probe further into how these households survived. However, we have included information on their demography and assets in the charts shown in this report and in project monitoring spreadsheets.

needs is low (see Table 1).

Female headed households were found at all levels of income, although a higher proportion was in the poorest quintiles. Of the 17 female headed households in the sample, there were 5 in both Q1 and Q2, 3 in both Q 3 and Q4 and only 1 in Q5.

Median disposable income (local currency and USD) and the number of female headed households in each quintile is shown in Table 1.

Table 1 Median income, divided by income quintile and the number of female headed households in each quintile.

Median DI/AE	Q1	Q2	Q3	Q4	Q5 excluding richest 2 households	Q5 including richest 2 households
FCFA	23245	88391	210634	396090	1039577	1762967
USD	39	150	357	671	1761	2987
#female headed households	5	5	3	3	1	1

4.2. Standard of living threshold

Table 2 shows items included in the minimum local standard of living. Costs were checked in each study site and were found to be similar in all locations. It was noted that poorer households constructed their homes in informal settlements, and did not pay rent.

Table 2 Items included in the minimum standard of living

Least expensive for poor households	**Gorom, Deou, Dori**
Girls' clothes [ages 0-12]	5,250 FCFA
Boys' clothes [ages 0-14]	5,250 FCFA
Women's clothes [ages 13-101]	7,000 FCFA
Men's clothes [ages 15-101]	15,000 FCFA
Blankets [all people]	1,200 FCFA
Health costs [all people]	3,000 FCFA
Primary school costs [varying ages]	1,000 FCFA
Ointment [varying ages/genders]	9,000 FCFA
Tobacco [both genders, 12+]	10,400 FCFA
Soap	5,000 FCFA
Batteries	6,000 FCFA

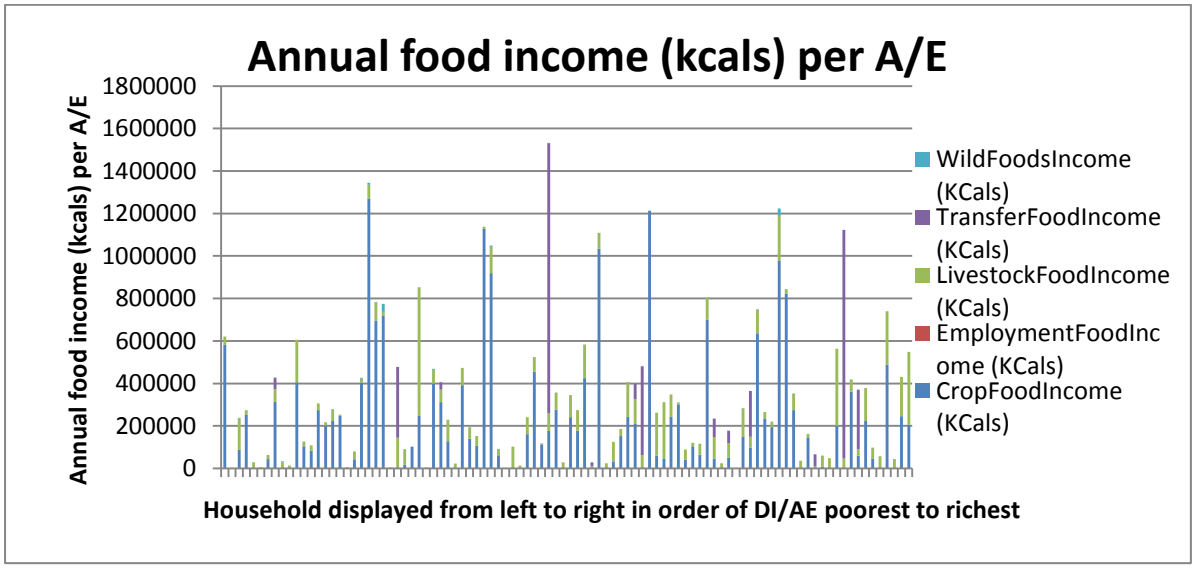
Matches	0 FCFA
Sugar and tea	80,000 FCFA
Rent	n/a
Condiments and sauce ingredients	31,200 FCFA
Mobile phone credit	12,000
Mats	5,000 FCFA

Just over 80% of households had sufficient income to purchase the minimum set of items required to meet the local standard of living threshold, after they had met their food energy needs. 17 of the 18 households in the poorest quintile failed to reached this level and those in Q2 had very little margin to meet unforeseen costs.

4.3. Main sources of income

Fig 3 shows the annual food income per adult equivalent for each household, measured in kilocalories, and the sources of this food. Overall, households met an average of around 36% of their food energy requirements[12] from their own crop production, livestock and livestock products, wild foods and gifts/transfers. However, there is considerable variation between households. The highest proportion of 'food income' was derived from crops (average around 24%) with a smaller quantity (around 8%) from livestock products, mostly in the form of milk. Less than 10% of households received gifts of food, and the quantities received by these households varied considerably. Some wild foods were consumed, but only in small quantities, and by a minority of households.

Fig 3 Main sources of food income (kcals) per Adult/Equivalent

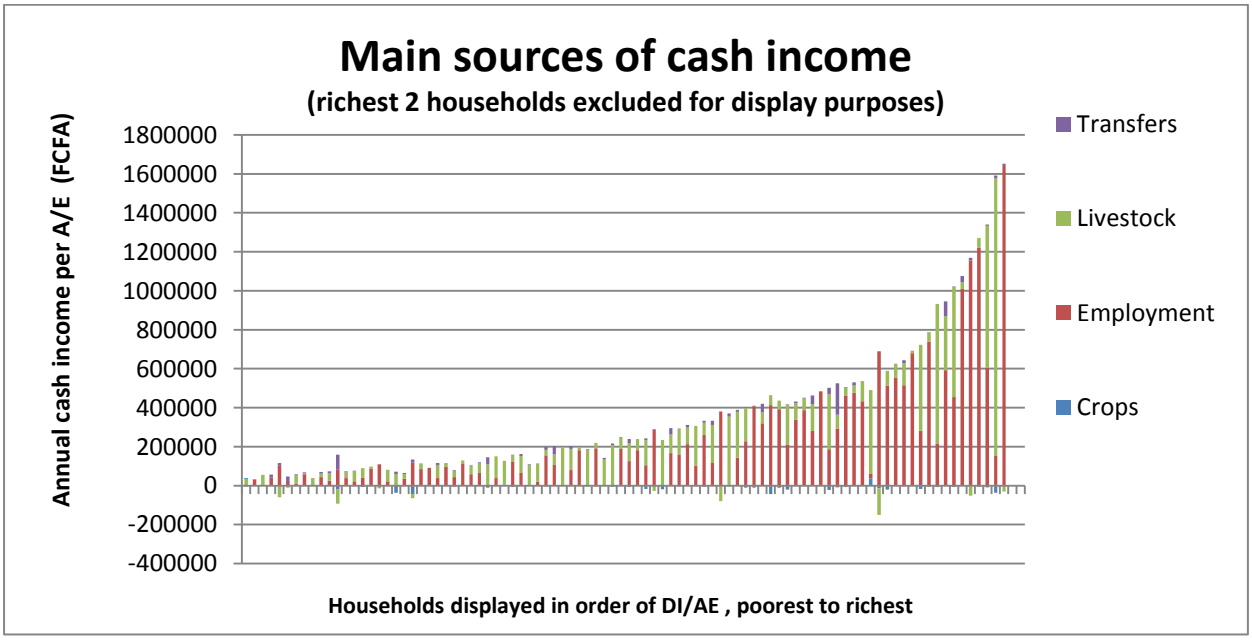


[12] The annual kcal requirement per adult equivalent is 949,000 kcals

4.4. Main sources of cash income

Fig 4 shows the main sources of cash income. Across the income distribution, most households rely on both employment and the sale of livestock and livestock products for cash. The main difference between rich and poor households is in the types of employment they are engaged in, and in the quantity of livestock products they are able to sell.

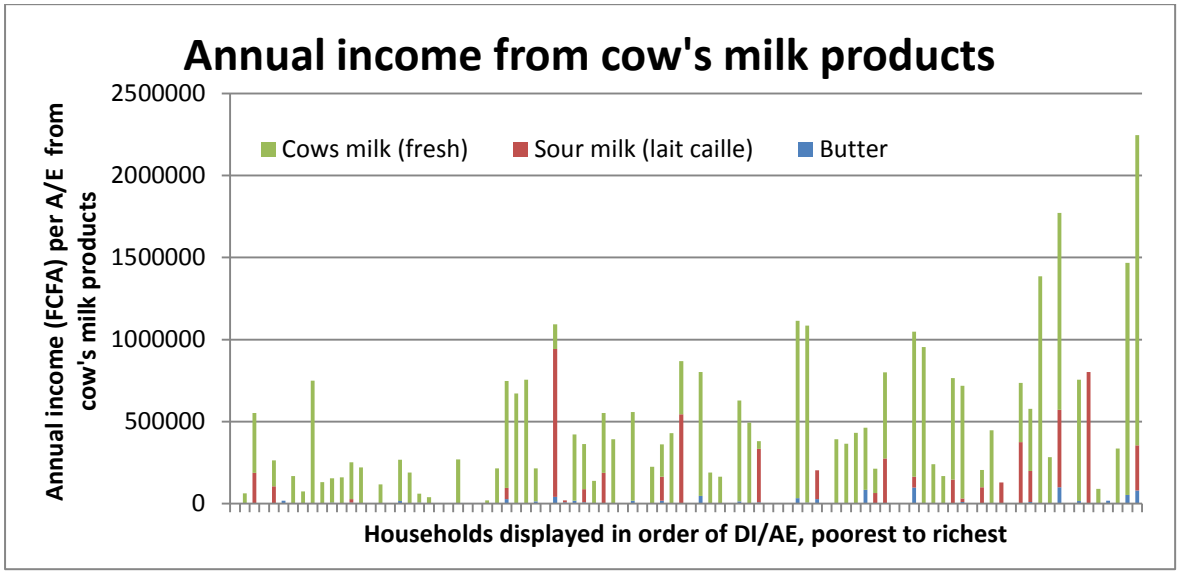
Fig 4 Main sources of cash income



Income from livestock and livestock products

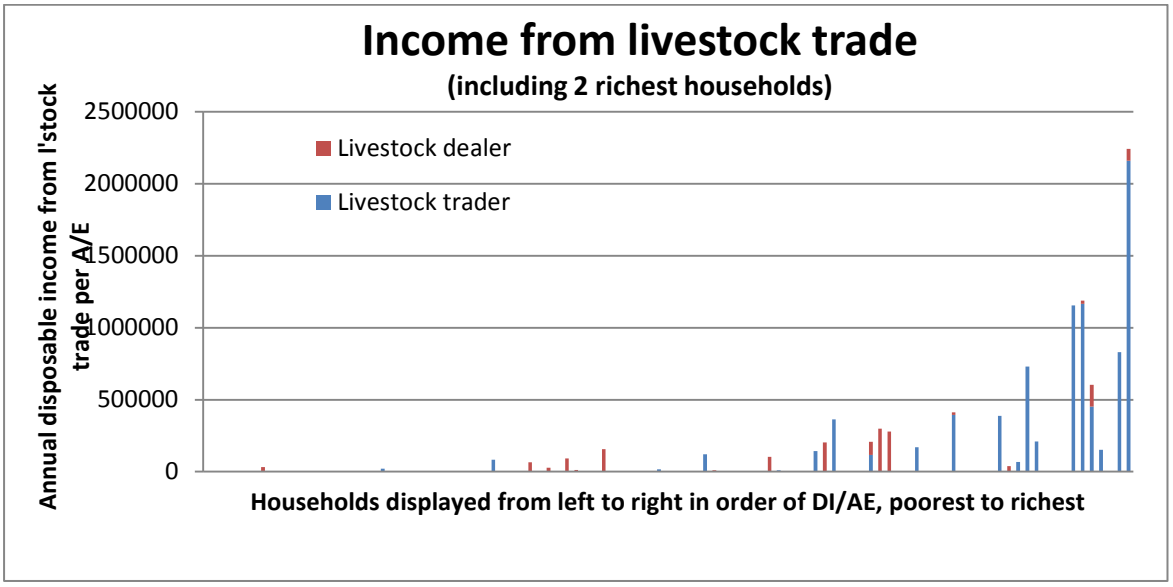
The importance of dairy products (notably cows' milk, sour milk 'lait caille' and butter) as a source of cash for households across the income distribution is shown in Fig 5. Sale of cow's milk products is not restricted to the better off households and a similar proportion of households is involved in both Q1 and Q5. However, the average income derived from this activity is substantially higher in Q5.

Fig 5 Income from cow's milk products



The most profitable source of cash income from livestock related employment is in trading and broking/dealing. This is the main source of wealth for the richest household in the study and is an important income source for half the 19 households in the top income quintile. The absence of households in the poorest 2 quintiles reflects the level of capital required to engage in this activity.

Fig 6 Income from livestock trade

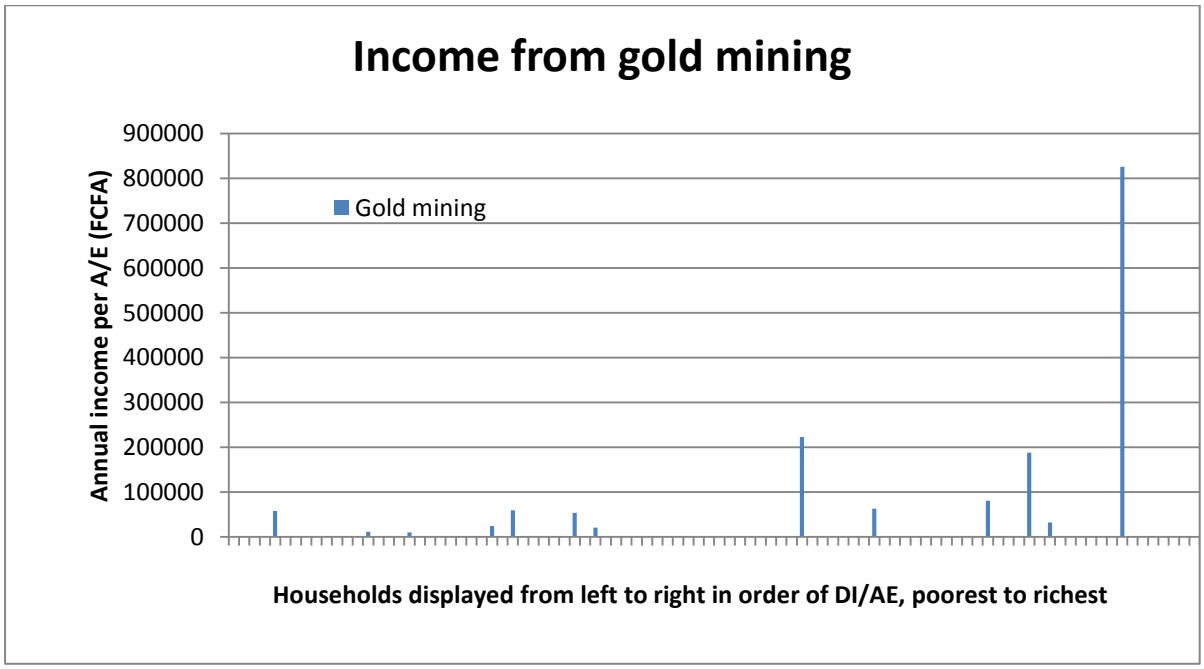


Non livestock related income

Relatively few households were currently engaged in artisan work. Key informants explained that this was due to the collapse of the tourist trade as a result of security issues. Only 7 households included in the survey gained income from artisan work-the trades included a blacksmith, potter, weaver and jewellery maker. The highest earning artisan was the jeweller. Other activities included petty trade, shop keeping and various forms of self-employment (building, carpentry etc) manual work and gold mining. Of these activities, the single activity in which the largest number of households was engaged, was gold mining.

13 households (around 14%) of those included in the final income analysis were involved in activities linked to gold mining. This included households across the income distribution. Most were employed as miners, but 2 households were involved in management roles. The contribution of mining to household income is shown in Fig 7. For comparative purposes, income is shown per 'adult equivalent'. The absolute or 'raw' values will be higher in any household with more than one member.

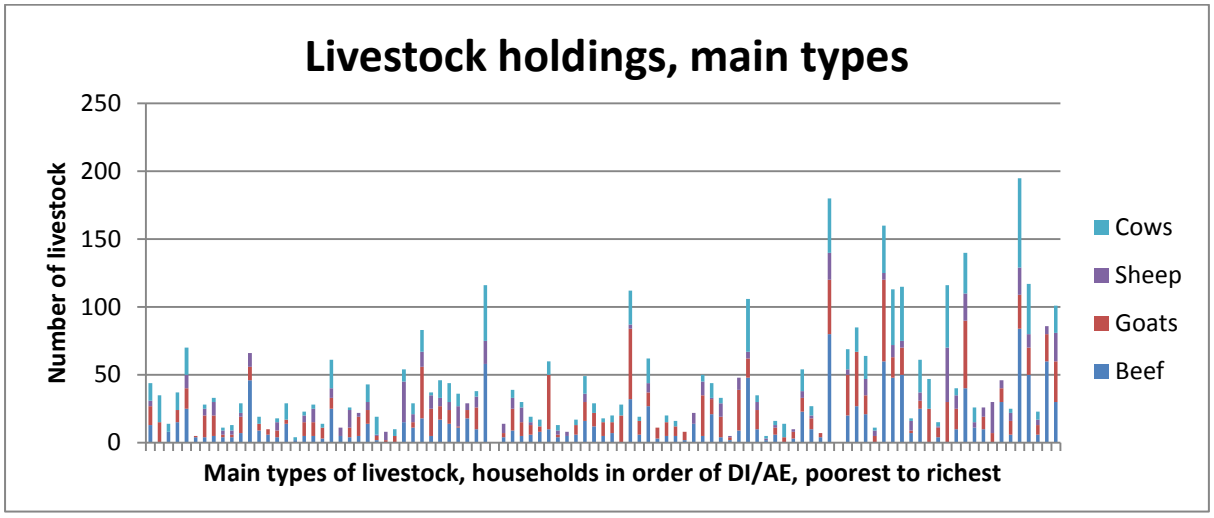
Fig 7 Income from gold mining



4.5. Assets

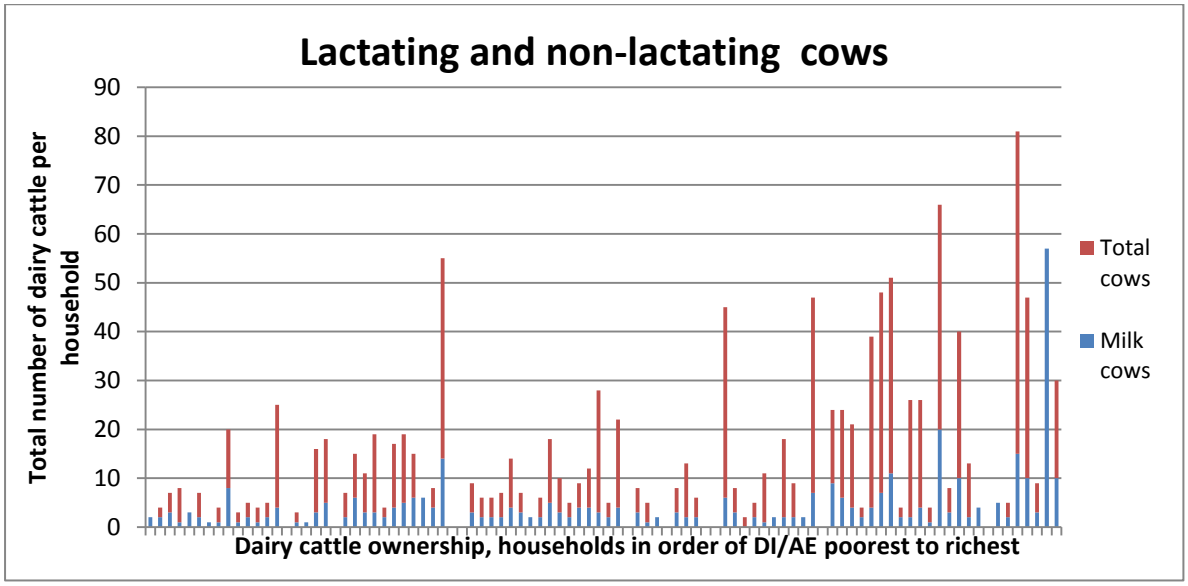
Information was collected on every household's livestock holdings in Burkina Faso and their main productive assets. Additional information was collected on project related equipment used by milk producers, collectors and processors.

Fig 8 Livestock holdings



With just 2 exceptions, all households held one or more of the main categories of livestock. Whilst livestock holdings are fairly evenly distributed among households in Q1-Q3, the largest herds are found, as would be expected, in the richest quintiles. Fig 9 provides more detailed information on dairy cattle,

Fig 9 Lactating and non-lactating cows

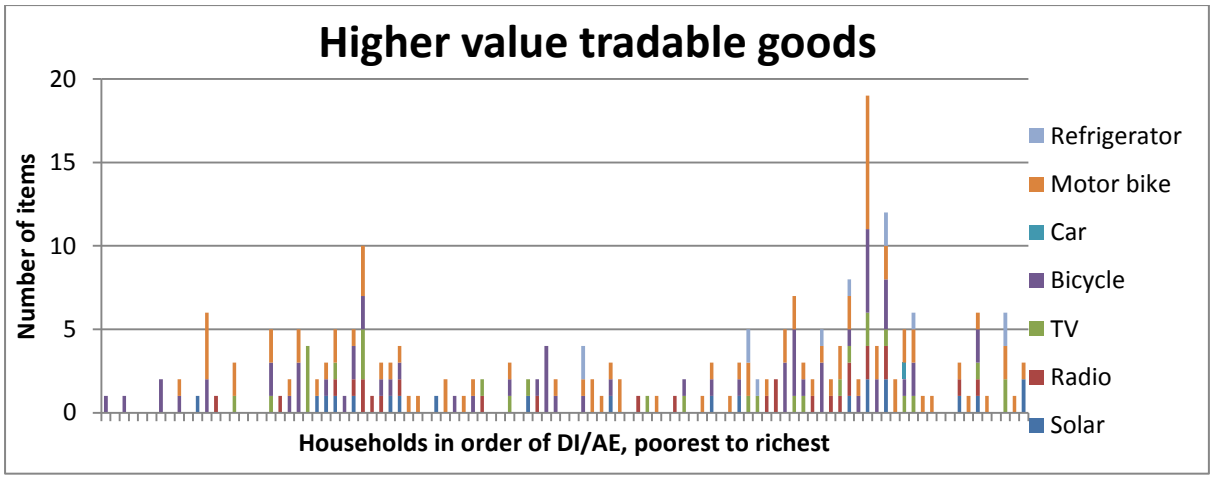


Dairy cattle were owned by households at all levels of income, although the largest herds are held by households at the top end of the distribution, and the smallest herds in Q1. This suggests that there is potential to increase the income of some of the poorest households, in line with the objectives of the Seeds for Solutions project, by improving their milk yields and market access.

Tradable goods

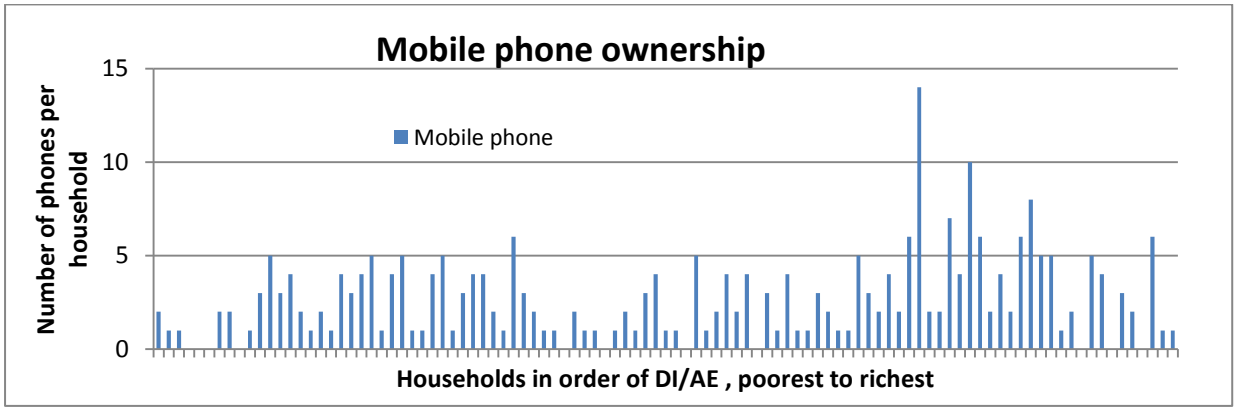
Tradable goods were recorded, with a focus on those items that could contribute to household income. Fig10 shows the main categories of higher value tradable goods owned by the survey population.

Fig 10 Higher value tradable goods



Items such as refrigerators, cars, and solar panels were only owned by richer households. However, motor bikes were widely owned among all but the poorest households. Bicycles were owned across the income distribution, with fewest recorded among the richest households. Mobile phone ownership was universal, with some households owning up 10 phones. This is not surprising give the large size of many households, and their engagement in trade.

Fig 11 Mobile phone ownership



5. Credit and debt

Access to credit is an important factor in both expanding business activities, and among the poorest households, for day to day survival. The following section shows sources of loans and level of indebtedness among households in the 3 project sites. The amount of money borrowed, the source of the loan, and where payments are still outstanding the amount that remains to be paid, is shown for each household in Figs 12-14. The accompanying tables give a brief summary as the reasons for which loans were taken. Note that no project related loans were recorded in any of the survey households.

Fig 12 Dori, formal and informal loans

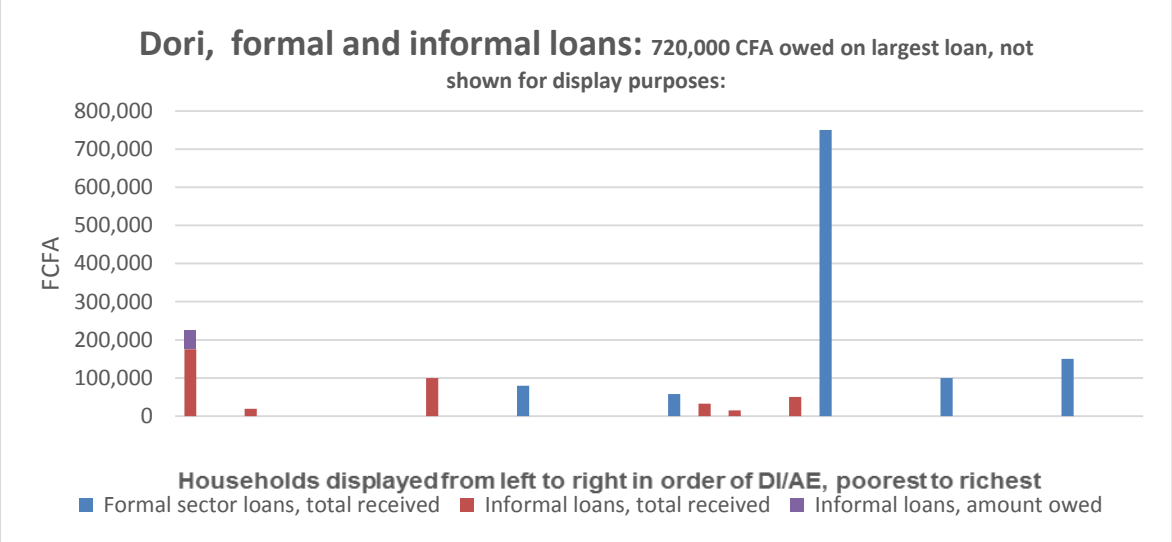


Fig 13 Deou Formal and informal loans

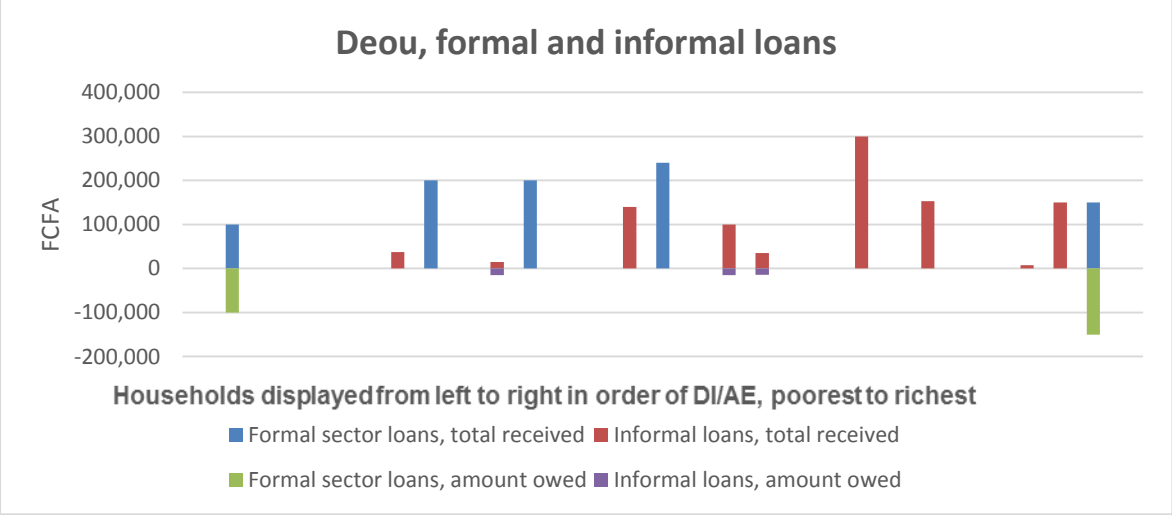
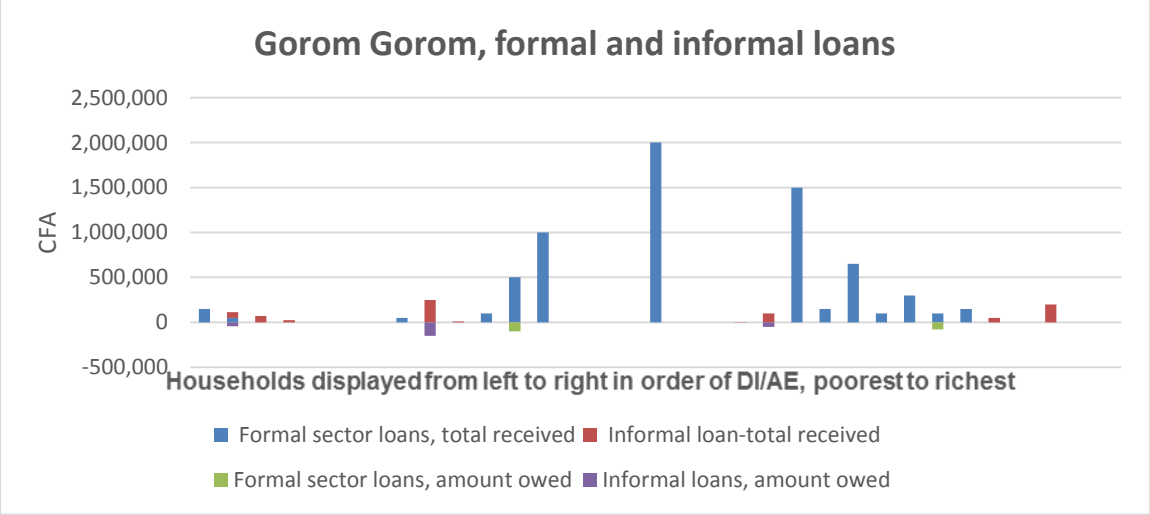


Fig 14 Gorom Gorom, formal and informal loans



In Dori, 11 of the 32 households included in the analysis took out loans. Reasons recorded include:

	Dori			
Reason for taking loan	Animal feed	Food, family needs	Festivals	Commerce
	Number of households taking loans			
	5	3	1	0

In Deou, 14 of the 29 households included in the analysis took out loans for the following reasons:

	Deou			
Reason for taking loan	Animal feed	Food, family needs	Festivals	Commerce
	Number of households			
	8	4	0	6

In Gorom Gorom, loans were taken out by 22 of the 33 households included in the analysis. Reasons reported include:

	Gorom Gorom			
Reason for taking loan	Animal feed	Food, family needs	Festivals	Commerce
	Number of households taking loan			
	12	3	1	4

As would be expected, larger loans are taken by better off households. The largest informal sector loan was around 300,000 FCFA, whereas the largest formal sector loan was over 2,000,000 FCFA. In all sites, the most frequent use of loans was to pay for animal feed, although loans were also taken

out for a range of domestic and commercial uses. Only 2 households said they took out loans to buy food ('nourriture'). This is in keeping with the survey findings, which indicated that the overwhelming majority of households had sufficient income to cover their basic food energy needs.

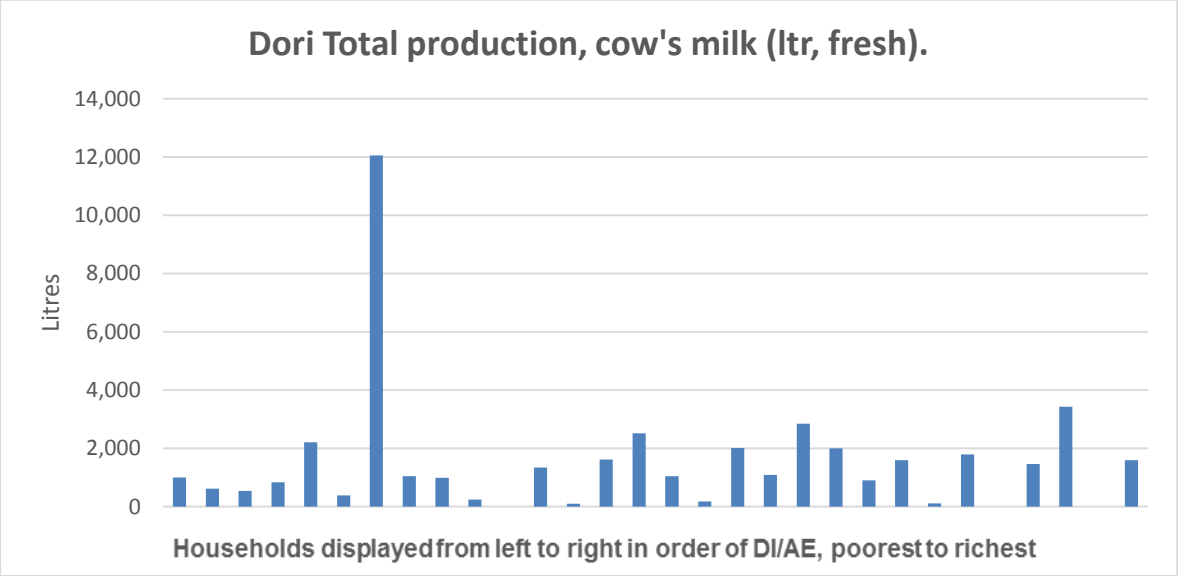
6. Analysis of milk production and location of sales

6.1. Milk production

Total cow's milk production was recorded in the individual household interviews. The following charts analyse the annual milk production per household, disaggregated by the 3 project sites.

Data is presented in order of household disposable income per adult equivalent.

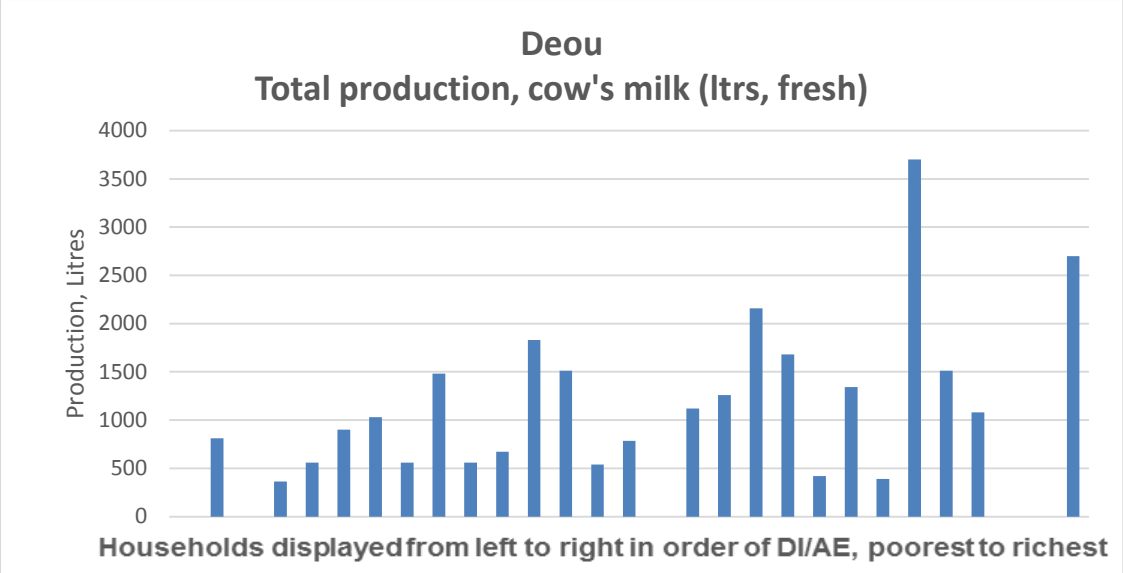
Fig 15 Dori, total household production, cow's milk



Dori	Production (total ltr)	% Sold
Poorest 16 households	1703	35
Richest 16 households	1339	48

Total milk production, and the proportion sold was compared in the upper and lower half of the income distribution. In Dori, richer household sold a higher proportion of their milk whereas total production was higher at the lower end of the distribution.

Fig 16 Deou total household production, cow's milk



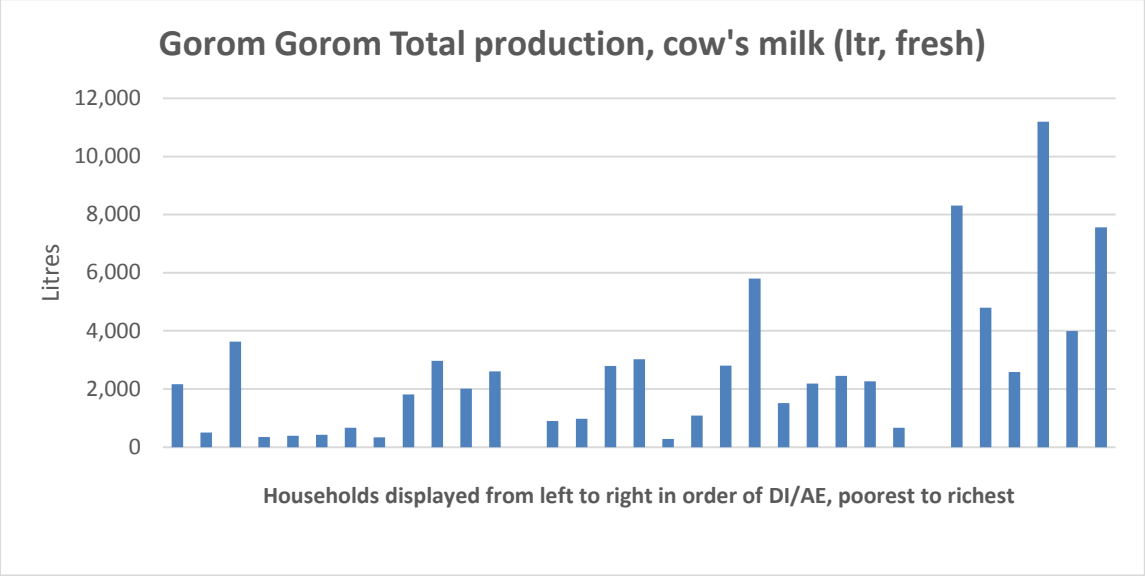
Deou	Total production (ltr)	% Sold
Poorest 14 households	773	20
Richest 15 households	1210	39

In Deou, total production was lower than in Dori and poorer households produced less than richer households. As in Dori, richer households sold a higher proportion of their milk than poorer households.

Milk production was highest of all 3 sites in Gorom Gorom, where the poorest households produced more than the richest households in either of the other sites. The richest households in Gorom produced almost twice as much as the richest households in Dori, the second highest producing site. In Gorom, as in the other sites, the richest sold a higher proportion of their milk than the poorest.

Gorom Gorom	Total production (ltr)	% Sold
Poorest 16 households	1408	47
Richest 17 households	3559	56

Fig 17 Gorom Gorom, total household production, cow's milk



Note that the uses of unsold milk have not been analysed in detail and informal re-distribution of milk between better off and poorer households would merit further study. It would be useful to examine the impact of an increased demand for fresh milk from dairies in the region in this context.

6.2. Location of markets for milk sales

The SfS project is monitoring where and to whom producers are selling their fresh milk. There are no clear differences between richer and poorer households, although sales to SfS collectors do appear to be lower among poorer households and local sales slightly higher.

Dori	**Location of sale**			
	Sold locally	Dori market, dairies	Collector SFS	no information
Poorest 16 households	3	11	0	2
Richest 16 households	2	8	3	0

Gorom Gorom	Location of sale					
	Sold locally	Gorom market, dairies	Collector SFS	Tinakof/Markoy	Dori market	no info
Poorest 16 households	1	13	1	0	0	1
Richest 17 households	0	13	0	1	2	1

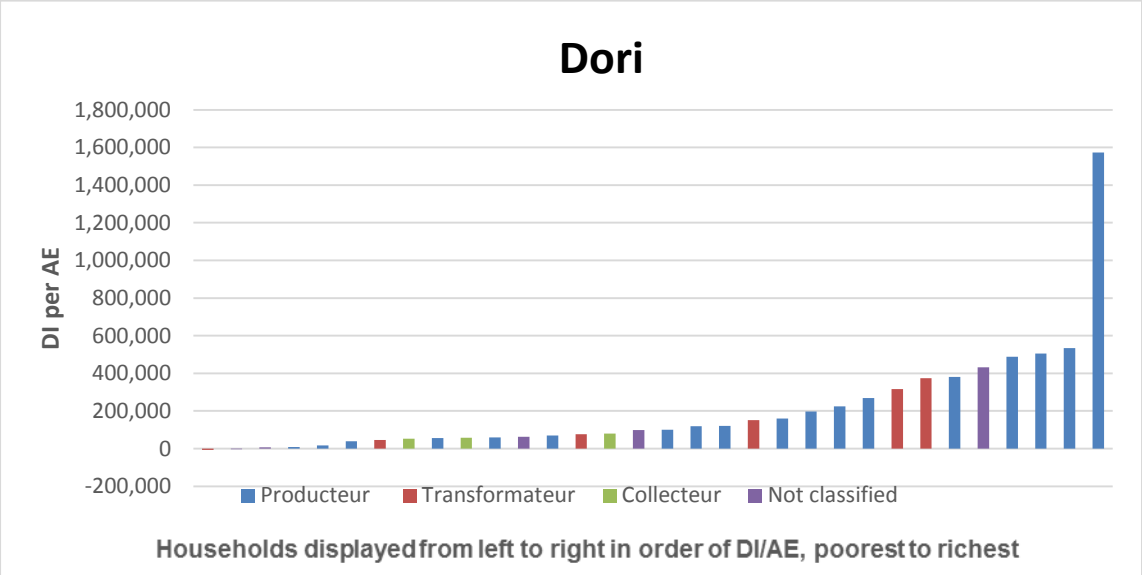
Deou	Location of sale		
	Sold locally	Deou market, dairies	no information
Poorest 14 households	1	6	7
Richest 15 households	1	11	3

In all 3 sites, the largest number of sales are in the main market centres and to dairies in these centres.

6.3. Seeds for Solutions, beneficiary types and relationship with Disposable Income

The allocation of different project roles has been analysed for each site. In some instances, households were not aware of their beneficiary status or were recorded as 'N/A'. These households have been grouped as 'Not Classified'

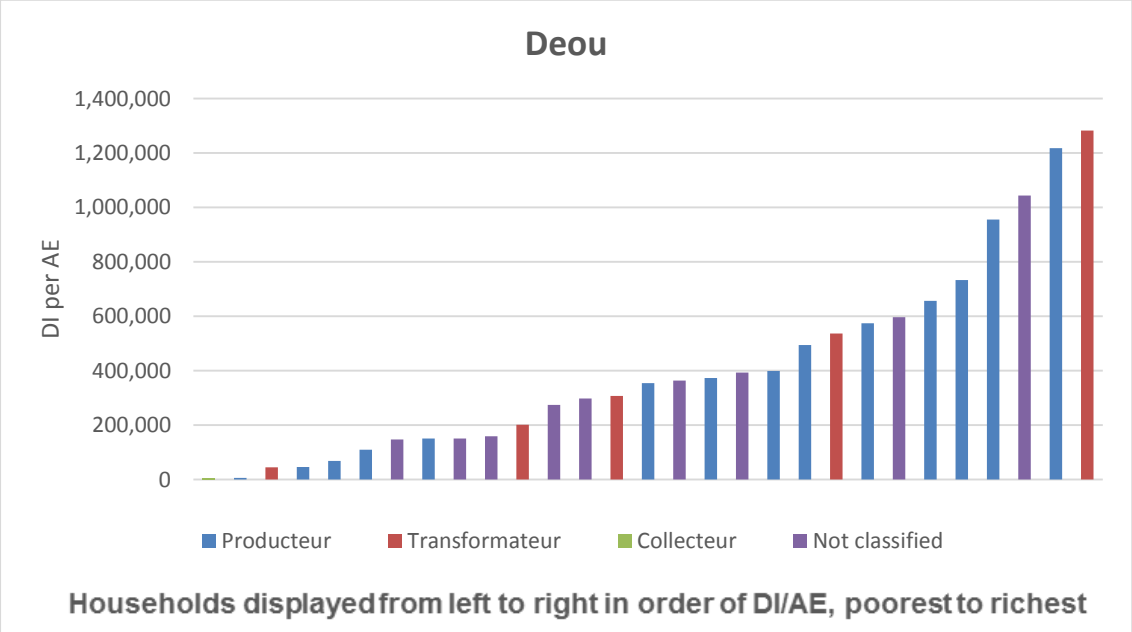
Fig 18 Dori, beneficiary types in order of DI/AE



Dori	Producer (Producteur)	Processor (Transformateur)	Collector (Collecteur)	Not classified
	Number of households			
Poorest 16 households	6	3	3	4
Richest 16 households	12	3	0	1

In Dori, producers are found across the income distribution, although there are twice as many in the upper half. There are equal numbers of processors in the upper and lower half of the distribution. The collectors are in the poorer half, but they are not among the very poorest households.

Fig 19 Deou, beneficiary types in order of DI/AE

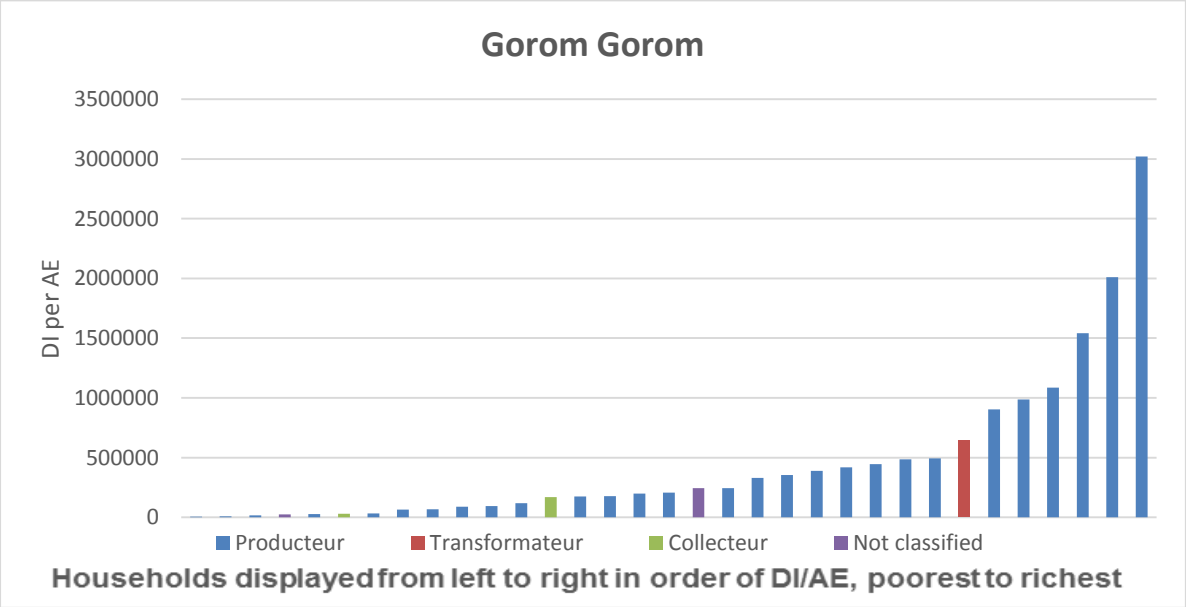


Deou	Producer (Producteur)	Processor (Transformateur)	Collector (Collecteur)	Not classified
	Number of households			
Poorest 14 households	5	3	1	5
Richest 15households	9	2	0	4

In Deou, most of the producers are also found in the top half of the distribution. Processors are evenly distributed. Numbers are too small to comment on the collector category, and it should be noted that this site has the highest number of unclassified households with more or less equal numbers in the richer and poorer sections of the distribution.

The pattern is different in Gorom, where there are similar numbers of producers among the richer households (15 out of 17) and poorer households (13 out 16). There is just 1 processor in the sample (a richer household) and 2 collectors (poorer households).

Fig 20 Gorom Gorom, beneficiary types in order of DI/AE



Gorom Gorom has the smallest number of unclassified households (2 out of a total of 33 households)

Gorom Gorom	Producer (Producteur)	Processor (Transformateur)	Collector (Collecteur)	Not classified
	Number of households			
Poorest 16 households	13	0	2	1
Richest 17 households	15	1	0	1

APPENDICES

7. Project dairy output and running costs, Dori and Djibo

This section provides summaries of key informant interviews conducted with the dairy association presidents in Dori and Djibo with details of production costs, volume of trade and the operation of the value chain. Whilst both dairies were equipped by the SfS project and operate on the same principles, employing 30 women and providing a bank account and savings scheme, there is some variation in operating costs and the range of products sold.

7.1. Summary of key informant interview with the president of the Tordie Liptako dairy in Dori

The SfD dairy in Dori processes around 100-160 litre of milk per day, and produces both pasturised milk and yoghurt from this.
The dairy has created employment for female members of the association, and local demand for dairy products are being met. The dairy has been able to adapt output in response to demand.

At the request of SfS the dairy produces pasturised milk 3 times a week, on Mondays, Wednesdays and Fridays, to distribute milk to children in the camps in Goudebou**.** Yoghurt is produced both for sale from local street kiosks, and for the Ouagadougou market . Daily production of Yogurt is between 60 and 80 litres. The range of products includes

- Yoghurt in 25 ml sachets, sold at 100 FCFA
- Yoghurt in small cartons (0,5 l) sold at 200 FCFA
- Yoghurt in larger cartons (1,5 litre) sold at 1250 FCFA

Milk is sourced from surrounding villages as follows

Village	**Amount produced per village**
Bafele	40 to 50 litres / day
Kyriol	25 to 30 litres / day
Yacouta	25 to 27 litres / day
Dori	40 to 50 litres /day

Milk is sold by producers to collectors at a fixed price of 300 FCFA per litre . Collectors sell this milk on to the diary at 350 to 400 FCFA per litre. The dairy sells pasteurised milk to the project at 800 FCFA per litre

Running costs

Running costs include electricity, water, sugar and packaging. The workforce is made up of female members of the dairy association. 30 women are employed and are organised into 3 teams which rotate on a monthly basis. The women are paid 25 000 FCFA per month.

Item	**Monthly cost**
Electricity	30 000 to 40 000 FCFA
Water	7000 to 11 500 FCFA
Sugar (1kg per 10 litres yaourt)	1kg sugar 450 to 600 FCFA
Packaging (cartons)	73 000 (1000 small cartons)
Packaging (sachets)	35 000 FCFA (1000 sachets)
Labour	25000 FCFA per employee/month

Clients : The dairy's clients include the Seeds for Solutions project, kiosks in Dori town and a wholesaler in Ouagadougou who buys 60 x 1.5l cartons of yoghurt per week

Buildings: The dairy was built by the project, with contributions from the women, who provided bricks. It received the processing equipment through the Seeds for Solutions project.

General: 70000 FCFA of savings are transferred to the dairy's bank account every month. The employees have a savings fund ('tontine') that pays out 2500FCFA to each woman every month

Observations on the value chain, from the Association president

Thanks to the project, the association president observed that relationships between producers and collectors had improved. Mutual trust had been established and everyone was honouring their commitments within the chain. Each keept to their own specialism, whereas before there wasn't this specialisation and everything was done by everyone.

Dicko Mamadou Hamadou : collector based in Bafele (village 22 km from Dori)

Before the start of the projects, we had problems selling milk but now producers have come to understand that they can make a lot of money from milk. We're happy because our animals are

vaccinated, they get free treatment and we get free or subsidised fodder. I'm earning 50FCFA for every litre I sell and am seeing weekly profits of 12500 to 15 000 FCFA.

Dicko Abdoulaye Amadou : collecor based in Yacouta (village 10 km from Dori)

I'm very satisfied as now there is a sense of confidence between the different project members and our working relationships have improved. We're reassured that our work will bring good returns and we'll be able to feed our families. The producers know that their milk will sell at a good price, the collectors make money as do the women who do the processing.

Photo UNHCR/Yuve Guluma

Processor with Milk produce by Tordie Tiptako dairy

Photo UNHCR/Yuve Guluma

Project milk collecting vehicle,

7.2. Summary of key informant interview with the dairy president, Kossam Sole dairy, Djibo

This is a small dairy, processing around 60ltrspasteurised milk and yoghurt This rises to between 80-100 litres of pasturised milk 3 times/week, when milk is delivered to the milk feeding centres in Mentao refugee camp.

The dairy has created employment for female members of the association; responded to the demand for dairy products in Dori, and adapted its output to local market preferences

Production

- Pasturised milk is produced on Mondays, Wednesdays and Fridays and distributed to children in the camps in Mentao as part of the SfS project
- 40 ltrs are produced for local consumption
- Yoghurt is sold from the dairy, local kiosks and some is sent to Ougadougou

Products	Amount produced	Product and sale price
Pasturised milk	100 litres 3 times per week	250 cl cartons sold at 300 FCFA
Yoghurt	60 to 80 litres processed daily	Carton of 250 cl sold at 300 FCFC and 1,5 litre container sold at 1500 FCFA
Lait caille	20 litres produced twice per week	Sold at 500 FCFA/ltr
Cheese on demand	Monthy	Sold at 2000FCFA
Degue	Weekly	Sold in sachets at 250 FCFA
Gappal	Weekly	Packed in sachets at 200, 500 et 2000 FCFA
Butter	10 litrs per month	Sold at 4000 FCFA/litre

Sources and quantity of supply

Village	Amount produced per village	Maximum production
Borguiende	30 litres on demand	150 litres daily
Bodowol	30 litres on demand	50 litres daily
Oursamba	25 to 27 litres daily	20 to 25 litres daily
Djibo	40 to 50 litres daily	100 litres daily

Milk is purchased by collectors from producers at a fixed price of 300-400 FCFA/litre. Collectors sell on to the dairies at 400 FCFA /litre. Dairies sell to the project at 800 FCFA/litre.

Running costs

These include electricity, waste, sugar, packaging and milk. Labour is provided by female members of the dairy association. 30 women are organised in 3 teams which rotate on a monthly basis. The women are paid 25 000 FCFA. month

Production costs are as follows :

Item	Costs/month
Electricity	25 000 FCFA
Water	10 000 FCFA
Gas (3 bottle/month)	16 500 FCFA
Sugar	22 500 FCFA
Packaging	30 000 FCFA
Pans	20 000 FCFA per year
Staff	15 000 FCFA per person

The dairy has a shop in Ougadougou in the Tampouy area, with the following costs (rent : 25000 FCFA, electricity : 15000 FCFA, staff : 10000 FCFA)

Customers Clients include the SfS project, 2 large shops in Djibo and a shop in Ougadougou

Construction and building: The dairy was built by the project, with contributions from women who provided bricks. All the processing equipment was provided by the SfS project. l:The dairy employs 3 women, who are paid 1500 FCFA/month. 20,000 FCFA are deposited into a savings account by female employees. However, the dairy has problems mobilising for group activities and the women have not undertaken training.

Current issues: The dairy is currently facing the following problems

- Demand from the project is weak (260 litres for the 2 dairies)
- There are delays in payment of invoices by SfS project
- The dairies don't keep to the 1 week payment in arrears schedule in making payments to collectors
- Some producers who provide milk to the project dairy have not benefited from project support or subsidised animal feed
- There have been complaints about the amounts delivered to the feeding centres

The dairy society president noted that he value chain is working between the producers in the villages (peri-urban communities) whilst in the town of Dibo, collection isn't organised, and each producers sends in their own milk

8. Summary of key informant discussions with artisans

Since the crisis in Mali, tourists no longer come to the Sahel and the sector has taken a beating. Some artisans have moved into other sectors, such as gold mining, others have gone abroad in search of a better life. The sector has really gone down , and Europeans no longer come to the Sahel.

The sector also has a problem with the pipeline taking artisanal work out of the Sahel, as partners no longer come regularly to the region.

Costs and sources of raw materials used by artisans	Artisans buy their inputs from suppliers in Dori (shops, hardware store, female tanners). Prices are as follows (FCFA) Knife : 500 Pliers : 1500 Hammer: 3000 Lime : 1000 – Glue 99: 3,000 kg Skins: 1000-2000 depending on the size and quality Dyes: average box Nescafe 1500 Skin, untanned : 500 to 750 depending on size White Silver: 12500 piece of 23g Paint : 8000 3kg jar – Other items: Acid, crucible, forge, coal, chisel, anvil There is a price difference of around 200 FCFA to 500 FCFA per item between the Sahel and Ouagadougou
Artisan products	These include: pillows, poufs , cushions , belts , key rings , shoes, bags, , silver bracelets , swords , knives, earrings , leather bracelets [les foyers roomde]
Organisation	The artisans are organized in trade groups of from 8 to 20 members. Groups will make some bulk purchases, for example leather workers will make purchases of skins from tanners to reduce costs.
Partnerships	Some groups and associations were supported by the Italian project Tocidi, which provided training in the production of bags and shoes. - SACCA provided training and coaching in management to artisan groups. It also subsidises stands for artisans at trade events like 'SIAO' - FENABF provided training on the production of shoes for export . -IAM Gold supported the top 15 exhibitors from the 2013 SIAO trade fair, covering their costs in the 2014 exhibition. Unfortunately with the socio-political situation the 2015 trade fair did not take place .

9. Comments and observations from enumerators.

Enumerators were asked to comment on the main issues they had observed and any difficulties they had encountered in the 3 project sites

Town/Village		Observations
DORI	**URBAN**	▪ Only milk cows are kept in town-other cows are kept in rural areas close to town ▪ For livestock kept away from town, it's common for one herder to be shared by several households ▪ The project value chain is working in Dori ▪ Some dairies were existed before the project started, with local collectors. This chain has been strengthened by the project ▪ Households are not particularly dependent on income from milk products ▪ There is more milk available for the dairies ▪ Thanks to the installation of solar power in the dairy, the has been a reduction in the running costs ▪ Some of the female beneficiaries had trouble giving information on livestock and their husband's income ▪ There were problems identifying households (ID numbers didn't match)
	PERI-URBAN (N'Djomga ; Bafelé ; Selbo ; Yakouta ; Goudebou Village ; Koria ; Mamassiol.)	▪ Most households cultivate in the rainy season ▪ There is a lot of market gardening in the peri-urban zones ▪ In the dry season, young people go off to the gold mines ▪ Households do not buy fertilise, they use manure from their cows ▪ The costs of agricultural production can be high, and the returns low. ▪ Households are only supplying project collectors with small amounts of milk (1 litre to 5 litres/day) ; ▪ Households mainly grow crops for fodder (stems and stalks) ▪ Very few women are engaged in economic activities in this zone ▪ Some of the female beneficiaries had trouble giving information on livestock and their husband's income ▪ There were problems identifying households (ID numbers didn't match) ▪ The profit margins for SfS collectors are higher in the peri-urban zone than in the urban zone. (100 FCFA to 150 FCFA/ litre)
GOROM	**URBAN**	▪ Most of the urban households [included in the project] live in informal zones (no rent, water or electricity charges; ▪ No refuse collection charges ▪ Milk is more expensive in Gorom (500F/litre from SfS collectors up to 1000F/L in Gorom market). This is due to the high cost of animal feed and the distance cows are kept from the town ▪ The SfS collectors give producers a guarantee of sales ; ▪ Profit margins for collectors are very low in Gorom (50FCFA/L) ; ▪ Some of the female beneficiaries had trouble giving

		information on livestock and their husband's income - There were problems identifying households (ID numbers didn't match) - The costs of agricultural production can be high, and the returns low
	PERI-URBAN (part of sector 1 ; Aliakoum)	- Households cultivate both for the food they produce but also for fodder from crop residues ; - The SfS value chain is working - There were problems identifying households (ID numbers didn't match) - Some of the female beneficiaries had trouble giving information on livestock and their husband's income
DEOU	**PERI-URBAN**	- Standard units (ltrs) are not used to measure milk: the 'ladle' is the unit used. This means that the price paid for a litre of milk varies greatly - There have been bad feelings between communities (Mossi et Peulh) in relation to the choice of site for the mini-dairy - There were problems identifying households (ID numbers didn't match) - Some of the female beneficiaries had trouble giving information on livestock and their husband's income - Agricultural production costs can be high, and the returns low - The most widespread activities are livestock trading, livestock brokering, herding etc.

10. Definition of terms and concepts as used in IHM analysis

- **Household**: A group of people sharing pooled resources and eating from a common pot.

- Household **food energy requirement**: The sum of the food requirement of each individual in the household, according to their sex and age[13] and time present in the household during the study period.

- The **staple diet** (and price per kcal of the staple diet): The staple diet consists of the foods that form the basis of the local diet purchased by poor households after their own food production (and/or rations, in the case of refugee households) has run out. This is identified

[13] Food energy requirements derived from 1985 WHO reference standards: 'Energy and protein requirements', *Report of a Joint FAO/WHO/UNU Expert Consultation* (1985), World Health Organization Technical Report Series 724. Available online at http://www.fao.org/docrep/003/aa040e/aa040e00.HTM

in consultation with local key informants. A weighted price per kilocalorie is calculated[14] based on the average (or mid-year) local market price of that diet during the study year. After taking account of food energy already derived from the household's consumption of rations or own-produced food, the price per kcal of the staple diet is used to calculate the cost of purchasing the remaining calories needed to make up the household's total annual household food energy requirements. In this study, the staple food identified by poorer refugee and host community households was millet, with the cost varying between locations. Analysis in each of the assessment locations used the mid-year market price for that location.

- **Cash income**: All cash income from all sources (i.e. crop sales, sale of livestock and livestock products, employment/self-employment, cash transfers, and the sale of wild foods). Note that production and input costs are deducted from cash income. Where income is derived from petty trade, commerce, the sale of livestock or other sources, the amount recorded represents the profit made by the household after production or input costs are deducted. This means that a 'negative' income can be recorded if, for example, animals are sold at a loss.

- **Food income**: All sources of income as food consumed (e.g. from crops, livestock products, payment in kind, food gifts and transfers and wild foods). Recorded in kilocalories (kcal).

- **Disposable income**: The cash remaining to each household after it has met its total food energy needs, based on WHO reference standards[15]. This can be a negative value, if the household is unable to meet its full food energy needs with its available income.

  Equation 1: Disposable income

  $$\text{Disposable income} = \text{Sum of all household cash income} - ((\text{Household food energy requirement } [kcal] - \text{Sum of all household food income } [kcal]) \times \text{Price per kcal of staple diet})$$

- The relationship between **food income, cash income and disposable income:** Disposable income (DI) is an outcome measure. It represents the money that remains to a household after the household's food and cash incomes have been allocated to meet its members' basic food energy (kcal) needs[16]. In the model, cash income is used to 'buy' the required kilocalories not covered by food aid or own production, in order to meet the household's basic food energy needs. The detailed information collected on the different types of food and cash income can be used to model impacts of changes in the prices, production or values of any income source(s) as well as changes to other defined variables

- **Adult equivalents**: Disposable incomes and other figures can be standardised to take

[14] For example, if the diet is 90% maize at 20 shillings per kg (with 3,630 kcal per kg) and 10% beans at 50 shillings per kg (with 5,600 kcal per kg), the price of the diet (per kcal) = ((20 / 3,630) x 0.9) + ((50 / 5,600) x 0.1).
[15] Food energy requirements derived from 1985 WHO reference standards (see above).
[16] Food energy requirements derived from 1985 WHO reference standards (ibid).

account of variation in household size by dividing them by the number of 'adult equivalents' in each household. The number of adult equivalents is calculated as the total household energy requirement divided by the energy requirement of a young adult (2,600 kcal per day)[17]. The standard IHM income distribution chart shows 'disposable income per adult equivalent' (DI/AE).

- **The food poverty line:** Households that cannot access their basic food energy requirements[18] – either through own production, transfers, food purchase using cash income, or a combination of these – are described as being 'below the food poverty line'. Data for these households appears below the *x* axis (as negative *y* axis values) on the disposable income charts. The income deficit shown on the chart is equivalent to the cost of purchasing the quantity of food required to meet reference food energy standards, based on the cost of the cheapest staple(s) that form the local staple diet, established with key informants.

- **Quantiles:** Data from individual households can be grouped into 'quantiles' (essentially equal-sized data subsets) to allow for grouped analysis and to identify, where possible, trends and characteristics of households at similar income levels. This can be useful for targeting purposes, or to test assumptions concerning a particular section of the community or social category (for example people with disabilities, or female-headed households). To retain a reasonable degree of disaggregation, some of the data in this report is sub-divided into five equal (or almost-equal[19]) '**quintiles**', grouped and presented in ascending order of 'disposable income per adult equivalent' – with the poorest households starting at the bottom of quintile 1, and the richest households located at the top of quintile 5. Within each quintile the **median value** (i.e. the numerical value separating the higher half of the dataset from the lower half) is sometimes indicated, along with the range of values for that quintile.

- **Open-IHM:** Individual household data is analysed using IHM software developed by Evidence for Development. This has been placed on an open source platform known as 'open-IHM', which can be downloaded at http://code.google.com/p/open-ihm/

[17] Food energy requirements derived from 1985 WHO reference standards (ibid).
[18] Food energy requirements derived from 1985 WHO reference standards (ibid).
[19] Where total numbers of households do not divide equally between the 5 quintiles, decisions must be made about which quintile(s) should include an extra household. There are no fixed rules, but in general the first extra household has been added to the poorest quintile, with further additions to other quintiles depending on the total number of odd households.