

Baseline Report

ECOUT

“Espoir pour les Communautés de Ouallam”

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Table of content

1	Context	3
2	Objectives and methodology.....	3
2.1	<i>Baseline objectives</i>	3
2.2	<i>Methodology</i>	4
2.2.1	Indicators and questionnaires	4
2.2.2	Sampling	4
2.2.3	Data collection and analysis.....	6
3	Survey results	7
3.1	<i>Socio-economic results</i>	7
3.2	<i>Results related to program outcomes</i>	8
3.2.1	Average Household Dietary Diversity Score (HDDS).....	8
3.2.2	Women’s Dietary Diversity Score (WDDS).....	10
3.2.3	Prevalence of households with moderate or severe hunger (Household Hunger Score-HHS)	11
3.2.4	Average Household Coping Strategy Index (CSI) Score.....	11
3.2.5	Prevalence of children 6-23 months receiving a minimum acceptable diet (MAD)	12
3.2.6	Percentage of farmers who used at least two sustainable agriculture practices in the past 12 months.....	13
3.2.7	Percentage of the population demonstrating knowledge of key components of their early warning system.....	14
3.3	<i>Results related to program outputs</i>	14
3.3.1	Percentage of households that consume goat milk products	14
4	Conclusion	15
5	Recommendations.....	16

1 Context

Large parts of the Nigerien population have been affected by severe food insecurity in the last decade, particularly 2005, 2008, 2010 and 2012, after a combination of drought, irregular rainfall and flooding decimated crops and forage. In August 2013, the pattern repeated itself, staple crops met with prolonged dry spells and early cessation of rains just as they entered a critical development period. In November 2013, the Government of Niger led a multi-agency assessment of the food security situation to evaluate the impact of the unreliable rains on affected populations, known as the annual vulnerability analysis. In the Ouallam Department of the Tillabéri region, the assessment highlighted a high percentage (about 25% or 4.2 million) of the population was already food insecure only two months after the harvest. It further anticipated that about 7.5 million would be affected in 2014, with worsening conditions if nothing is done in the interim.

Besides findings from this national evaluation, Mercy Corps conducted a rapid assessment in Ouallam in November of 2013 looking at both the food insecurity status and population needs in two of the communes – Ouallam and Dingazi, which were considered the hardest hit by the effect of the irregular rains. 2,380 households were sampled during the evaluation, which confirmed the critical levels of food insecurity and the need for assistance characterized by very low food stocks (3 months), degraded coping strategies and worrying levels of dietary diversity. Based on this information, Mercy Corps designed the ECOUT program, which has been funded by USAID/FFP to support at least 56,000 beneficiaries (8,000 households) for 18 months in these two communes. The goal of the program is to reduce suffering, accelerate recovery and build the resilience to food insecurity shocks among communities in the two communes. The program will implement an integrated package of agricultural, livestock, nutrition and early warning and response system activities to respond to immediate needs and transition to an early recovery and sustainability. At program startup, a baseline survey was conducted on beneficiary households by sampling 28% of villages (10 out of 36) in the program implementation area.

2 Objectives and methodology

2.1 *Baseline objectives*

The overall objectives of this baseline were to:

- Analyze the food security situation and nutritional status of beneficiaries in target villages in order to hone intervention and household livelihood strategies;
- Evaluate the level of knowledge and practices of mothers to prevent malnutrition on the basis of minimum acceptable diet (MAD) and household dietary diversity scores (HDDS) to inform community-level nutrition messaging and behavior change activities;
- Evaluate the level of agriculture knowledge and practices used by targeted farmers, to better inform the agriculture sector activities;
- Evaluate the level of knowledge in the population of existing early warning systems, and;

- Establish a baseline to monitor progress against the program’s desired outcomes and overall goal.

2.2 Methodology

2.2.1 Indicators and questionnaires

The baseline is focused on the following outcome indicators* from ECOUT’s logical framework:

- 1.1. Average Household Dietary Diversity Score (HDDS)
- 1.2. Women’s Dietary Diversity Score (WDDS)
- 1.3. Prevalence of households with moderate or severe hunger (Household Hunger Score-HHS)
- 1.4. Prevalence of children 6-23 months receiving a minimum acceptable diet (MAD)
- 2.1. Average Household Coping Strategy Index (CSI) Score
- 2.2 Percentage of farmers who used at least two sustainable agriculture practices in the past 12 months
- 2.4 Percentage of the population demonstrating knowledge of key components of their early warning system
- 1.2.1. Percentage of households that consume goat milk products (as part of the HDDS indicator)

*Revised per conversation with FFP representative, 24 June 2014.

The household survey questionnaires that Mercy Corps used are based on the guidelines described in the *FFP Standard Indicators Handbook*¹, and the World Food Program (WFP) and the Niger National bureau statistics (INS) for the CSI score.

2.2.2 Sampling

A random sample of selected households was surveyed as part of the baseline. We used the Lot Quality Assurance Sampling (LQAS) methodology with the following formulas²:

$$n = \text{Deff} \frac{Z^2(p*(1-p))}{\epsilon^2*(1-r)}$$

where:

n = sample size of the infinite population, in number of elements to be sampled

z = z-score of confidence level (95% confidence so 1.96)

p = proportion of the population exhibiting the characteristic of interest (50% estimated so 0.5)

1-p = proportion of the population not exhibiting the characteristic of interest (50% estimated so 0.5)

r = non-response rate (10% so 0.1)

¹ USAID. (2011). *FFP standard indicators handbook (baseline-final indicators)*. Retrieved from http://pdf.usaid.gov/pdf_docs/pnadz580.pdf

² (Deff = Design Effect; for this situation with two-stage sampling, Deff=2)

ϵ = margin of error (10% so 0.1)

$$\text{then } n = 2 \times \frac{(1.96)^2 \times (0.5 \times 0.5)}{0.1^2 \times (1-0.1)} = 214$$

n , the infinite population sample equals to 214. We apply the following correction for our finite population of 8,000 households.

$$n' = n \times \sqrt{\frac{(N-n)}{(N-1)}} = 214 \times \sqrt{\frac{(8000-214)}{(8000-1)}} \cong 212$$

Where N is the size of our finite population (8,000 households) and n' the sample size of our finite population.

Based on this, the number of households to be surveyed would have been 212 in total. However, this number was adjusted to ensure an adequate number of households are surveyed, including the sub-group of population with children aged between 6 and 23 months to be surveyed for the MAD indicators. The formula for the adjustment factor is as follows:

$$n'' = n'/sk$$

where:

n'' = adjusted sample size

n' = calculated minimum sample size of the finite population (212)

s = proportion of the total population accounted for by the target population of children between 6 and 23 months (11% so 0.11)

k = average household size (7)

$$\text{then } n'' = \frac{n'}{s \times k} = \frac{212}{0.11 \times 7} \cong 276$$

The average household size in Niger is seven (7) people. Children aged between 6 and 23 months represent 11%³ of the population of Ouallam. The number of households surveyed for this baseline was therefore 276. Sub-groups were also targeted for specific indicators, specifically 389 women aged between 15 and 49 years old and 164 children between 6 and 23 months.

Household selection was based on simple random sampling so that each household had an equal probability of being selected. The ECOUT program used the list of all households drawn up during the household identification process (using HEA methodology) to conduct the baseline. 10 (5 in each commune) out of the 36 beneficiary villages were selected randomly using the following Microsoft Excel formula: RANDBETWEEN (bottom, top).

The process to select the households to be surveyed was as follows:

³ Data from the Nigerien National Institute of Statistics

Step 1: For each village, number the households from 1 to N where N is the total number of households selected in the village;

Step 2: If we planned on selecting 20 households, we calculated the sampling interval, which is equal to $N/20$;

Step 3: We chose a number at random between 1 and the sampling interval (i). We asked an individual not involved in the survey to choose a number between 1 and i. This number, rounded up, began the household selection process and we selected the household in the list to which this number corresponded. We added the sampling interval (with decimals) to this number and rounded it up to obtain the second household selected.

Step 4: We added the sampling interval to the number (not rounded) obtained in step 3. The number obtained rounded up represented the third household selected and so on until we had the desired number of households selected.

The following target groups were specifically interviewed during household surveys:

- **Heads of households and the person in charge of preparing meals:** these two individuals are essential to respond to the questionnaires and complement each other. The head of household was best placed to answer socio-economical questions (on agriculture, livestock, spending, etc.) but were not questioned on dietary diversity if he/she didn't prepare meals.
- **Women with children under 2 years of age (biological or substitute mother):** These constitute an important target category, as children of that age group are the most vulnerable.
- **Grandmothers of children under 2 years of age:** These women have an important influence on their daughter or stepdaughters in terms of nutrition practices in Niger. Grandmothers in Niger are key resources for questions related to infants and young children's health and nutrition.

2.2.3 Data collection and analysis

An initial preparatory phase focusing on secondary data allowed an understanding of expectations for Mercy Corps and the ECOUT program more specifically. This phase helped better frame the problem, define the limits of the baseline study and formulate an appropriate sets of tools.

The data collection team was led by the Mercy Corps' M&E department and supervised by Mercy Corps Niger's M&E Manager. The team composed of 10 surveyors supervised by two agents from the sub-regional committees for the prevention and management of food crises (DSRPGCA⁴). We used smartphones to collect data using the Open Data Kit (ODK) system. Questionnaires were designed in the smartphones and the surveyors just had to plug or check in responses as appropriate. This had several advantages including the quality assurance of the collected data because the system will not allow surveyors to jump from a question to another and they cannot leave a box empty without responding. Also with the system, there is no need to enter data after collection and it is less time consuming as the data can be automatically downloaded to the server once the phone has access to network and the data is easily analyzed. The surveyors were trained in the field over two days, including one day for pre-testing, to ensure surveyors fully understood the methodology, the use of ODK and how to correct potential mistakes that could have occurred during the preparation.

⁴ Dispositif sous-régional pour la Prévention et Gestion des Crises Alimentaires, du département

Analyses were conducted using SPSS or Microsoft Excel after data cleaning, and following FFP and FANTA recommended protocols. Statistical tools used to analyze data include the mean, median, geometric mean, and distributions. Most pivot tables were produced as percentile to facilitate the reading of results. It is important to note at this stage that for the HDDS, HHS and CSI indicators, results are presented based on 251 households rather than the 276 sampled. 15 individuals responsible for preparing meals were not present on the days of the survey and so data on those indicators was not collected. Those households were however included in the results of other indicators for which the appropriate household member was present to answer the survey’s questions. In addition, 10 questionnaires were withdrawn when we noted incoherence between the results of HHS, HDDS and CSI. Households hoping to receive additional in-kind support from the program biased their answers, which was noticed given conflicting results between for example above average HDDS and CSI scores where households claimed spending days without eating.

3 Survey results

3.1 Socio-economic results

The vast majority of beneficiaries (97%) are from the Djerma⁵ ethnic group. A very small proportion belongs to the Tuareg (2%) and Peulh or Foulanese (1%) populations. 52% of the targeted population by the ECOOUT program are women, 38% of whom are aged between 15 and 49. Children under 5 years old represent 22% of the population, which matches data from the National Statistical Institute for Ouallam Department at 21%. The heads of households’ level of formal education are presented in Table 1. The majority (63%) have not benefitted from any formal education. 32% have attended either primary or Koranic schools. The survey did not show significant differences between sexes.

Table 1 : Education level of surveyed household heads

Education level	Percentage of the sampled beneficiaries
No formal education	63%
Primary school	18%
Secondary school	4%
Koranic school	14%
Literacy training	1%

Agriculture remains by far the principal activity for 98% of surveyed households even though the sector represents only 38% of their income revenue sources (see figure 1). Other activities include animal husbandry, practiced by 97% of surveyed households as their secondary or tertiary activity. In terms of revenue generated, money transfers (remittances) from migrant family members and other temporary employment also represent important sources of income for households in Ouallam and Dingazi communes.

⁵ Djerma represent 20% of the Nigerien population. They have settled along the river Niger banks since the seventh century in Tillabéri region

66% of surveyed households own and cultivate 4 hectares on average (with a minimum of 3 and maximum of 10 hectares); 24% cultivate 2 hectares and 10% one hectare. In an average year, four hectares would be sufficient to provide cereals to meet food needs of a household size of seven members over six months. Households cultivating a smaller area would be expected to buy food to cover their remaining needs. However, staple crops have been impacted by prolonged dry spells and early cessation of rains just as they entered the critical development period during last season’s agricultural campaign, and harvested stocks were only sufficient to cover maximum four months of household consumption in the year.

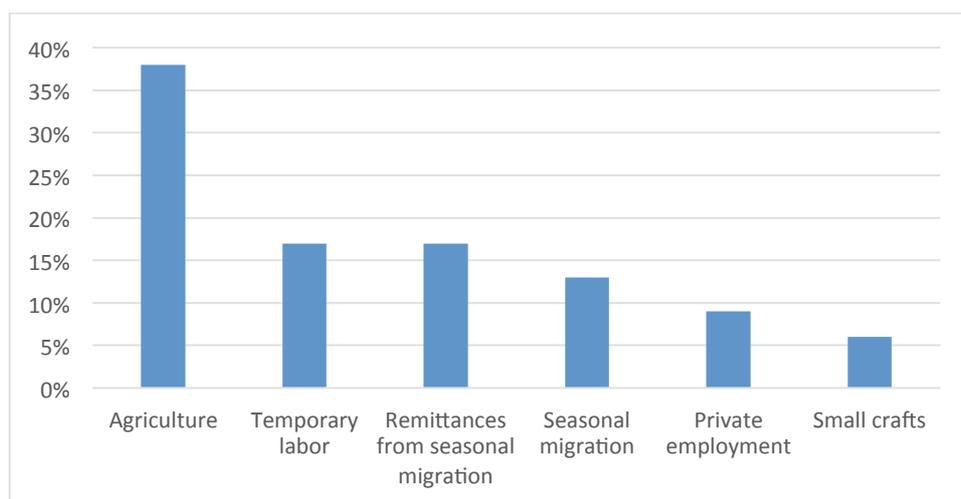


Figure 1 : Households revenue sources for very poor and poor in Ouallam and Dingazi communes

3.2 Results related to program outcomes

3.2.1 Average Household Dietary Diversity Score (HDDS)

110 households (44%) surveyed (see table 2), had an HDDS between 4 and 6 – meaning they consume between four and six different groups of food on a daily basis. Those food groups (see table 3) are essentially cereals, green leafy vegetables, oil, sugar and condiments (composed of small quantities of onion, tomato, salt, etc.). 89 households (35%) had a low HDDS with three or fewer food groups (most commonly cereals, green leafy vegetables and condiments) consumed daily, while 52 households (21%) had a dietary score of over 6 as they add animal products, vegetables (such as cabbage, onion, tomato, okra), legumes, and fruits rich in vitamin A (i.e. mango available between May and August) to their daily diet.

Table 2: Household Dietary Diversity Scores per tercile

Nutritional diversity score	Frequency	Average	Standard deviation
Low HDDS (2 to 3 food groups)	89	2,8	0,4
Average HDDS (4 to 6 food groups)	110	4,9	0,9
High HDDS (over 6 food groups)	52	7,9	0,8
Total	251	4,8	2,0

Table 3: Food groups consumed by more than 50% of the households in each tercile

Low Dietary Diversity (HDDS<4)	Average (HDDS=4-6)	Above average (HDDS >6)
Cereals	Cereals	Cereals
Green leafy vegetables	Green leafy vegetables	Green leafy vegetables
Condiment	Condiment	Condiment
	Oil	Oil
	Other vegetables	Other vegetables
	Legumes	Legumes
	Sugar	Sugar
		Vitamin A-rich fruits
		Meat

The villages surveyed in Ouallam commune and randomly selected were all from urban areas compared with the rural villages surveyed in Dingazi commune. Households therefore have better access to larger markets in Ouallam offering a variety of food and to facilities such as water and electricity to prepare and consume them, which explains the higher proportion of average and high dietary diversity scores (85%) compared with Dingazi commune (45%) (See table 4). For the same reason, 44% more households in Ouallam commune consume vitamin A-rich products and 36% more iron-rich food compared to Dingazi commune (see table 5). Based on these findings, the program will concentrate more efforts in rural villages of both communes with a particular emphasis on Dingazi commune to address this gap.

Table 4: HDDS per commune

Commune	Number of households surveyed	Low HDDS	Average HDDS	High HDDS
Dingazi	128	55,5%	35,9%	8,6%
Ouallam	123	14,6%	52,0%	33,3%

Table 5: Percentage of households per commune consuming vitamin A and iron-rich foods

Food groups	Dingazi	Ouallam
% households consuming Vitamin A-rich food	28	72
% households consuming Vitamin A-rich food from animal products	34	66
% households consuming Vitamin A-rich food from vegetable and fruits	24	76
% households consuming iron-rich food	32	68

3.2.2 Women's Dietary Diversity Score (WDDS)

389 women of reproductive age (between 15 and 49 years old) were interviewed on their dietary diversity. Half of them (50%) have a below average score of two food groups consumed daily (see table 6). 16% of them have a slightly better diet including other vegetables, but 90% of which is only constituted of onions added on to the sauce of dishes.

Table 6 : Percentage of women per dietary diversity score profiles in Ouallam and Dingazi communes

Dietary Diversity Score	Percentage	Minimum	Maximum	Average
Below average	50	1	2	2
Average	16	3	3	3
Above average	34	4	8	5

33% of the surveyed women are from households with low dietary diversity (two to three food groups consumed daily) (see table 7) with 24% of women showing below average dietary diversity scores. The ECOUT program will target specifically these households through nutrition messaging and behavior change activities. Also half of women showing below average dietary diversity originate from households with average or high dietary diversity profiles, which mean they consume a minimum of four food groups daily. In addition, 3% of surveyed women are both moderately food insecure and have lower dietary diversity scores though their households show high HDDS. Households coping strategies to food insecurity include favoring children, working family members or reducing number of meals eaten per day, which is likely to be to the detriment of women. Although this is a small portion of surveyed women, they still represent a group that has special needs that the program will aim to address.

Table 7 : Levels of food security as indicated by CSI scores per WDDS and HDDS profile

	Low HDDS (2 to 3 food groups)	Average HDDS (4 to 6 food groups)	High HDDS (over 6 food groups)	Total
Below average WDDS (score 1 or 2)	86	77	26	189
Food secure	29	28	10	67
Acceptable food secure	13	22	6	41
Moderate food insecure	14	16	10	40
Critical food insecure	30	11		41
Average WDDS (score 3)	16	36	7	59
Food secure	7	9	4	20
Acceptable food secure	3	8		11
Moderate food insecure	2	11	2	15
Critical food insecure	4	8	1	13
Above average WDDS (score 4 to 8)	15	45	48	108
Food secure	1	15	11	27
Acceptable food secure	4	12	19	35
Moderate food insecure	9	7	14	30
Critical food insecure	1	11	4	16
Total	117	158	81	356*

*33 women from the households showing incoherent information were excluded from data results, thus reducing the number of surveyed women from 389 to 356

3.2.3 Prevalence of households with moderate or severe hunger (Household Hunger Score-HHS)

Practically half of surveyed households (47%) are food insecure with 15% experiencing severe hunger and 32% moderate hunger (see table 8). The percentage of households with severe hunger is slightly higher in the rural villages of Dingazi commune (difference of 8%, see table 9) but the two communes show identical percentages (32%) of households with moderate hunger.

Table 8 : Percentage of households per Household Hunger Score profile

HHS profile	Number of households	Percentage
Little or no household hunger	134	53
Moderate household hunger	80	32
Severe household hunger	37	15
Total	251	100

Table 9 : Percentage of households per Household Hunger Score profile in each commune

Commune	Number of households	Little or no household hunger (%)	Moderate household hunger (%)	Severe household hunger (%)
Dingazi	128	49	32	19
Ouallam	123	58	32	11

3.2.4 Average Household Coping Strategy Index (CSI) Score

In terms of classification, those households using 4 or fewer coping strategies were given a CSI score of “acceptable”; moderate food insecurity refers to those using between 4 and 7 different strategies during the last 30 days, and critical food insecure for those who use 7 or more different coping strategies during the last 30 days. The results of the Household Coping Strategy Index confirm those of the Household Hunger Scale with half of surveyed households in Ouallam and Dingazi communes exhibiting moderate (25%) and critical (23%) levels of food insecurity (see table 10). Also 67% asserted having purchased food on credit, and 44% having eaten cereal or legume seeds (see figure 2). Planned food and agricultural inputs distributions should therefore take place at the same period so that seeds can be planted and not eaten or used to reimburse credits. This would help to further build their capacity and resources to respond to future shocks.

Table 10: Percentage of surveyed households per CSI profile

Coping strategy index	Number of households	Percentage of households
Food secure	68	27%
Acceptable food secure	61	24%
Moderate food insecure	64	25%
Critical food insecure	58	23%
Total	251	100%

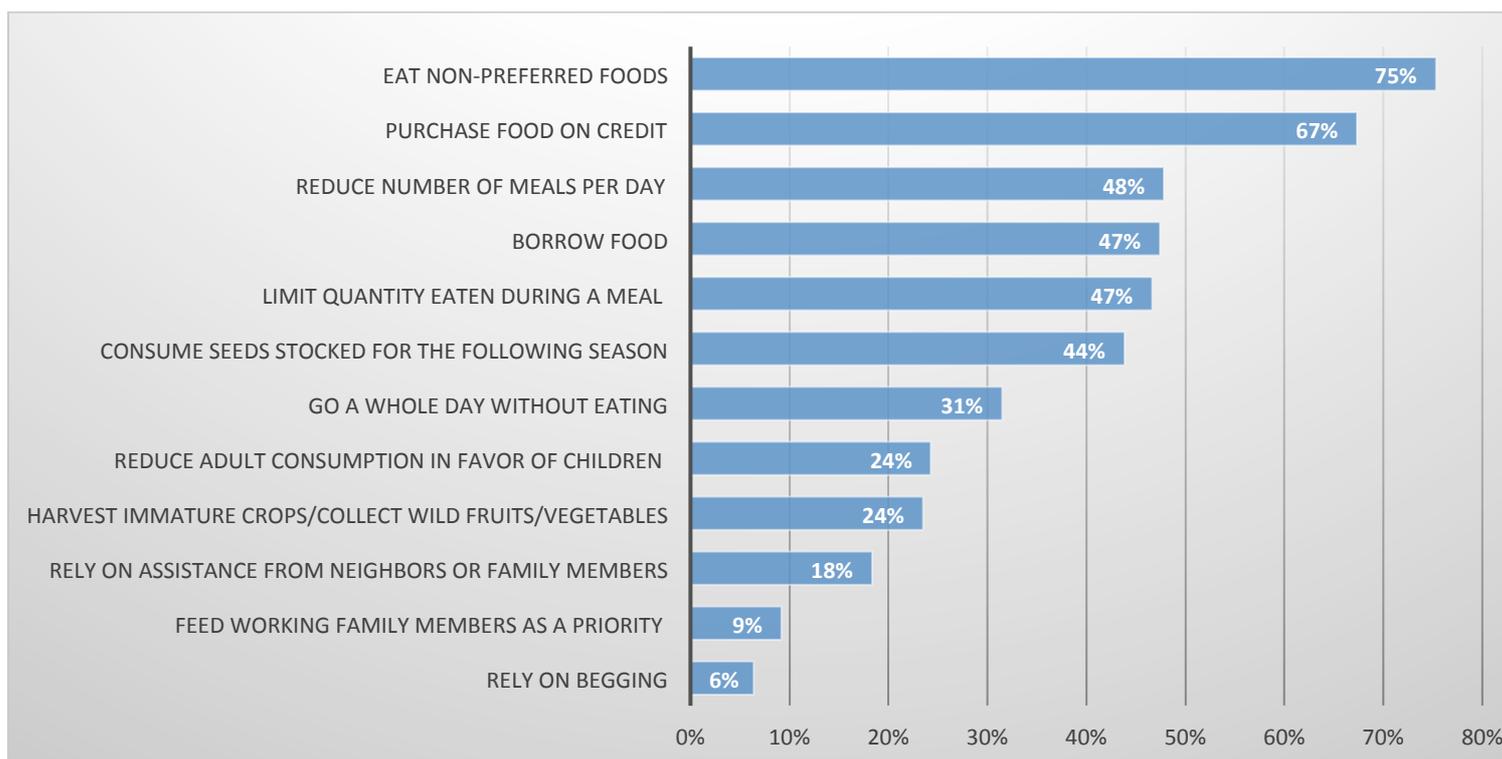


Figure 2: Percentage of households and coping strategies they used in the past week

3.2.5 Prevalence of children 6-23 months receiving a minimum acceptable diet (MAD)

The diet of a sub-group of 164 children was assessed for this indicator, 62 aged between 6 and 11 months and 102 between 12 and 23 months. 5% of surveyed children in the communes of Ouallam and Dingazi receive a minimum acceptable diet (see table 11), which is almost double the national percentage, at 3%. Twice as many children between 12 and 23 months (6%) benefit from an acceptable diet compared with children aged between 6 and 11 months (3%). The latter are not breastfed as recommended by the World Health Organization and have a very low consumption of foods rich in protein such as yogurt or enriched porridge, which impacts the quality of their diet significantly. The difference between boys and girls is significant, with only 1% of boys receiving a minimum acceptable diet compared with 8% of girls. The specific reasons will be assessed further in the field and gender mainstreamed in the program nutrition activities to address these differences.

Table 11 : Percentage of children with a minimum acceptable diet, disaggregated by sex and age

	Girl (%)	Boy (%)	Total (%)
Aged between 6 and 11 months	6	0	3
Aged between 12 and 23 months	10	2	6
Total	8	1	5

Households' surveys showed that 19% of children aged between 6 and 23 months received a minimum acceptable dietary diversity, meaning that they consume at least 4 different food groups daily (see table 12). To assess the potential impact of the ECOUT program activities on children's diet, we tested the result of the addition of animal products (milk and meat) and noted a significant increase in the percentage of children reaching a minimum acceptable dietary diversity from 19 to 75% (see table 12).

Table 12 : Percentage of children with a minimum acceptable dietary diversity, disaggregated by sex and age

	Girl (%)	Boy (%)	Total (%)	Projected % with addition of animal products to diet
Aged between 6 and 11 months	14	11	13	51
Aged between 12 and 23 months	24	21	23	91
Total	20	18	19	75

3.2.6 Percentage of farmers who used at least two sustainable agriculture practices in the past 12 months

276 households were interviewed on the number of sustainable agriculture practices they used in the past 12 months, relating to seeds conservation, fertilization, agroforestry and pest and disease prevention and control. 38% of surveyed households (74% men and 26% women) used at least two practices, most often linked to seeds conservation and the usage of manure as fertilizer. The survey did not show significant differences between the communes of Ouallam and Dingazi. Also notable is that 15% of surveyed households confirmed using pesticides at various stages of the agricultural cycle and that only 8% have fruit trees within their fields. In addition, 90% of producers declared facing challenges in the past 12 months, mainly due to the lack of rain (77%) and pest infestation (42%) (See figure 3).

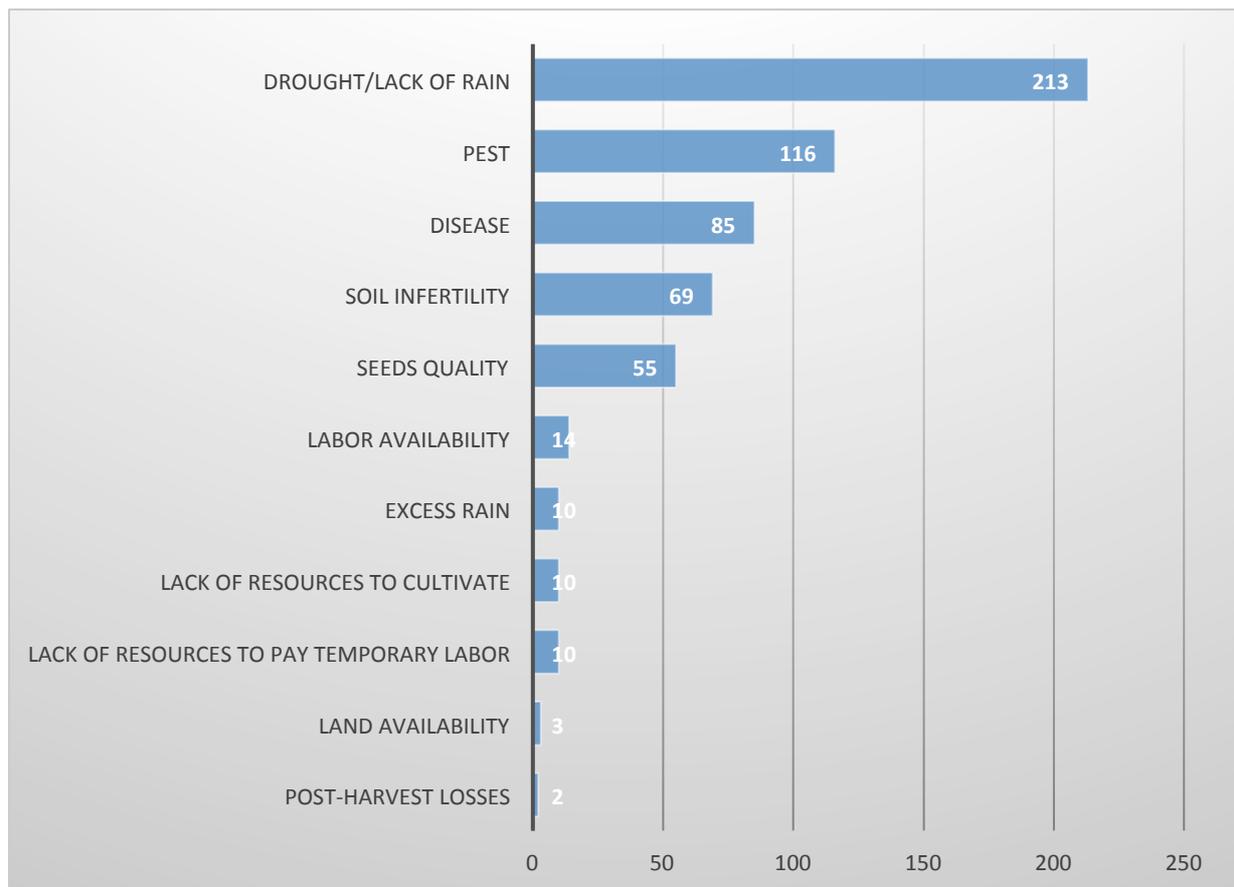


Figure 3 : Number of surveyed producers and problems they are facing

3.2.7 Percentage of the population demonstrating knowledge of key components of their early warning system

The main finding of the baseline relating to early warning systems (EWS) and responses is that 30% of surveyed villages appear to not have any EWR system in place. Whether a system does exist but is not functional or not known to the surveyed households will further be clarified at the start of program’s activities on EWS. In addition, very few households (15%) confirmed that an early warning response (EWR) system has been put in place in their community but couldn’t necessarily demonstrate knowledge of its key components. Nonetheless, 35% of surveyed households have an in-house emergency plan and up to 88% receive information on rains from radio forecasts. ECOUT will address these shortfalls by ensuring the establishment of EWS where they don’t exist and strengthening existing ones that are not functional in the communities, and put in place responses plans in a participatory manner.

3.3 Results related to program outputs

3.3.1 Percentage of households that consume goat milk products

110 of surveyed households (40%) said that they owned small ruminants, 3 to 5 heads in average. The survey concentrated on randomly selected urban villages of Ouallam commune, where households are less prone to raising goats compared with rural areas, which bias the result if we compare with the entire beneficiary population of the intervention area.

Only 23% of surveyed households include goat milk in their diet. This low result is linked to ethnic groups' differences in the Ouallam department as presented at Figure 4, and their eating habits. Only 18 of surveyed Djerma households consume goat milk amongst the 96, though they represent 97% of the population of the communes of Ouallam and Dingazi. Foulanese (or Peulh) and Tuareg consume goat milk on a more regular basis as all the surveyed households among them consume goat milk.

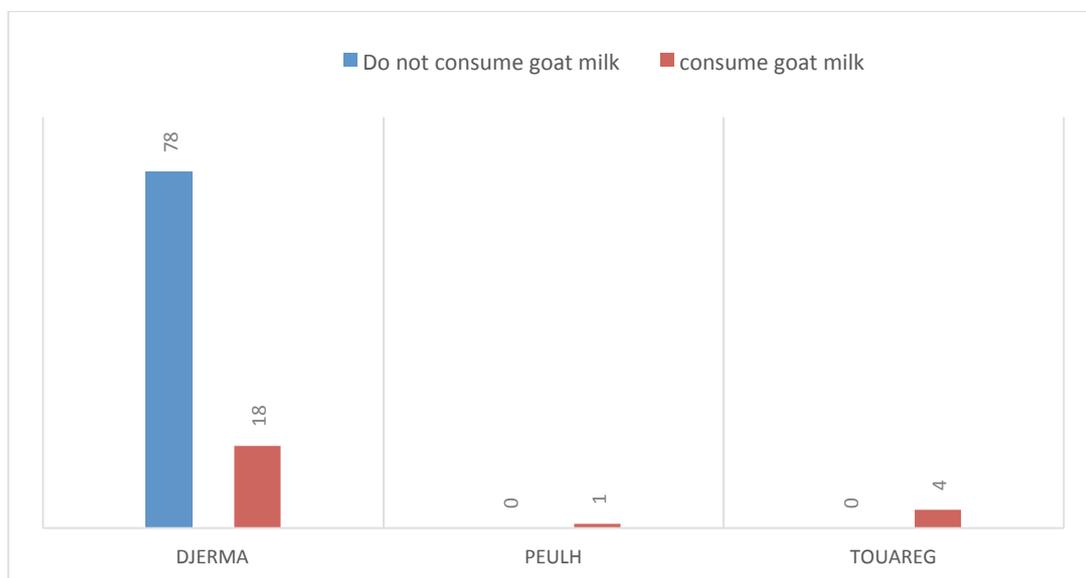


Figure 4 : Goat milk consumption per ethnic group

4 Conclusion

The baseline survey conducted in June 2014 confirms the findings of the rapid assessment that Mercy Corps conducted in November 2013, noting a deterioration of food security levels among populations of the two communes of Ouallam and Dingazi, due to a reduction of their food stocks impacted by the irregular rains and drought. Almost half of the surveyed households are currently food insecure as informed by the Household Hunger Score and Household Coping Strategy indicators. Just over a third of households and half of women consume three or fewer food groups daily (most commonly cereals, green leafy vegetables and condiments).

The nutritional needs of children between 6 and 23 months are far from being met in the area of intervention, with only 5% of surveyed children in the two communes receiving a minimum acceptable diet. Their diet is also extremely poor as less than 20% of them consume around four different food groups daily. Animal product consumption could greatly improve the nutritional status of household members, especially children. The ECOUT program will need to emphasize sensitizations and social behavior change efforts as only 23% of the target population currently consume goat milk.

The survey shows that the main activity for the majority of the population is agriculture but only about a third currently uses sustainable agricultural practices, mostly around seed conservation and fertilization. Climate-smart agriculture trainings to be delivered by the program will specifically address this shortfall. The training curriculum and topics will focus on the needs and interests of farmers. Emphasis will also be

put on topics relevant to women’s productive activities and include knowledge about relevant nutrition-related food production.

Targeted communities have very low knowledge of their community-based EWSs and Response mechanisms. A third of the communities are not even aware of the existence of EWS. The ECOUT program will work closely with the relevant authorities and community members to ensure this gap is closed and that EWS and community-based response plans are established, functioning and linked to the regional and national EWSs.

Table 13 below presents a summary of the indicators surveyed as part of this baseline and their current levels at the start of the program. Each indicator will be measured at the end against the current findings, to demonstrate the level of impact the program achieved.

Table 13 : Results for the indicators assessed as part of ECOUT baseline survey

Logframe indicators	Baseline level (% surveyed household)	
1.1. Average Household Dietary Diversity Score (HDDS)	Above average HDDS	21%
1.2. Women’s Dietary Diversity Score (WDDS)	Above average WDDS	34%
1.3. Prevalence of households with moderate or severe hunger (Household Hunger Score-HHS)	Little or no household hunger	53%
1.4. Prevalence of children 6-23 months receiving a minimum acceptable diet (MAD)		5%
Prevalence of children 6-23 months receiving a minimum acceptable dietary diversity		19%
2.1. Average Household Coping Strategy Index (CSI) Score	Food secure	27%
2.2 Percentage of farmers who used at least two sustainable agriculture practices in the past 12 months		38%
2.4 Percentage of the population demonstrating knowledge of key components of their early warning system		15%
1.2.1 Percentage of households that consume goat milk products		21%

5 Recommendations

Based on the findings above, the following recommendations are made to ensure the ECOUT program can meet its overall goal to **“reduce suffering, accelerate recovery and increase resilience among agro-pastoralist communities who are facing food insecurity”** through its proposed activities. This also includes the reduction of the nutrient gap and improvement of household nutritional diversity and minimum acceptable diet.

- ✿ Promote the adoption of, and diversify climate-smart agriculture practices that are economically and technically feasible for producers, in coordination with service agents of the Ministry of Agriculture, and focused on issues relating to water conservation, pest control, disease prevention, and soil fertility as identified by producers;
- ✿ Link producers with local agricultural input suppliers and microfinance institutions to facilitate access to credit and purchase of improved agricultural seeds better adapted to irregular rains so as to increase production and the communities' capacity to survive future weather-related shocks;
- ✿ Support the development of existing community irrigated vegetable gardens, these were established by the local government extension services, and will link to producers to private sector actors, facilitating access to agricultural inputs and markets to sell products;
- ✿ Integrate nutrition-related messages and crop marketing considerations into agricultural training so as to support beneficiaries in generating revenues from their production and restoring their livelihoods, while at the same time ensuring that household nutritional needs, including for women and children, are met;
- ✿ Raise awareness among producers about gardening with high-protein value products (peas and beans) and crops rich in vitamin A (carrots, squash, sweet potatoes) as a key means to improve nutritional diversity;
- ✿ Include okra and sorrel seeds in agricultural input distributions, as both are marketable as well as being popularly consumed by the target communities, can be cultivated at different times of the year, and contribute to improving dietary diversity;
- ✿ Promote improved agro-forestry techniques, including natural soil regeneration, fruit tree planting, sensitizing households on the benefit of fruit consumption and the value of trees for improving soil fertility and moisture content-- further supporting resistance to climate-related shocks;
- ✿ Promote the consumption of animal products among households (milk, cheese, yogurt, dried meat) and consider and assess the interest of the communities in the delivery of goat milk processing training for both household consumption and as a source of income revenue;
- ✿ Consider distributing 2 or 3 goats per household to hasten animal production and restocking;
- ✿ Promote the local Habanaé⁶ system within households, whereby the young goats born from the distributed pair are successively given to others benefiting different households in the community;
- ✿ Further identify barriers to behavior change and develop messages to sensitize households on best nutritional practices and the importance of goat milk consumption, especially for children;
- ✿ Further assess the level of functionality of existing community-based EWSs in order to address their gaps and to establish new EWSs where they don't currently exist, and to better address early warnings and responses at community level, with support from national systems;
- ✿ Organize meetings and facilitate dialogue between communities and their EWS committees, with the involvement of relevant local authorities, to increase knowledge in EWS roles and responsibilities, identify efficient data collection and feedback mechanisms, and prepare participatory crisis response plans.

⁶ The Habanaé is a local solidarity system whereby households who lost their animals are supported by community members to rebuild their assets. Animals are lent to the vulnerable household until they produce a set number of offspring, for example, young goats that they can then keep and benefit from.