

Esso Exploration & Production Chad Inc.

Land Use Mitigation Action Plan

**Annual Individual Livelihood Restoration
Report 2010**

June 2011

List of Acronyms & terms used in this report

HH	Household
HHH	Household Head (Chef de Ménage)
HHM	Household Member. Include the CdM and all its dependents, regardless their age.
Eligible	Generic term to designate an individual that is eligible to the EMP Resettlement Program. Individual that may be eligible to the EMP Resettlement Program.
Potential Eligible	Analysis must be completed.
BBS	Basic Business Skills Training
CFA	Central African Francs
COFEMAB	Coopérative des femmes de Madjo-Béro
CRCP	Chad Resettlement and Compensation Plan
ECMG	External Compliance Monitoring Group
EEPCI	Esso Exploration and Production Chad Inc
EMP	Environmental Management Plan
EMP IS	EMP Information System
GIS	Geographic Information System
GoC	Government of Chad
IFC	International Finance Corporation
ITRAD	Institut Tchadien de Recherche Agronomique Développement
KPI	Key Performance Indicators
LCC	Local Community Contact
LMM	Land Management Manual
LUMAP	Land Use Mitigation Action Plan
MARP	Méthode Accélérée de Recherche Participative
NGO	Non Governmental Organization
ONDR	Office National du Développement Rural
SSP	Site Specific Plan
WARDA	West Africa Rice Development Association
WBG	World Bank Group
Land holding status	
Zero	No land holdings
Non-viable	Less than 2/3 cordes per HHM or 0,67 corde per HHM
Marginal	0.68 to 1 cordes per HHM
Comfortable	1 to 2.5 cordes per HHM
Wealthy	2.5 cordes per HHM and above
At-risk	Non-viable + Marginal land holding status

Note on Data

In comparing data between tables and years, inconsistencies in numbers are due to the ever-evolving nature of the data (more fields belonging to M. Ngar...have been measured in another village; a “dependant” who, with further information, turns out to really belong to another HH). The overall messages delivered by the tables in this document remain the same, despite slight increases or decreases. The tables have been calculated as of December 31st, 2010 whereas the data keeps evolving.

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EXECUTIVE SUMMARY

The purpose of the Esso Exploration & Production Chad Inc (EEPCI) (the Project) Annual Individual Report is to provide information on the number of people currently at risk agriculturally because of Project land take impacts. It also follows the results of livelihood restoration activities completed, initiated or ongoing over the past year. The percent of individuals/households whose situations have been resolved or improved by the Project over the past year provides a measure of the efficacy of both the EEPCI Environmental Management Plan department's (EMP) programs and procedures regarding livelihood restoration.

2010 EMP Livelihood Restoration Highlights

Land Use Mitigation Action Plan (LUMAP) Action Areas Completed – transitioning to ongoing Socioeconomic program and procedures

Village Land Use Surveys - Given the completion of the Village Land Use Surveys in 15 villages of the OFDA and the integration of the Synergy, Impact and Land Return team into the overall process it is now possible to deal with vulnerable HH at the onset of the compensation process. Insuring that data on vulnerable affected households, previously collected through the Village Land Use Surveys, is upgraded and that the appropriate Relocation options are offered to the eligible. With the integration of these processes into the daily activities of the EMP Socio-economic Section, EMP is progressively completing the transition from LUMAP as a special project to ongoing EMP Socioeconomic Section work process and procedures.

Site Specific Plans (SSP) – SSP's were completed for Maïkéri and Poutouguem and posted on the www.essochad.com website.

2010 Basic Business Skills Training (BBS) Highlights - 66 resettlement eligible people (eligibles), 68 spouses of eligibles and 120 auditors (BBS is taught in the villages in an open format – non eligible villagers are welcome to participate) completed their training`. Over the first two years of this program, over 591 people participated in this training and achieved a reasonable level of proficiency in reading, writing, math and basic business management.

2010 Improved Agriculture Highlights – In 2010, training in improved agriculture was started with 11 eligibles. After completing their rainy season training and receiving their rainy season grant equipment, they were combined with 45 eligibles from the 2009 class for the dry season training in their option of choice. Having implemented a new procurement process for both rainy and dry season equipment, we are hopeful that issues regarding the quality of the equipment supplied will not arise in the future.

Livelihood Restoration Monitoring – In view of the data collected through the village land use survey it was possible to identify the truly non-viable eligibles out of all those who had received improved agriculture training as a restoration option over the last 10 years. This process resulted in a list of 265 graduates qualified for a second round of monitoring. The monitoring of these graduates is well underway.

The above process eliminated over 400 False Positives (farmers who had plenty of land and did not qualify for Resettlement) from the EMP Resettlement rolls. This allows EMP to focus on the True Positives resettlement training program graduates

Rice Pilot Project – Generating new farm land from riverine lowlands through the establishment of rice fields as a pilot project proved to be an agricultural success. Unfortunately, the social, cultural and institutional part of the pilot project failed.

The pilot project rice plots were built by the farmers on floodplain lands in the villages of Madjo-Béro and Madana Nadpeur. 75 farmers (mix of eligible farmers and farmers selected by the village chiefs) from 6 different villages built the plots and planted, cultivated and harvested the rice. The pilot project design was developed by the Africa Rice Center (AfricaRice – formerly known as the West Africa Rice Development Association (WARDA)) in collaboration with EEPCI and primarily the farm extension service agency of the Ministry of Agriculture - Office National de Développement Rural (ONDR).

K 744 Women's Cooperative (COFEMAB) – EEPCI built (using heavy equipment) a rice seed bed plot to the specifications developed by AfricaRice as a means of providing a Improved Agriculture reinforcement training project for the Madjo Bero women's vegetable gardener cooperative known as COFEMAB. The seed bed was built on the K 744 well pad site (K 744 was never drilled). COFEMAB was trained by AfricaRice and ONDR and provided seed, inputs and equipment by EEPCI. Not only did this initiative

demonstrate that it is possible to construct productive rice paddies with heavy equipment, it also illustrated that the right social conditions are possible (agricultural and socioeconomic success for the COFEMAB) in the OFDA. EMP will monitor the COFEMAB rice seed and market garden vegetable plot over the next 2 agricultural seasons. The focus of the monitoring will be to measure ongoing success of this farmer cooperative.

The success of the COFEMAB will serve as a model if and when it is feasible for EEPCI to offer rice seed plots as a Supplemental Community Compensation project.

Mucuna pruriens at KBP 6 (Kome Borrow Pit #6) and MBP 8 (Miandoum Borrow Pit #8) – Thirty (30) hectares of Mucuna were planted in the spring of 2010 at the two above named borrow pits to answer village questions about the efficacy of the top soil EEPCI imported from the Kome 5 Air Strip ends spoils for use in reclaiming these borrow pits for agriculture in 2008.

The Bero and Ngalaba village farmers refused to plant crops in these reclaimed borrow pits stating that the soil was poor quality.

EEPCI contracted a local contractor and nursery in Deli to grow sufficient Mucuna seeds to plant test plots totaling 30 hectares. The local contractor plowed the fields and hired local farmers (some of them were land users associated with these land areas) to plant, cultivate and protect the crop from livestock and bird predations. The Mucuna grew luxuriantly.

At the end of the season, the farmers were invited to harvest the Mucuna seed (good for many uses) and were provided additional training on how to “green mulch” the Mucuna and plant sorghum and peanuts the following agricultural year. Unfortunately, the farmers chose to not harvest the Mucuna and burned the fields. It is yet to be seen if the farmers will plant sorghum and/or peanuts in these fields in the 2011 agricultural year.

Therefore, this pilot test was determined to be an agricultural success but a socioeconomic failure. The cost, planning and scheduling requirement and primarily the uncertainty of the farmers taking ownership of the fields discouraged EEPCI EMP from pursuing the “green mulch” any further

Land Management Manual Update

The Land Management Manual was updated incorporating all of the Management of Change (MoCs) approved since September 2008 and integrating the Synergy and Impact work process improvements was initiated in mid 2010 and completed in early second quarter 2011. The work process flow charts were improved and translated in both English and French. Training on the updated procedures is ongoing.

2011 Resettlement Eligible Promotion

There are 90 eligible people enrolled in the 2011 promotion. At present they are matriculating the BBS Training. Once they graduate in May 2011, they will begin Improved Agriculture Training.

A significant highlight was achieved during the organizing the 2011 Promotion. It had to do with 22 farmers that previously chose the land replacement option as their resettlement option requesting to change their option to Improved Agriculture Training.

EEPCI EMP reviewed the land holdings of these people and determined that they did not have sufficient land to enroll in Improved Agriculture. However, EMP offered them the chance to acquire sufficient “permanent” land to qualify for Improved Agriculture by a certain date. The farmers asked EMP to calculate the exact amount of land each of them needed to qualify for Improved Agriculture. 17 of the 22 were able to acquire sufficient land through their traditional land allocation/acquisition processes. EMP worked with each farmer and land source provider to certify that they indeed had acquired sufficient land with permanent use rights.

This represents a breakthrough in the so called land for land dead lock. EMP plans to incorporate this learning and technique as the IMPACT Surveys are completed resettlement eligible farmers identified throughout the year that do not have sufficient land for Improved Agriculture Training.

Community Compensation

- Completed delivery of Supplemental Community Compensation projects to 13 of 15 most impacted villages in the Three Fields (Kome, Miandoum, and Bolobo). Two villages (Dokaidilti and Bero 3) requested rice projects. Once the final report and design basis for rice seed bed plots is provided by AfricaRice, EEPCI will bid the work to local contractors. If the contractors return bids that fit within the EEPCI Supplemental Community Compensation budget guidelines, the villages will be presented with the design. If the villages decide not to accept the design (e.g. too small a plot) then they will have to choose from the current Community Compensation catalog offerings for project construction in 2012 (current work in the Maikeri Satellite Oil Field Community Compensation projects has consumed the construction capacity of the two subcontractors selected for the projects in 2011 and early 2012).
- Completed delivery of first time Community Compensation projects to the remaining villages, cantons and sub-prefecture of the Nya and Moundouli Satellite Oil Fields. In total, 70 projects were built for 33 villages and 3 sub-prefectures.

2011 Work Plan

- Develop a process to give an overall perspective of the level of livelihood taking into account land base agriculture, livestock production, fishing, and food processing and non-agriculturally based economic activities.
- Continue utilization of the Synergy and Impact Teams to identify and assess resettlement eligible people on a real time basis as land is acquired for Project use.
- Develop processes to interpret and integrate data collected through the various initiatives (Synergy, Impact, Livelihood Restoration monitoring)
- Conduct Land Return Usage Surveys to determine use of returned land by either compensated individuals or other people
- Develop a work plan to assess use of fragmented fields post land take
- Continue to improve the delivery of BBS
 - Train the trainer to deliver micro business training to promotion
 - Train the community level management committees who selected water wells or flour mills as a community compensation to run these projects as effective and efficient small businesses
 - Trainers living in the villages to provide additional help to the trainees

- Continue to improve the delivery of Improved Agriculture Training:
 - Course content – meaningful and useful modules
 - Hands on training versus class room lectures
 - Trainers living in the village to provide additional help to trainees
- Continue to improve the quality and timely delivery of grant equipment and livestock
 - Selection of provider through a more stringent bidding process
 - Quality assurance and quality control with the provider of the equipment and livestock
- Continue to improve the EMP internal procedures on data analysis, stewardship, and planning
 - Damage Claim Management
 - Consultation, e.g. Grievance and Complaint management
 - Determine impact thresholds for additional Supplemental Community Compensation in the in fill drill impacted villages
- Supplemental Community Compensation to Maikeri Village (village chose a 3 Classroom School – currently under construction)
- Supplemental Community Compensation decision at Dokaidilti and Bero 3 Villages
- First Time Community Compensation to Poutouguem, Maymbaye, Bekia 2, Bekia 3, Morkete, and Bedara (Miladi Canton) villages. To date, the villages have selected:
 - Poutouguem – 3 Classroom School (currently under construction)
 - Morkete – Flour Mill (currently under construction)
 - Bekia 2 – Flour Mill (currently under construction)
 - Maymbaye – Flour Mill
 - Bekia 3 – Flour Mill
 - Bedara – Flour Mill

Introduction

By the end of 2010, the Socio-Economic team through the Land Use Mitigation Action Plan (LUMAP) and the Village Land Use Surveys have identified everyone in the 15 surveyed villages that is non-viable and marginal (both Project Affected and not Project Affected).

Using sophisticated GIS tools and a relational database, it is now possible to combine this information with land use patterns and other variables in order to clearly identify those most at risk from the in fill drilling and developmental drilling programs land take. Furthermore it is also possible to identify for each HH and HHH the appropriate mitigation method which will best alleviate the effect of the land take which affected them.

Knowing how each piece of land was being used at the time of the survey can assist us in projecting impact at the individual, house hold and community level. With the establishment of each new element of infrastructure a number of processes can be triggered to update the information available on the affected HH and HHH. Through the intervention of the Synergy and Impact teams the data is updated in an efficient manner in order to confirm the identity of the affected HH and HHH and the resettlement options available to them.

Combining technology and highly trained individuals it is now possible to deal with each of these situations in real time. Through the development of new streamlined intervention processes it will also be possible to further reduce the lag period required to bring about the required support at the HH, HHH and community level. While this process is ongoing and new improvements will always be sought, the impact of these changes can already be perceived by those affected and at risk.

The following pages will give the reader an outline of the situations of HH and HHH of each of the affected villages of the OFDA, both those affected or not affected by the Project. It should be noted that this report is made-up of two sections;

1. Village Level Surveys
2. Households Results

Part 1: Village Level Surveys

1. Village Survey Results

The Dokaïdilti survey demonstrated in a measurable way that the degree of negative impact in the heavily impacted village was much smaller than prior analysis of declarative data had indicated. Because it was able to pinpoint at-risk households the Village Survey methodology became the basis for future SSP. Land reclamation and return remains a very high priority in relieving Project impact in villages and individual HH that are most at risk.

1.1 Overview of Surveyed Villages

To understand the effect that a land take may have on a community and its population one must first have a proper understanding of a number of key drivers that define to a large extent the specific community. The dominant key indicators are:

- Population: How many people are in the specific area affected by the Project?
- Number of households: Number of social units being affected. Smaller villages tend to be extended family units with the patriarch being the chief; this is often a key issue in establishing the level and type of interactions within the community.
- Population density: With increasing population density the intensity of interaction will progressively increase and new types of relationships will develop. Access to resources will often be directly related to population density. As land is a limited resource and attribution processes do not always result in an even distribution, an increase in population density could result in the development of stresses within the community. Increasing population density and size will also bring about the establishment of new types of relationship less related to family ties, for example: economic relationship between buyers or suppliers of goods and services.
- Average length of possible fallow (What is the pressure on productive resources, demand for farmland and sustainability of current farming system?).
- What differences are there within villages in terms of status, family size, and households? Do all people share equally in Project impact?
- Are there vulnerable people? Given that traditional means of dealing with social pressures and land shortage are still in play, do the people that resort to these traditional measures put themselves at an economic disadvantage that Project actions could aggravate?

Table 1: Key village level indicators					
Village	Population	#HH	People/Ha	Length of fallow	Avg. HH size
Poutouguem	306	61	0.54	3.03	5.1
Danmadja	565	101	1.18	3.31	5.7
Maïkeri	720	140	0.58	3.36	5.2
Dokaïdilti	531	85	0.77	3.45	6.3
Mbanga	1496	269	0.49	4.56	5.6
Bero	3721	592	0.65	4.83	6.3
Béla	836	145	0.38	5.14	5.8
Mainani	602	109	0.43	5.25	5.6
Kome	940	192	0.39	5.52	5
Mouarom	449	85	0.33	6.39	5.3
Naïkam	275	54	0.19	7.41	5.1
Madjo	794	129	0.37	8.19	6.2
Bégada	1237	255	0.37	8.2	4.9
Ngalaba	1309	248	0.62	8.5	5.3
Dildo	1333	272	0.71	10.51	4.9
OFDA*	15114	2737	0.56	5.9	5.5

Overall results for villages for which we have information

From the information presented in table 1, we can easily note that some of the villages have much larger population and number of households than others. It is only when the information is put into perspective by looking at the density of the population (people/ha) and the average length of the fallow that we can see the villages which could potentially be the most at risk.

As you can see from the above table, Danmadja has a high population density and potentially insufficient rotation period; however, we will see later that Danmadja's:

- Access to other resources mainly fisheries
- Splitting itself into two communities
- Access to land at the fringe of other communities
- Access to more lucrative markets (Atan village)

are all practices that helped this community cope with a limited territory.

The number of HH in the Project area is related to HH size: big HH mean a smaller number of HH in the village but more intense interaction within the HH. HH size is determined in part by biological factors (births, deaths) but in good part by social factors. The principle factors which operate in the OFDA are:

- Birth of children which drives establishment of an economically independent HH
- Divorce or widowhood (plus the intermediate stage in this culture of “separated”)
- Social obligations to care for people other than the nuclear family
- Old age

But another important factor driving HH size in many societies is:

- Access to productive resources

The last point is important to understand within the Project context and need for land. Are there social distinctions that limit access to productive resources? Has the Project’s land acquisition reduced HHs productive resources and increased HH size and HHM interaction, which could lead to more conflict?

As said, most of the factors listed above arise through natural and cultural processes. For example, in some societies a couple would become an economically independent entity directly upon marriage; here males become residentially independent in their bachelor teens and begin the steps towards economic independence. The act of marriage may or may not lead the couple to establish a separate HH but then, with children coming along, the couple becomes economically independent. At a later stage the wife may become economically independent, either staying in the same homestead or moving elsewhere.

While Table 1 indicates that villages are somewhat dissimilar in terms of population density and its subsequent pressure on farm land, as expressed by the length of the fallow, there is no large difference in the average size of households. In fact the average size of HH in these villages is between 5 and 6 with an average of 5.5. Project pressure on assets does not affect “villages” and does not appear to create more intense, and possibly negative social interactions between village households. Villages as a social unit do not appear to be at risk. Nor does Project pressure drive HH to increase in size and interaction because more people must exploit the fixed area of HH productive assets.

1.2 Traditional Coping Mechanisms in Surveyed Villages

Studies of the area have described the ways in which the population has traditionally dealt with land pressure and related social tensions. We can ponder whether the mechanisms studied in the 1970s are still at play today, and if they remain adequate enough to deal with the additional pressure on land brought about by Project land take. The reliability of population data available to answer this question varies, but enough information is available

from pre-Project times (the National Census in 1993, for example) to judge whether traditional coping mechanisms are still at work just before the Project began and if they are still active.

If these mechanism are still in play, the question which remains is, are the HH in villages that have resorted to traditional coping mechanisms at higher risk because they have abandoned the assets they had been exploiting?

In the following sections we will review some of these basic mechanisms in order to ascertain whether they are still in play.

1.2.1 Village Splits

The most common traditional mechanism of dealing with increased land pressure at the village level is for the village to split. Initially when a HH does not get along with its neighbors or doesn't have sufficient land to sustain its' growth it seeks separation and moves to the far end of the village or out of it.

If the village is large enough for people to start building factions and gain supporters, an individual with aspirations to influence will split off and settle on a distant part of village land or in another area entirely, where his HH is more autonomous. Sometimes partisan HH that have followed their leader find that the seeming opponent's pasture is no greener. In these cases hamlets die out. But often the hamlet becomes the nucleus of a new village exploiting the area on which it has settled. Eventually the new village will ask for administrative recognition of its separate status as a new village. 10 new villages are in the process of being created and recognized. This will result in 25 villages being present in an area where only 15 existed a few years ago.

A comparison of HH numbers, population size and access to productive resources shows that split villages are almost all identical twins (Refer to annex 1). The only exception is Béla II, which appears to have a slight advantage over Béla I in terms of average corde per capita. There are no characteristics that would put one part of the village at a significant disadvantage vis à vis Project impact. In fact, in terms of differences in land distribution among HH, all villages demonstrate similar proportions of wealthy, comfortable, marginal and vulnerable HH.

The only impact the Project may have had on the structure of communities arises from the communities belief that splitting may offer them the opportunity to obtain a higher level of compensation should new land take occur (e.g. land speculation).

1.2.2 Non-agricultural productive resources

While fishing is another method of reducing the effect of land scarcity on the population of villages, it also offers a means of diversifying one's diet and sources of income. In the OFDA access to the resource is limited to only five villages, other villages of the Project area



Picture 1: EMP, Madjo Bero fishing activities

being generally land locked.

It must be noted that even when the village has access to the riverways not all families in fishing villages choose to engage in the practice.

Table 2: Village with access to fishing		
Fishing villages	People/Ha	Length of fallow
Danmadja	1.18	3.31
Dildo	0.71	10.51
Dokaïdilti	0.77	3.45
Madjo	0.37	8.19
Poutougum	0.54	3.03
Inland villages	People/Ha	Length of fallow
Bégada	0.37	8.2
Béla	0.38	5.14
Bero	0.65	4.83
Kome	0.39	5.52
Maïkeri	0.58	3.36
Maïnani	0.43	5.25
Mbanga	0.49	4.56
Mouarom	0.33	6.39
Naïkam	0.19	7.41
Ngalaba	0.62	8.5

Needs and preferences appear to be the two main driving forces behind the decision to adopt fishing. Some families or HHH choose to become fisherman in order to compensate for the limited land base to which they have access, while others simply choose to become fishermen.

Presented with a substantial fish source the family is less dependent on other sources of proteins and cereals. It thus becomes less dependent on its land base to meet its daily

dietary needs. The extra income from fishing is available throughout the months that cereal is cheaply available in the market and the adults can round out the family's staple needs;

most fishermen earn between 20,000 – 30,000 FCFA per month during the 6 months when fishing is plentiful. Many families in fishing villages do not need as much land in non-fishing village farmers to maintain an adequate standard of living. Fishing diminishes the need for land as a productive resource.

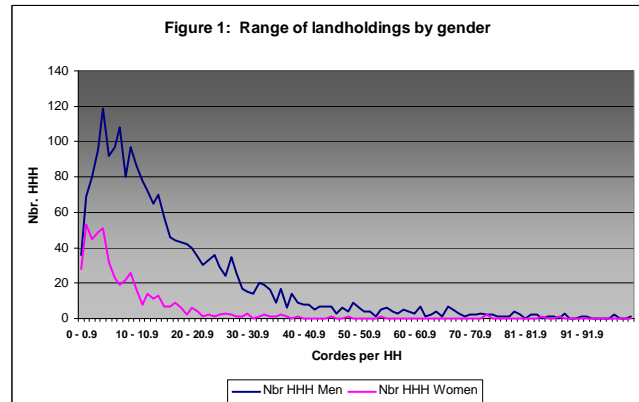
Although Madjo-Bero and Dildo are fishing villages found in the OFDA they are anomalies. Madjo-Bero has more than ample land because during the Project period it underwent a definitive split, with part of the village moving across the river into another Canton/Sub-Prefecture (Madjo-Doba). The average length of fallow in Madjo-Bero and Dildo is high because they have important long term fallows near the river; these lands are not highlighted for cultivation because of flooding during the rainy season. These lands could eventually be targeted for irrigated rice production; as such they represent a substantial asset. Bela's situation is ambiguous; while it has plenty of land there are some inhabitants who are serious fishermen. Accessing the river from Bela is more difficult and recreational fishing for the family table is less common.

Following a number of interviews with members of the local community it appears that tradition is involved in granting access to this resource. Families who have been granted parcels along the riverbank would appear to have more access. It must be noted that as per Chadian law watercourses and flood plains are considered to be owned by the state. While the Mbao (tribe/community whose activity is closely associated to fishing) does appear to have a privileged access to most of the important fisheries of the country they do not appear to compete for access for the local fish stocks.

Other activities such as forestry, harvesting of mangos and shea nuts, food processing, vegetable gardening and commerce could all be exploited in order to alleviate limited land resources for agriculture. Over the next few months it is our intention to develop a methodology that will permit us to evaluate the contribution of certain of these activities to the needs of families. In short, do they compensate for the limited cropping area available to certain HH? The need to deal with this issue becomes even more important if we consider that the Project offers complementary training in some of these fields.

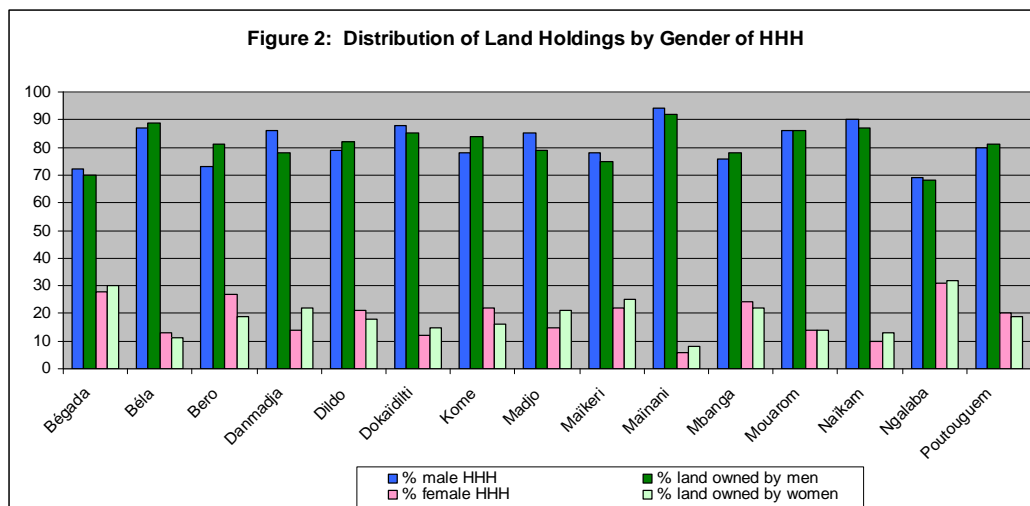
1.3 Gender in surveyed villages

Economically independent women with their own productive resources can be observed at the village level. In this culture, women are allowed a certain level of economic independence as the following data show. From the interviews we have held within the community we believe that women who have obtained resources through their family (inheritance or grants from family



trust) or have acquired assets with income generated from other economic activities (commerce) are more apt to maintain their own HH in a self-sufficient manner. While women who do not have sufficient resources to sustain a HH will tend to either remain in a form of dependency relationship with their present spouse or attempt to remarry or join into an existing HH if they find themselves divorced or widowed.

The village surveys show the number of women who become the heads of their own HH and no longer have the protection of a husband and the husband's household resources. Analyzing this information further indicates that the successful establishment of a FHHH may be directly related to the size of the community. In communities with less than 150 HH only 12.8 % are FHHH while in larger communities (more than 150 HH) 22.5 % are FHHH. This difference would appear to be due to the fact that divorce is more socially acceptable in larger communities and that there is usually more economic activity in a larger center enhancing the ability of women to earn a living for themselves and their children.



As women become increasingly self-sufficient because of their right to productive assets they could be increasingly at risk of being affected by the Project's land take. Detailed data in regards to the relative position of men and women is available in annex 3.

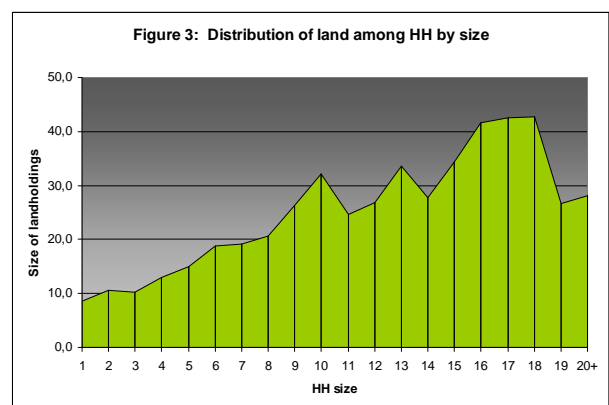
When a HH is deemed non-viable in terms of agricultural activities (less than 0.67 cordes / HHM), the cultural influence on how households are formed leads to a seemingly large number of Non-Viable young male HHH. Gender thus appears to be a mediating factor, making young men particularly vulnerable.

Table 3: Comparison of Vulnerability by age in 15 surveyed villages		
Age HHH	% male HHH non-viable	% female HHH non-viable
less than 20	1	0
20 - 29	80	16
30 - 39	70	19
40 -49	24	22
50 - 59	20	12
60 -69	3	9
more than 70	0	0

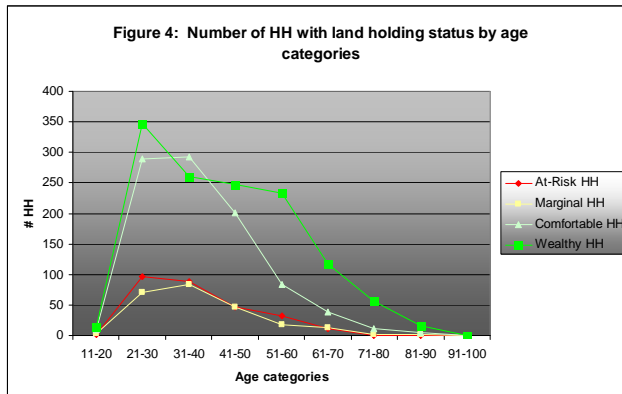
However, looking at available land at the village level shows that the villages have plenty of land. Social analysis also shows that many seemingly vulnerable young HH only appear to be so. A young male HHH looks as though he has only a few fields for his HH members because his HH has only started farming and has not yet reached the point where a piece of land has been farmed long enough for it to need to be fallowed. As soon as the young male farmer needs more land because of declining fertility he will ask the family elder for access to some of the family trust fund. Only the unfortunate HH that are just starting out in life without any trust fund of land to draw on are, in fact, non-viable and will probably remain so unless traditional mechanisms are called into play.

It is the few HH characterized by these vulnerability factors tied to age and gender that are more apt to be affected by Project impact. Later examination of individual HHs will reveal the nature of HH vulnerability.

A further mechanism involved is that a HHH that controls a large land base (wealthy) will often tend to have a larger number of HHM as he is able to attract more wives through the dowry process.



The unfortunate male HHH without a family trust tend to be children of men who have moved in to the village from the outside. If they have moved to join their mother then they have access to her family's land, but their residual rights do not have precedence over a large number of maternal cousins. A man's decision to move to another village (which occurs for many reasons) has for his heirs the consequence of limiting the family trust to the amount of land he is able to convince his host, or village chief, and land priest to give him.



For the majority of males, living in their natal, and their father's natal, and their father's natal village there is always the family trust to draw on. The balance between HH size and the amount of land belonging to the HH demonstrates this slow transfer from one generation to the next. This is basically related to the

ability of the elders to give unto those relatives according to their increasing need for land (figure 4). The few HH without any inheritance to call on (left hand side of graph) cannot attain this balance in their current residence.

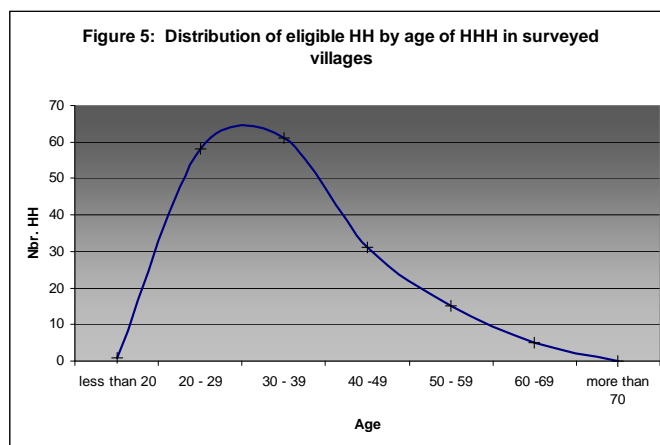
By comparing HH at the village level this age phenomenon becomes evident. Not all villages HH are in trouble, lacking productive assets, in fact, only a few are. Age is also a mediating factor in the development of vulnerable female-headed HH. Young women separate from their natal families when they marry/have children. When a new household is established the husband should, according to the cultural norms, be primarily responsible for his wife and children (the wife being tied down at home by child care). The age distribution of female HHH shows this norm is largely respected. With time the marriage bond may change and the wife undertake more productive (rather than reproductive) activities to complement her husband's contribution. It is the degree of "support" that is/should be given that is the most contentious issue in marriage, leading to numerous traditional court cases, separations and divorces.

The increasing independence of women as they grow older is clear in the village surveys. The fact that women become independent as they age means they must have productive resources of their own to support the independent family. As a consequence, any factor that affects these resources affects these women directly.

Older female HHH with limited productive resources tend to be non-viable or Marginal farmers. Most often they are women who have married outside their natal village where they would still be able to access family land.

1.4 Age Distribution in Surveyed Villages

In all the surveyed villages the average age of the population is young, averaging 20. (see annex 3) This means that there are many non-productive inhabitants in the village who must be sustained by the adults in charge. Project actions affecting a few adults can result in affecting more people indirectly.




Not only is the average age young; the preponderance of HHH in all surveyed villages is also young. From this we must conclude that this group of HHH will bear the brunt of Project impacts on productive resources simply because demographically they are the most numerous group in the population. Demographics also play a role since more women live to an older age and, as has been shown, they are often independent and have their own assets.

1.5 Status Differences in Surveyed Villages

The answer to the question whether there are differences in social status that prevent equal access to productive resources is “NO”. It is the other way around; social status is measured by access to productive assets, with its links to age and gender and family trust funds. However, and herein lies the rub, it depends on how you use those assets that earns your social status. 30 cordes in the family trust fund gets you nothing, but put some of that into farmland and be generous with the harvest and your status rises. Status depends on your interest and ability in farming and on your relationship with other villagers. This may, to some extent, explain why the improved agriculture program is attracting so many auditors. Improving their ability would improve their status and as such it becomes interesting to the individual whom the training was not intended. In many societies knowledge and how you put it into use is a status issue. In traditional societies it is never viewed as a good thing to be left behind knowledge wise.

Comparing HH at the village level shows that there are indeed differences within each village in terms of land holdings. There are a few landholders with such exceedingly large tracts of land that all the HHM could never succeed in cultivating even half; it is these land holders who have lands lying fallow for 30-40 years or more. They are the senior members of the family holding the family land in trust but with too few successors that have demanded land and whittled down the land trust (low number of births, lack of interest in farming and heirs already farming to their maximum). Upon his or her death the heirs will receive packages of land that are likewise large and may lie unfarmed (See figure 4).

Picture 2: EMP, Elizabeth Dendei Bégada II

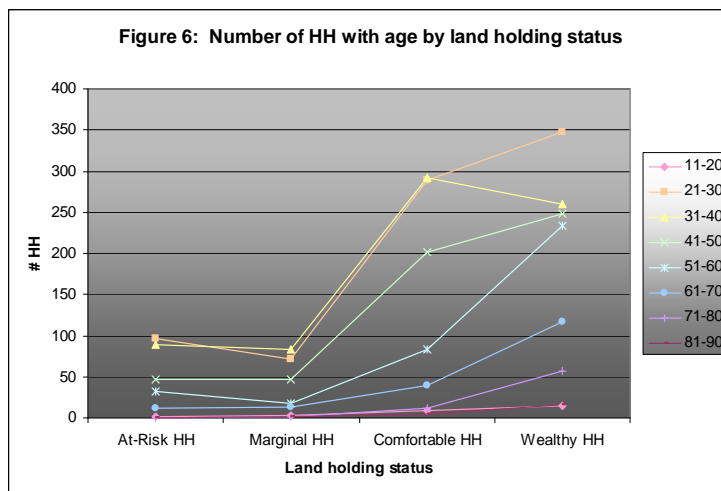
<p>Ms. Elizabeth Dendei, farmer, 77 years old</p>	<p>Born in Bégada II, Ms Déndei presently farms 6 cordes (equivalent to about 3 ha).</p>
	<p>Oldest daughter of the chief she inherited a fairly substantial land holding from her father, approximately 87 cordes. Over the last few years, she has distributed a large portion of this land to her children and other needy members of the community. She presently retains 7 cordes of which she actively farms 6.</p>
	<p>Her status in the community means that she can get access to plenty of land if need be.</p>

Per capita land holdings as large as these are the exception but in the surveyed villages most HH are land wealthy, with large farms of more than 2.5 cordes per HHM and some with 10 to 20 cordes per HHM. Another large group are comfortable land holders with 1 to 2.5 cordes per HHM. Proportionally very few HH are Marginal or Non-Viable. The presence of HH with no land at all can be explained either by other sources of HH income, support of children, or because the person has borrowed/rented land from someone else.

1.6 Land Holding Differences within Villages

It is above all this distribution of land, skewed in the same way in all the surveyed villages, which leads to the conclusion that villages as a whole are not at risk. Instead, specific HH lack access to productive land (see figure 6 and annex B for more detailed tables).

At this point, we must also distinguish between the fact that HH may be at-risk or vulnerable from a land base agriculture point of view but that they could be reasonably comfortable if one adopted a more global perspective. Inversely, some individuals who would appear marginal or comfortable from a land based agriculture point of view could



in fact be at-risk if one accounted for the quality of their land base or their skills in agriculture.

What could be the causes of this disparity in access to resources? We have seen that age, gender, and village of origin play a role but that social status differences do not. What about Project impacts?

1.6.1 Project Compensation and Land Acquisition as a Cause of Non-Viability or Marginality?

Differences in land holding status clearly exist in the surveyed villages and a similar distribution of land is found in each of them. But perhaps the Project's land acquisition has affected all HH equally, whatever their prior status, and created similar numbers of Non-Viable and Marginal HH throughout the population. The data indicates this has not occurred.

Examining this question is not straightforward because the declarative data given at land acquisition and recorded as "baseline" is not reliable. Using declarative data to determine a HH's pre-Project land holding status would yield little useful information on this earlier status. Instead the GIS-measured amount of land taken from the HH, from Project inception to date, has been added to the GIS-measured land belonging to the HH at the time of the village survey. While this is not a perfect means of establishing pre-Project land holding it is the most reliable approach available at present. For calculation purposes the number of HHM counted during the village survey has been used as the number of HHM prior to Project land

acquisition. This is an assumption since HH grow and shrink as the domestic cycle turns, but it gives an objectively measured number and, for HH compensated late in the Project it is close to today's situation.

This gives an approximate cordes per capita (or “resettlement factor”) measure just before the HH’s first land compensation. Data presented in annex 4 compare the number of Non-Viable and Marginal HH, plus other HHs’ land holding status “pre-Project” and today.

Project land acquisition could not be the only source of Non-Viability or Marginal status because HH already found themselves in these categories before Project activities began. In spite of Project land acquisition the great majority of HH today are either large or comfortably well off land holders.

1.6.2 Project Compensation and Land Acquisition and the Creation of Resource Haves and Have-Nots?

Comparison of those who have received compensation shows not only that the percentage of the population that has received compensation is similar in most of the surveyed villages but also that a majority of HH in a village have received compensation.

In 11 of the villages 70% or more of the households have received compensation at one time or another, some HH several times, during the Project. In 6 surveyed villages more than 80% have received compensation. By contrast, the four remaining village's (Kome, Dildo, Naïkam and Bela) lie only partially over the oil-bearing fields. They have thus received less compensation since there was little connection with Project land needs. Do these villages have fewer at risk people, demonstrating that where the Project impact is less the HH situation is better? The answer is a clear “NO”; land take by the Project does not automatically lead to an increase in Non-Viability. Many other factors must enter in order to explain that Kome and Dildo have more Non-Viable and Dildo more Marginal HH than the average village in the survey?

Table 4 : % of HH compensated because of Project land acquisition	
Village	% HH receiving compensation
Bégada	73
Béla	53
Bero	78
Danmadja	87
Dildo	37
Dokaïdilti	86
Kome	20
Madjo	83
Maïkeri	79
Mainani	75
Mbanga	78
Mouarom	85
Naïkam	44
Ngalaba	84
Poutouguem	85

Other cultural factors make HH Non-Viable or Marginal beside Project land acquisition. It is not surprising, therefore, that the society has developed traditional coping mechanisms.

Table 5: Non-Viable and Marginal HH in Less Compensated Villages		
Village	% non-viable HH	% marginal HH
Kome	10%	5%
Dildo	12%	14%
Naïkam	0%	2%
Bela	8%	5%
Average 15 villages	8%	7%

While villagers will often complain that there is no land left for fallow, the surveys have shown that for most villages there is plenty of land for a long period of fallowing. What their complaints effectively reflect is the great population increase that has occurred in the recent past, which puts more pressure on fields near the village settlement. The true nature of the complaint would be: I have too few nearby fields to leave them in fallow for very long; because there are more people with such a high birthrate I am going to have to turn sooner to traditional coping mechanisms and get up and move someplace where there is unclaimed land available for use.

In 1993 there was a national census throughout the country collecting village (and quarter) population figures. Village chiefs on a *somewhat* annual basis count their populations because they are answerable for their citizens' poll tax payments. In late 2000 and early 2001 the main contractor for Project construction carried out a population count in nearby villages to estimate the labor pool and possibilities for housing workers; this count is probably more reliable than village chief counts, which may or may not have been updated for that year. From these three sources plus the village surveys it is possible to observe the population growth over 20 years. Between 1993 and the year of the cadastral survey the local population underwent a major increase. In fact overall population grew by almost 150% during this period, about 2/3 of this growth having taken place between 1993 and 2000. On a village by village basis it must be noted that even in Madjo, where part of the population left to form a new village across the river, the population grew by 50%.

Table 6: Population change from 1993 to 2009					
Village	Population density people per Hectare			Change between years	
	1993	2000	2008/2009	Delta 93-2000	Delta 2000-2008/9
Bégada	0.18	0.29	0.38	+ 0.11	+ 0.09
Béla	0.15	0.27	0.47	+ 0.12	+ 0.20
Bero	0.25	0.92	0.40	+ 0.67	-0.52
Danmadja	0.43	0.84	1.72	+ 0.41	+ 0.88
Dildo	0.39	0.70	0.79	+ 0.31	+ 0.09
Dokaïdilti	0.29	0.52	1.41	+ 0.23	+ 0.89
Madjo	0.16	0.53	0.24	+ 0.37	-0.29
Maïkeri	0.25	0.37	0.53	+ 0.12	+ 0.16
Mbanga	0.18	0.44	0.49	+ 0.26	+ 0.05
Mouarom	0.40	0.65	0.63	+ 0.25	-0.02
Ngalaba	0.39	0.64	0.88	+ 0.25	+ 0.24
Poutougum	NA	0.35	0.50	NA	+ 0.15

Negative rates of increase are a sign that part of the population has hived off and departed elsewhere, between 2000 and 2008/2009. The three villages where this occurred are Mouarom, Madjo and Bero. Nonetheless, in all three cases population growth in the 90's was very significant, more than compensating for the ensuing population move.

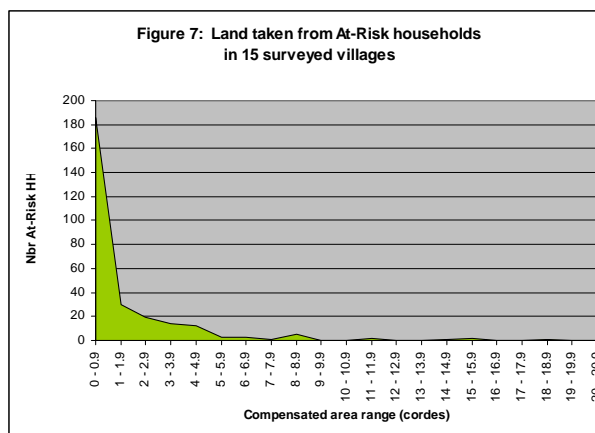
If land use intensity has increased over the last few years it is in main part due to the rapid growth of the native population by natural growth. Most of the Project staff having elected to live in Doba and Bébédjia have had very limited if any impact on the demography of the local villages.

2. Deriving Project Impact on Household Productive Resources from Village Surveys

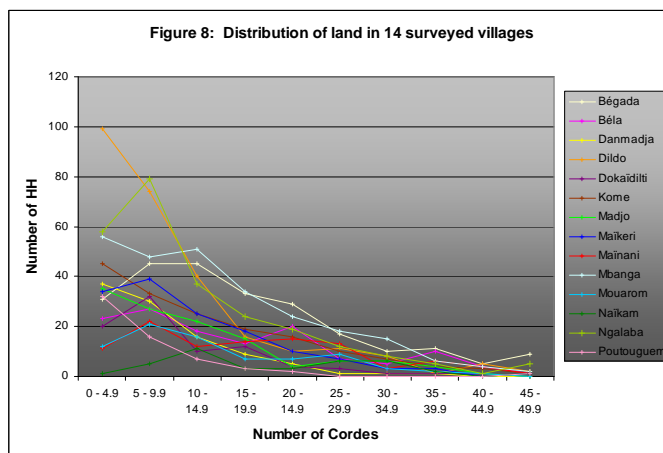
The Village Surveys present the situation of everyone within a village, not just those who have been compensated. Analysis of such inclusive data has provided understanding of the nature of villages, their size, their composition and their productive resources. It also allows inter-HH comparison of all HH within a village and between villages.

2.1. Effect of Project Land Acquisition on Household Productive Resources

Using the Compensation Database to compare the totals of the amount of land acquired from any single HH shows that only rarely has the Project acquired large parcels of land from a single HH. Most land acquisition involves long, thin corridors of a few meters width for flowlines, roads, power lines and so forth. The largest take would come when a well pad falls entirely within one HH's fields, more when the HH has many fields overlying a rich oil-bearing spot where a number of well pads could be built.



When the precisely measured totals of land taken from HH (Figure 7) is compared to the Village Survey graph of land distribution (Figure 8), it becomes evident that the small total amount of land usually acquired from a HH is a minor part of most HHs' land holdings. In other words, Project land acquisition does not have a major impact on large or medium size land holders. It is when small land holders (Non-Viable or Marginal) surrender a piece of land, even though a small piece, that the HH feels an impact. The degree of negative Project impact on productive resources is related to the proportion of HH in a village that is already at risk.



From the data available in the Village Surveys we know what proportion of HH is at risk (both Non-Viable and Marginal) – 19% – and who they are. The specific HH that are Marginal and have little land and could be made Non-Viable by additional Project land needs are also identifiable. Finally, Non-Viable or Marginal HH that have never been affected by land acquisition are also identifiable; in case their situation changes and the Project compensates a piece of their land any change in status can be calculated.

2.2. Changes in HH Landholding Status

Within each village land per capita tends to be distributed in clusters, each trending around a different size land holding. Zero land holdings are rare; less than 2/3 corde and Marginal (less than 1 corde) tend to run together, reflecting the easy slide from Marginal to Non-Viable. Comfortable land holdings in some villages are the mode, the most commonly encountered size land holdings. But in many villages most farmers have more than adequate land (wealthy), though usually not enormous holdings. Then there are the few holders of family land trusts with very little family to bequeath it to. Because the size of land holdings tends to cluster, switching from one cluster to another requires more of a jump (in this case more of a loss) than moving up or down one or two HH in the ranking of per capita land holdings. Very few wealthy land holders have given up enough land to become just “Comfortable”, much less Non-Viable or Marginal; the jump from Comfortable to Non-Viable or Marginal occurs more frequently. And, as mentioned, the slide from Marginal to Non-Viable is the most frequent.

The information presented in annex 5 show the extent to which Project land acquisition has changed the land holding status of compensated HH in the 12 villages. Over the Project’s life 177 HH have changed land holding status. In a few instances other factors have intervened to bring about a status change, e.g. the young male HH who was non-viable until he inherited 30 cordes after his father’s death.

When the change in status (whatever the cause -- the Project, inheritance, divorce) is averaged across the 9 villages, 12% of HH have changed status. Of those 3% have become non-viable and 5% marginal due to the Project or other factors. 8% of HH have become at risk since the start of the Project, and from the time of their first compensation.

As expressed earlier the next year may see some changes to the land holding status as being the key indicator of viability. Presently this indicator is only accounting for the area under agricultural production without any consideration for other factors which may affect productivity or family income. Here are some key examples of considerations which could have an important bearing on this evaluation and which should be considered:

- Crop: A producer who is able or opts to grow vegetables or produce irrigated rice on his parcel of land could generate far more income on a limited parcel than a producer using traditional methods to produce millet or sorghum. Minimum area required in order to be viable may actually be lower than what we are assuming presently (presently established at 0.5 cordes per HHM).
- Cropping system: A precise evaluation of the potential agronomic gain to be achieved through the adoption of improved agricultural practices such as those being promoted by the improved agriculture program (presently offered under the relocation program) has not been done and should be done if we are to adequately evaluate the admissibility requirement to enter into this education program.
- Other income from agricultural origin: While certain producers have a limited land base they may have other agricultural activities which could generate sufficient income in order to make the family reasonably comfortable. An example of this could be a producer who while he has only 0.2 cordes per HHM may have a sufficiently large herd of cattle to generate a large income. He could actually be better off than the individual who only has 0.6 cordes per HHM and no supplementary sources of income.
- A number of complementary agricultural and non-agricultural activities could be the source of substantial income. We must note that although a number of them are part of our off-season improved agricultural training program none are actually included in the evaluation of the HH status.

While at present it is not possible to confirm whether all of these sources of income will be incorporated in a future indicator, this is nonetheless the general direction which we must endeavor to follow.

3. Conclusions on Village Surveys

Village Surveys have presented a village-wide and, where neighboring villages have also been mapped, an area-wide view of the distribution of productive assets. The Surveys have made it clear that a geographical area taken as a whole is not undergoing major negative impacts because of the Project. Only a small portion of village households have felt negative impact, and this sort of impact can come from many other factors at work besides the Project. Whether it is other factors that have put a HH at risk, or not, once the Project acquires land from a Non-Viable HH, the HH can choose a resettlement option that should bring it up to the level of livelihood of an agriculturally viable HH.

In addition, and critically important for the individual inhabitants and HH of the villages, the global village surveys have provided the comprehensive data needed to:

- Identify individually all the currently at risk HH in a village
- Examine the particular characteristics of each of these at risk HH
- Search whether there are common characteristics among at risk HH
- Use these common characteristics as indicators of the HH's current or future risks to their productive assets

The next sections of this report cover:

- The current status of all vulnerable HH in each of the 15 villages
 - Which HH have chosen a resettlement option and which need to be offered one
 - How well has the HH's resettlement option served to restore or improve their livelihood
 - The situation of Marginal HH that might slip into Non-Viability if affected by future land acquisition.
- The impact of livelihood restoration on HH incorrectly identified as vulnerable and that received a resettlement option
- HH that demonstrate the common indicators of Non-Viability and Marginality that can be used to watch out for negative impacts on their productive resources.

Part 2: Household results

1 Household Results

HH analysis done to date concerns mainly HH productive assets as the principle factors in vulnerability. Specific factors such as handicaps have been dealt with so far on a case by case basis in the field, but further 2010 analysis of HH surveys will systematize this.

1.1. At Risk Project-Affected HH in 15 villages

Some truly Non-Viable HH in the 15 villages have already benefited from a resettlement option and their progress will be examined later. Others were missed, not identified as Non-Viable during the collection of compensation information. All in all, in the 15 villages, we find two groups on whom we wish to focus:

- 100 False Negatives, true Non-Viables surrendering land to the Project who escaped identification before the Village survey was carried out.
- Of the remaining Non-Viable compensated HH in the 15 villages, 83 were True Positives, correctly identified as vulnerable and benefiting from a resettlement option.

Table 7: Comparison of viability level between the initial evaluation (declarative) and the reality (survey)			
		Fact	
		Non Viable	Viable
Evaluation	Non Viable	True positive (83)	False positive (426)
	Viable	False Negative (100)	True Negative (1 347)

Among the remaining HH in the villages, a number appeared to be vulnerable according to the information they gave to compensation agents and socioeconomic monitors. As a result they have also benefited from resettlement options although in fact their circumstances did not call for it. The number of Marginal HH who selected non agricultural training options who have improved their livelihood is known as they have been monitored.

A monitoring survey is presently ongoing with 263 at-risk and non viable individuals who have received improved agricultural training as their relocation option. Of these, 83 are the true positive identified above, the rest being either at risk individuals who had nonetheless received training (even if viable) or individuals who appear to be eligible under the declarative information but who live outside of the 15 villages targeted by the cadastral project.

Wealthy and comfortably well off individuals were also misidentified as vulnerable (False Positives). Those that have benefited from their options are now even better off, and those who have been unable to or have not wished to gain from it are none the worse off.

Table 8: HH with Resettlement Options		
Village	Comfortable	Wealthy
Begada	18	15
Bela	5	4
Bero	70	48
Danmadja	23	7
Dildo	22	6
Dokaidilti	24	4
Komé	0	0
Madjo Bero	33	17
Maïkeri	2	5
Mainani	5	4
Mbanga	23	26
Mouarom	10	6
Naïkam	1	0
Ngalaba	24	24
Poutouguem	0	0
TOTAL	260	166

1.2. Level of Livelihood Restoration of Non-Viable HH through their Resettlement Option in 15 villages

How well have the HH resettlement options served to restore or improve Non-Viable HHs' livelihoods?

- Livelihood Restoration of truly Non-Viable HH
 - About 500 HH benefited from a resettlement option long enough ago to have established a track record of performance. Their histories were examined and they were interviewed for livelihood restoration training. Those who had never used their training or were listless were not offered the option of reinforcement training.

- 211 had done well enough in reestablishing themselves that they were offered reinforcement training in 2009 (with more specialized training for those truly capable of specializing in skills needed by the community).

Table 9: Level of Livelihood Income from all trained HHM	
	% HH
less than need	19% *
meet need	13%
2-5 times need	31%
5-10 times need	13%
10-20 times need	25%
more than 20 times	19%
* 13% just below threshold but who are also long-ago graduates who are unlikely to improve	

A monitoring survey is presently ongoing for all the HHM who have received improved agriculture training and would have either been non-viable or marginal before training. Determination to include in the monitoring survey was based on the following criteria's:

- HHH has gone through the improved agriculture program (those having received non-agricultural training having been monitored some years back).
- HHH is either non-viable or marginal (globally at risk category) as confirmed by cadastral survey, when available.
- For those not in the area resurveyed through the cadastral process, determination was based on the declarative information.

In all 265 eligibles have been identified for monitoring. This process will make it possible to make a determination as to whether they have been able to improve their situation following the completion of the training program. For those who graduated before 2008 this may be the only monitoring to take place, more recent graduates will either be resurveyed at the 2 year or at the 5 year marks, if a resurvey is warranted. This process, as well as the other data collection activities, which are ongoing (Synergy and impact surveys) are vital to the upkeep of the database. Without such a continuous effort the existing information on the communities we are interacting with would rapidly become outdated.

1.3. Effective Actions Increasing the Likelihood of Livelihood Restoration

For the earlier identified “Non-Viable” HH whose training has put them near to reaching the threshold of viability LUMAP implemented a variety of restorative actions in 2009, all of which appear to have been effective. These actions have been integrated into the Environmental Management Plan’s (EMP) Land Management Manual (LMM) and are now “business as usual” for all EMP activities.

- Basic Business Skills (Literacy and Arithmetic skills training using HH and rural micro-enterprises as the texts)
- Training to reinforce Improved Agriculture or Off Farm Skills
- Provide specialized training and or equipment offering competitive advantages

1.3.1. Basic Business Skills Training

One of the main complaints of the institutions training Non-Viable individuals has been how difficult it is to train illiterate or semi-literate students; they have managed to adapt their training away from theory to teaching by doing, but it is difficult for students who cannot write down the measurements of a cabinet or how much received for a sack of grain to manage their livelihood restoration.

Originally students were to receive Basic Business training through the craft and farm training service providers. This did not prove to be the good approach to deal with this issue. During the last two years Improved Agriculture graduates received training in business management from a separate training service provider than the craft or farm training service providers. Ensuring that they have the skills required to fully benefit from the technical training they will receive there after. The Basic Business Skills Training (BBS) is now a prerequisite for all eligible’s who wish to benefit from a resettlement training option. As is the case with Improved Agriculture training, the lessons are given in the village and anyone can attend. 2010 was the second year where BBS was offered in the new format:

- 66 of the 73 eligible students attended classes and graduated
- 7 eligible Non-Viable people



refused to attend

- 68 spouses (55 **women** and 13 **men**) participated regularly to class
- 120 auditors turned up and voluntarily attended the classes, benefiting from the training (73 **women** and 47 **men**)
- I.e. as many if not more auditors attended the training as did Non-Viable people required to attend.

The class results were most encouraging in that all who actively participated demonstrated a significant progression. Of the 14 eligible students who did not make the grade in BBS, 12 refused to attend, 2 participated only rarely and received low grades of 0.7 and 0.8. Some thought will have to be given to the option of exempting individuals who have completed a significant number of years of formal education. For example 5 of the eligibles identified for the 2011 class had either completed or were close to completing their high school education. Considering the objective of the program such individuals would learn little while probably becoming a nuisance for the class.

88% of tested participants (eligible Non-Viable students only) succeeded in reading Ngambaye, doing basic math and understanding very basic management principles. Usual traditional problems limited the mastery of business techniques, being lack of communication between spouses, alcoholism, etc. Opening the class to the spouses of the eligible's has ensured that knowledge is accessible to a larger segment of the HH and benefits the entire HH.

“The weight of traditions and attitudes limits the ability of some individuals to adopt and pass on this knowledge.”

Notwithstanding this situation.

“95% of women who attended have shown a determination to move beyond their illiteracy and become functionally literate, this change bringing about important benefits in their ability to manage their income generating activities.”

CEDIFOP 2010 final Report

The female students performed better than the male students, e.g. 80% of the female students passed the final examination whereas 75% of the male students passed. The

majority of the villagers auditing the training were female. The auditors also took the final examination. We are pleased to note that 88% of auditors had a grade above 5/10 compared to only 78% for eligible's and spouses. The motivation of learning does in fact appear to be stronger with the auditors, who are in general illiterate to start with.

90 % (66/73) participated in the optional Post-Training Reinforcement of the skills acquired in BBS. This training program, which took place following the completion of the basic BBS class, involved academic and individual reinforcement. All of whom ended up passing the course.

This indicates a progression in the number of individuals understanding to concepts but also a progression in the level of mastery of these concepts. To improve the teaching of basic business management the NGO implementing the project hired a management specialist to improve the training materials for 2010.

The BBS classes contained both people who had attended some level of school and others who had no schooling whatsoever. They were divided into groups according to their background. The trainers made the following comments regarding the attitude of the illiterate pupils:

“their level of assimilation was slow but good....They take the course and its contents very seriously. Their attitude paid off and they finished the class having learned the material.”

CEDIFOP 2009 Final report

The information presented below refers to individuals that selected Off Farm Training (Off Farm Training was not offered to resettlement eligible people residing in the Three Fields post 2007). The data was derived from the Livelihood Monitoring Surveys This information may facilitate the understanding of the dilemma surrounding education.

A conclusion which can readily be made from the information presented below is that education affects people's outlook on life, not always in a positive way as far as their willingness to use the skills they learned through resettlement.

- Having done some primary school versus being illiterate does not greatly impact average earning power. Although it appears to have a huge impact on potential maximum income.

- Having attended high school does make a difference to income:
 - Most people with some high school education who practice their craft earn a fairly reasonable income. If we consider that this is considered to be a complementary income.
- But most people who have not used their skills given to them have been either more highly educated or big landholders.

Table 10: Earning In Thousand of FCFA by Month by Educational Level			
Educational Level	Minimum CFA earn per month	Maximum CFA per month	Mode CFA per month
Illiterate	6 K	60 K	10-20 K
Primary	1 K	105 K	10-20 K
College	5 K	35K	10 K
Lycée	30 K	32 K	30-32 K
University	3 K		3 K

It does to a large extent appear to be related to attitude, a high school or university graduate who received training in tailoring may perceive it as being below him to practice his trade and will clearly not succeed. His income may in fact be much below that of a less literate who chose to take his trade seriously.

The impact of attitude on the willingness to practice one's trade is made even more clearly by the next table. People with some, limited, education view what they learn as a means to improve their situation and tend to make use of the knowledge and skills, this is not necessarily so for highly educated eligible's.

Table 11: Graduates Using Skills or Not by Education level		
Educational level	% of Total Off Farm Grads	
	% of Total # grads	% of Total Grads NOT Work
Illiterate	16%	3%
Primary	58%	68%
College	17%	12%

Lycée	8%	18%
-------	----	-----

Socioeconomic Survey interview comments and demands made by those resettlement training graduates with higher initial education levels indicate that they have very high and perhaps overly high expectations of what they should get out of life. Similarly, the sole person who has attended university barely makes any effort to earn some income from what he has learned (tailoring). BBS results show us that people who earned a grade of C or better were generally people who had lower levels of formal education. Unfortunately, the BBS results show us that people with higher levels of formal education have higher BBS failure rates than people with lower levels of formal education. This data would indicate that attitude is a key element of success.

Grade	No School	Primary	Primary	Primary	Middle	Lower High School	High School +
	zero	1 - 2	3 - 4	4 - 5	6 - 7	7-11	11- 12 + 1 year
F	2	3	0	0	0	0	3
D	1	1	0	0	0	1	0
C	8	3	2	1	1	3	0
B	9	15	3	3	6	9	7
A	0	0	0	0	0	0	0

Understanding what is being taught during the training is easier with some education. Mastering basic business skills/rationale also helps people manage their capital and labor. Illiterate graduates are the most likely to be putting their skills to work. As BBS in 2009 showed, they take their training very seriously. Some high school students refuse to work; those who do work do well.

In order to build on the success of this program a “train the trainer” initiative will be put in place in the early part of 2011. This initiative will focus on three main issues:

- Micro-enterprise management: Bringing enhanced support to both producers and the management committees of the community compensation projects being established.
- Literacy: Reinforcement to the literacy agents in the new techniques developed in this area.
- Self reliance: A speaker from Benin to give a talk of his experience in the area of self reliance, taking ones development into ones hands.

Bringing support and reinforcement to our NGO sub-contractors that provide the BBS and Improved Agriculture Training in this way increases the likelihood that livelihood restoration and community developmental projects will sustain themselves over time.

1.3.2. Improved agriculture training

The main element of the Individual Livelihood Restoration presently revolves around the improved agricultural training program. The main goal of this program is to improve the livelihood level of the HHH and of their HH, by giving them tools and knowledge that will make it possible for them to enhance their farming practices and in some cases replace the income lost through the land take by new sources of income.

This program revolves around the following activities:

- In field applied training of various agronomic practices for rainy season land based agriculture. The goal here is to significantly increase their maximum yield potential per land unit under production. Basic knowledge dealing with the interaction between soil, water, nutrient and the plant are focused on so that producers are better able to deal with the relative complexity of agriculture.
- Special demonstration activities dealing with issues such as soil amendments (*Mucuna* and *Jatropha curcas*), production of organic matter (compost and manure management), feed storage and manage (organizing community based silage piles)...
- Practical demonstration through the establishment of demonstration parcels in the communities (peanuts, sorghum).
- Constant monitoring of the practices used by the eligible in his/her own fields in order to ensure good understanding of the proposed practices.
- Field trips to suppliers, distributors or fellow farmers within and outside of the OFDA so that eligible's better understand the ramifications of the agricultural sector in which they operate and get a glimpse of what can be achieved if the appropriate production techniques are adopted.



Picture 4: EMP, vegetable gardener Danmadja

- A number of dry season training options dealing with subjects as varied as vegetable production, cloth drying, food transformation and livestock husbandry.



Picture 5: EMP, Equipment delivery

- For all of the different skills he will learn the producer receives a set of equipment (including livestock when relevant) which will allow him to fully benefit from the knowledge obtained. While this aspect of the project has been a significant challenge over the years. The acquisition process for these equipments and animals has been reviewed not only to ensure that precise technical

quality standards are adhered to by the suppliers but also that they stand behind their work. While such a process does not ensure us that there will never be a problem again it does reduce the odds of this happening and ensures that it will be dealt with rapidly if a problem should arise

In order to continuously learn from both our good and bad experiences we have established an annual review process. The key element of this process is a symposium during which all of APROFODEL staff (the subcontractor in charge of this initiative) has the opportunity to exchange with EMP's and ISM's staff. This process will make it possible to continuously upgrade the program and its' content identifying both strengths and weaknesses. In this way ensuring that we meet the needs of the eligible's and the new challenges which will present themselves to us.

In 2010 11 eligibles completed the rainy season portion of the training. They were associated with 45 eligibles from the 2009 class who had been unable to complete their dry season optional training. These 56 will complete their formal training in early April 2011. At the end of this period they will have completed the full training cycle and they will move on to the regular monitoring process.



Picture 6: EMP, Vegetable garden plot Danmadja

1.3.3. Training in Reinforcement and Specialization

In 2009, reinforcement training was arranged for 211 graduates who were earning revenue with their skills however were viewed as having not restored their livelihood at that time. Out of the 211 targeted for reinforcement 209 participated.. Of the 209 who received reinforcement training and supplemental equipment or livestock grants, 198 completed the training. Of the 198 who completed the training, 181 were assessed to be successful in using the reinforcement to improve their livelihood.

It is important to note that as EMP conducted the Village Land Use Surveys, Impact Surveys and Livelihood Restoration Monitoring Surveys, we learned that only 6 of the 211 graduates were actually eligible to receive resettlement benefit in the base case.

Given the time required to develop the Village Land Use Surveys the Livelihood Restoration Monitoring Surveys were ongoing. These Livelihood Restoration Monitoring surveys indicated the following:

- After one and a half year of practice a review of available information indicates that a slightly more than 75% are still active.
- Reinforcement related to animal husbandry appear to have been the most difficult to sustain. Most cases whereby the production was abandoned relates to most if not all of the reproducing stock dying. It must be noted that the concept of raising, caring, feeding and housing animals is somewhat foreign to local producers. In their eye an animal must fend for himself.

Table 13: Outline of the fields of reinforcement and rate of sustainability, 2009			
Area of training	# Trained	# Mastered	Still in action (31 Dec 2010)
Vegetable production	31	27	23
Hog production	17	14	10
Sheep/goats	15	14	10
Chicken	43	38	28
Agro-forestry	11	10	9
Food processing	22	22	20
Cloth dying	11	11	11
Carpentry	11	11	10
Brick laying/roofing	9	9	7
Sowing	18	15	15
Welding	3	3	2
Fishing	7	7	7
Total	198	181	152
		91.41%	76.77%

1.3.4. Physical Resettlement Options (so called Land for Land program)

As mentioned previously in the Executive Summary, only 6 eligible people have chosen the Land for Land option including 5 farmers that have not enough land (<0.5 corde/HHM) to be enrolled in Improved Agricultural Training. EMP left the offer open for these 5 farmers to acquire sufficient land to qualify for Improved Agriculture Training and join in with the 2012 promotion.

While traditional mechanisms within the villages will bring assistance to most non-viable who do not have a sufficient land base over time, there will always be individuals for whom access to land will be limited (new resident, no family land trust). For them the only option rests in a form of land replacement scheme.

Over the years a number of eligibles have opted or have been oriented towards one of the land replacement resettlement options. The difficulty of identifying land which would be accessible for use in order to bring the families productive land area above 0.67 cordes per HHM has made this portion of the resettlement program all but inoperable.

As the land replacement resettlement options are considered to be the stopgap measures for non-viable households whose situation cannot significantly improved by training or equipment upgrades it is important to identify ways in which to make land available to these households.

The following is a summary of the various land replacement and farm land generation projects initiated by EEPCI EMP:

1.3.4.1 Generate New Farm Land from Riverine Lowlands (Rice project)

In the OFDA the only uncontested tracts of land appear to be the waterside low lands (or flood plains). A review of these areas indicated that they could be compatible with the needs required for the establishment of irrigated rice fields.

After a review of a number of sites two floodplain areas were selected as offering the best opportunity for the development of rice fields. These sites are located in Madana-Nadpeur and Madjo-Béro.

Under the leadership of ONDR, ITRAD, Génie Rural and support from Africa Rice Center (formerly the West Africa Rice Development Association – WARDA) a demonstration project was initiated and sponsored by EEPCI.

The main objective of EEPCI in this initiative was to identify a means of generating uncontested farm land in order to provide replacement land to those resettlement eligibles who either chose Physical Resettlement or needed the EMP Chad Resettlement and Compensation Plan land replacement backstop if they failed, despite their best efforts, to replace their livelihood through the Resettlement training programs.

When the project was initiated in 2008, the number of farmers wanting or needing land replacement was not known. As stated above, the number of farmers now stands at 6 that want or need replacement land. 5 of the 6 wish to enroll in Improved Agriculture and have

the option to acquire the minimum land required to enroll in future classes until the training programs end at some time post the drilling program conclusion.

At the onset of the pilot project, a number of key success indicators were identified and would have to be met in order to be considered successful

The close out meeting was held with AfricaRice and the partners in December 2010, the final report is expected in the early part of 2011. A rice seed bed for use as a Reinforcement program was built and farmed during this time and is presented in section 1.3.4.2.

- ☐ Rice yield and productivity of the project versus traditional yields under traditional production methods.

While yields were highly variable (depending on variety, date of planting, levels of fertilization and a host of other parameters) the two sites established averaged about 2 T per hectare. This productivity was reasonable if compared to Chadian standards which give yields of about 1.5 T per hectare using traditional varieties on irrigated sites, and around 0.5 T per hectare with rain fed sites.

Although lower than AfricaRice's target yields for most of the varieties, the discrepancy may be explained by a host of factors such as seeding date, timing of the various activities and fertilization.

In general we consider that the project was a relative success in terms of productivity.



Picture 7: EMP, rice crop in Madjo Béro

- ☐ The institutions responsible for the project (the owners) were state institutions (ITRAD, ONDR and Genie Rural)

ONDR, ITRAD and Genie Rural technicians were to take over all of the Extension and support tasks associated with the project under supervision of AfricaRice. They also had to demonstrate a clear determination to continue to disseminate the results, if any were to be had, through CHAD to the benefit of all concerned.

While some of the partners were effective in their participation and in this way demonstrated their willingness to forge ahead with what they had learned, this was not the case for all of them.



Picture 8: EMP, rice harvest in Madana

In general we consider that the project was a failure on this criterion.

- ☐ The main objective of this project was for the producers to take ownership of these new cultural practices.

From the onset the producers in these two initiatives demonstrated their lack of willingness to take ownership of the project by requiring the payment of

daily allowances to work on their own parcels. While they always ended up doing the work payment of the allowances was always an issue. Even after the completion of the project and acknowledging that it was a success from an agricultural point of view they still demanded continued financial support in order to move on.

By these comments they made it clear that they were not willing to take ownership of the project or of its windfall.

In general we consider the project to be a failure at this level.

- ☐ Sharing of these fields with surrounding communities must be respected and facilitated. So that the landless of a larger area can profit from the fruit of this infrastructure.

As the establishment of such parcels is only justified by the need to support a relatively large number of land poor producers (between 8 and 12) from many communities it is essential that they feel welcomed by the host community whatever their origin.

In view of the monitoring which was done over the last year it is not clear that this was the case. Friction often arose as to the distribution of labor and of the product. Even now there remain issues as to who will be welcomed back.

For these reasons we must conclude that although a relative agronomic success this project did not meet original expectations from a human stand point (Ownership, level of stewardship by state agencies and willingness of communities to work together).

The establishment of further such sites would also be made difficult by the fact that the number of eligible's requesting replacement land options is at present fairly limited.

While it is not impossible that such an initiative could be repeated in the future, the right conditions will have to be present for this to take place.

1.3.4.2. Improved Agriculture Reinforcement Program at K 744.

As a complementary activity to the rice project a rice field was established at the K 744 well pad (well was never drilled). While this project received the same type of support in terms of coaching, advice and imported seed stock it differed in a number of ways.

This project made it possible to test if rice fields could be engineered and thus offered as community compensation.

- ☐ No daily allowance was paid for the work done in the field.
- ☐ Land preparation was done using heavy equipment, streamlining the process (although some thought that the compaction resulting for the use of heavy equipment would make the land unproductive).
- ☐ Contrary to the two other sites were most of the farmers were men, at K 744 all of the farmers were women (COFEMAB agricultural cooperative).
- ☐ Site established as a potential source of quality rice seeds.

While these differences could appear negligible the results have been very different. We will review the results of this initiative on the same basis as the site specific criterion's used for the demonstration project.

- Agronomic performance: Average yield was 4 T/hectare or more than twice the yield produced on the two other sites. It should be noted that one variety yielded 5.6 T/hectare. While the soil type may have given them a slight advantage most of the yield difference arose from a very rigorous adherence to the process proposed by the extension officers.

- Ownership: Without any compensatory allowances they endured and completed every single task when it was required. They are already planning the next campaign and have not requested any additional financial support. They have set up a cooperative to structure the future development of their business. All of this indicates a high level of ownership.



Picture 9: Madjo-Bero womens group

- Openness: They have incorporated within their ranks a small number of ladies from surrounding communities. They have also organized a field trip going to visit another group of women in Koumra to exchange ideas as to ways of further developing their group.

Overall while the cost of building a rice field out of a drilling platform was quite substantial this project demonstrated that with the right mindset one can manage such an activity achieving both a technical and human success.

This initiative confirms our basic assumption that irrigated rice production is a community based activity where many must come together to get some results. The right group of persons with the right mind set can achieve a lot if they are willing to work together.

1.3.4.3. Improving the Soil Quality at Borrow Pits Reclaimed Using Imported Top Soils

One of the constraints to providing replacement agricultural land in the Project's Oil Field Development Area (OFDA) is the poor quality of soils at borrow pit sites (prior to any laterite mining). In 2008, EEPCI reclaimed 300 hectares of temporary use land (borrow pits, well pads and air strip ends) for the affected people of many villages using topsoil stockpiled from the Project construction activities.

The majority of the villages receiving these lands back actively farmed the reclaimed borrow pits with varying degrees of success (all positive).

However, the farmers at the villages of Bero and Ngalaba refused to farm the Kome Borrow Pit 6 and Miandoum Borrow Pit 8 sites saying that the top soil imported from the Kome 5 Air Strip ends were of poor quality and not worth farming.

In order to alleviate these fears and demonstrate that these soils can sustain a crop, and that they can be further improved through the adoption of sound cropping practices it was decided to establish large *Mucuna pruriens* plots on two of the reclaimed borrow pit (laterite quarry). The ability of *Mucuna* to fix nitrogen makes it an ideal crop for soil rehabilitation and improvement. Plowing this plant as a green manure maximizes its impact as a soil amendment. Not only does it improve the soil's fertility in the year following plow down (increased availability of nitrogen) but the plant material incorporated improves soil structure and long term productivity. This plant has been used to this end in large parts of the American mid-west since the late 1930's. About 10 hectares of *Mucuna* were planted in the spring of 2010, after having acquired sufficient volume of seeds from local suppliers. This initiative had three main objectives:

- Demonstrate the feasibility of effectively planting and growing *Mucuna* in the environmental and soil conditions existing in reclaimed borrow pits.
- Test the willingness of the producers to incorporate this biomass into the soil and/or to harvest the pods to perpetuate this production. It should be noted that *Mucuna* beans can also be eaten if adequately prepared.
- Monitor the effect of this trial on the fertility of these soils during the following cropping season.

Here are some of the highlights of this trial:

- The establishment of the parcel was very successful. A huge amount of biomass was present in the field.
- Producers were not willing to incorporate the biomass into the soil, although the advantages of doing so were explained to them at great lengths. Not only did they refuse to plow under the biomass, they also refused to harvest the beans. In fact they waited for the crop to dry out before simply burning. The basic reason for burning it being, the other options were just too much work.

As we will only be able to gain an understanding of the impact of this practice on soil fertility and the acceptability of using these reclaimed soils for agriculture during the next season our final judgment on the effectiveness of this practice will have to wait next years report. At this point in time we must nonetheless conclude that social acceptability of this practice being what it is it would take a long term effort

Picture 10: EMP, *Mucuna* field on KBP6, Komé



in terms of extension to make such an initiative into a resounding success.

It should be noted that parcels at a much smaller scale have also been establish as a

demonstration activity in the improved agricultural training portion of the program (refer to section 1.3.2.)

1.4. Livelihood Restoration Monitoring Among Reinforced Training Graduates

As reported in last years report most of the individuals who received some form of reinforcement saw their level of livelihood restored to some extent. To the best of our knowledge most of them would in fact still be active as of en of 2010 (refer to section 1.3.3.)

Integrating the data on the 198 individuals having received reinforcement training into the LUMAP data base we can derive the following conclusion.

- Out of 198 individuals trained the reinforcement program only 143 can be identified in the database. The 55 individuals who cannot be retraced at present were either never impacted by the Project or because of name substitution they cannot be correlated with the official list of those compensated which we presently have (basically the person who may have received the training was not the head of the HH which was impacted).
- Out of the 143 who remain as compensated individuals, 121 were false positives as defined in part 2 section 1.1 (page 31). Basically individuals who were not entitled to be trained.
- The 22 that remain either reside outside of the 15 villages covered by the cadastral survey or were not identified in the cadastral survey, probably meaning they are not actively farming in these 15 villages at present, if they were ever truly active.
- That leaves us with 6 reinforced individuals for whom we can confirm that they were truly eligible.

As part of the monitoring process which is ongoing with the individuals trained in agriculture some of these 28 (reinforced individuals) will be monitored allowing us to gain a better perspective as to their present status.

The development of a process to estimate the value of the product of non-agricultural activities is underway. This process will:

- Establish the value of the agricultural production from one corde using only traditional practices, or using some or all of the improved practices offered during the improved agriculture class.
- Convert the income or product value arising from activities not related to agricultural (fishing, sowing, brick laying, roofing, trade) or to non-land based agriculture (Cattle breeding, small ruminants, fowls and pigs) to a one corde equivalent using the value of these commodities/services as an indicator.
- Establish the potential adjustment required for a more intensive system which has the potential to generate a much higher value per corde (production of wetland rice, vegetable production).

Overall the development of such a tool will allow us to explain and quantify the possibility for some eligible's to compensate for some of the loss of land either by substitution or intensification of productive activities.

2. HOUSEHOLDS AT RISK

As village surveys have been completed and the data on Non-Viable HH has become available, those HH have either been added to the classes of 2008-9 or 2009-10; their situations have been discussed above. These classes are as follows:

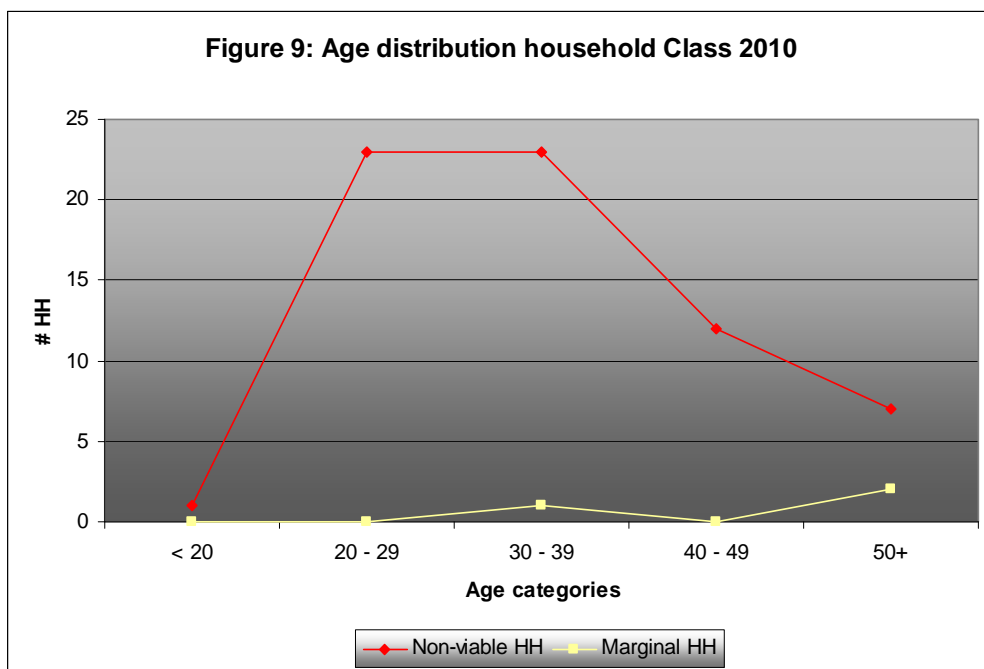
- 2009-10 73
- 2010-11 21
 - 17 men; 4 women
 - Located in 7 of the surveyed villages
- 2011-12 98

The Non-Viable HH identified by the most recent surveys will be included in the class of 2012-13. In addition, a Management of Change addendum was approved in 2009 making vulnerable Marginal compensated HH eligible for resettlement as a pro-active measure to improve their circumstances. The definition of vulnerable involves the following criteria:

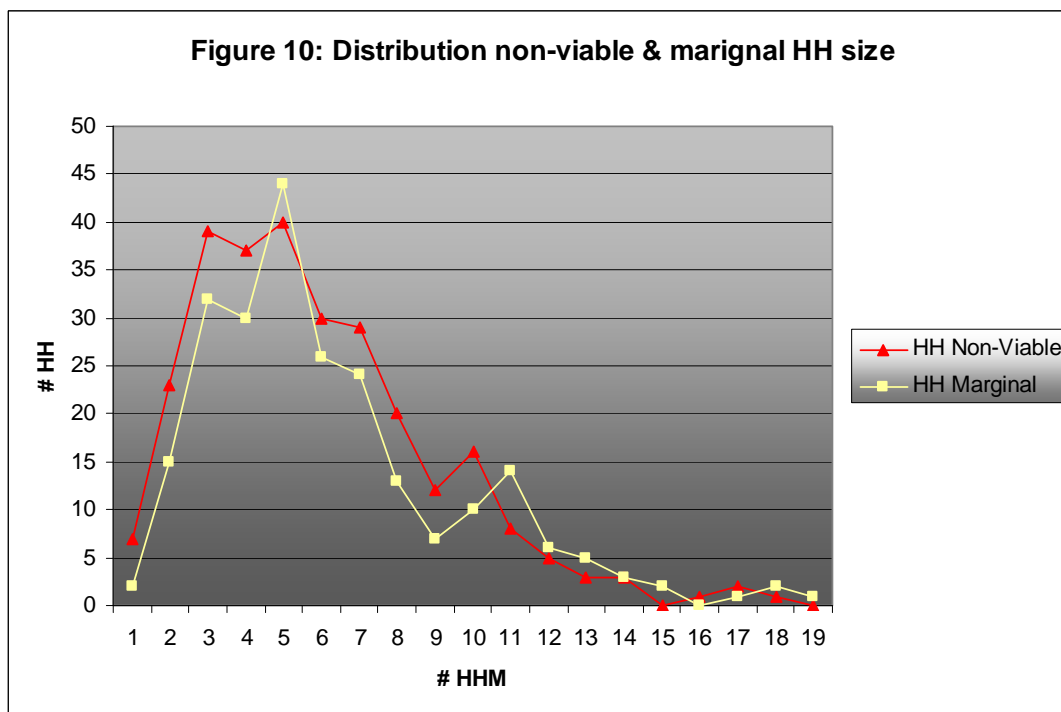
- HHH age 25-39
- HHM = 4 or more
- Handicap
- Residence in non-natal village
- Encounters difficulty in getting through the August through October time period, the so called “hungry season”

The situation of these Non-Viable and Marginal HH not yet offered an option is examined in the table below. The distribution among Marginal HH is representative of the distribution among HH. But the NV HH numbers are given for information only and do not represent any distribution; too many NV HH have already been offered resettlement options. The numbers below may change as remaining villages are analyzed.

The following figures indicate that numerous marginal HH have many members using limited common resources.



By the age distribution of Marginal HH, we again see that the HH that truly have very limited land holdings become evident in their late 20s and their 30s.



2.1. Integrating Land Use Management: Land Acquisition with Livelihood Protection

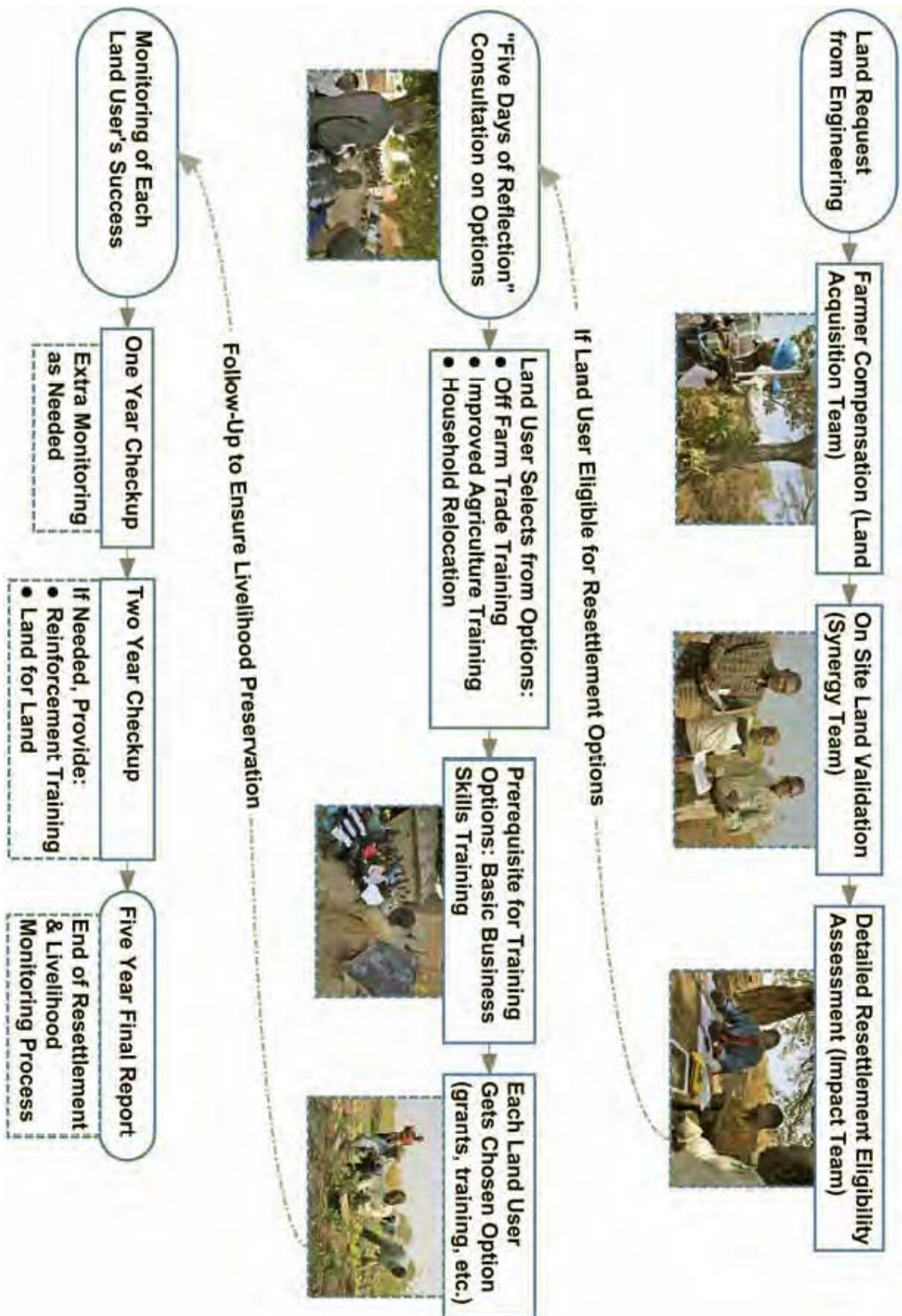
The flow chart presented on the next page shows how the “Synergy Team” and the “Impact Team” capture land users as they come out of the Project’s initial land acquisition process. These two new teams set up a tight linkage between the day-to-day acquisition process and former elements of the Land Use Mitigation Action Plan. This new integrated process ensures that those eligible for the resettlement options receive their due as provided in the Environmental Management Plan.

In doing their work, the Synergy and Impact Teams use the detailed household-by-household census that has been built by the LUMAP organization over the last four years.

Furthermore, this process continuously adds new information on existing and newly formed households in this way ensuring that the EMP-IS system always gives an accurate picture of what is happening in the field.

This process includes three major steps:

- Fields are identified: With landowners and traditional village authorities present as witnesses and guides, the Land Acquisition Team surveys the fields that could be affected by construction of well pads, flow lines, access roads and electrical line right of ways. A satellite based mapping system helps to record the land coordinates of fields along with details about the land users. Trees are marked for special compensation as provided in the Environmental Management Plan. This work by the Land Acquisition Team provides a clear understanding of who uses the land, and thus their eligibility for individual land use compensation.
- Using maps and data lists from the computer room, the Synergy Team goes to the field (below top) to talk to land users within a few days of compensation payments by the Land Acquisition Team. This follow up step links the initial land acquisition to livelihood protections, ensuring the correct people receive the extensive resettlement options compensation. The Synergy Team interviews the affected land users, using the detailed census information to validate land and land users.
- After the Synergy Team does its work and identifies people who may be eligible for resettlement options compensation, the Impact Team follows up. In this follow up meeting, the Impact Team conducts a new and very detailed household impact assessment (below), evaluating the cumulative effect of all of the Project’s land use affecting the farmer. The updated information goes into the master census and, if the farmer meets the Environmental Management Plan standard for resettlement, the farmer joins the annual group of individuals who enter the resettlement options process through the Five Days of Reflection consultation.



Part 3: Conclusions on LUMAP Findings

CONCLUSIONS ON LUMAP FINDINGS

Through the village survey work accomplished between mid-2007 and end 2010 the following points are clear:

- LUMAP tools drew and continue to provide a detailed picture of land use and village and household impact before and during the Project period;
- Impact of Project land acquisition has acted on individual households within the village rather than on the village as a whole;
- A common distribution of productive resources is found throughout the villages, with about 20% faced with below-normal or marginal livelihoods, 30% possessing enough productive resources to earn an adequate living, and 50% of households with enough resources to maintain the household and its offshoots well into the future;
- The Project's land acquisition has in the main led to the decline of marginally viable households into agricultural non-viability; it has also worsened the situation of those already non-viable with whom it interacted;
- But the skewed distribution of productive resources reflects the working of traditional social mechanisms for resolving social tensions: moving to another (non-kin) village, setting up an independent household in a non-natal village, both of which can mean abandoning the productive assets previously used and the families land trust when there is one;
- These social mechanisms along with village survey results on landholdings allow the pre-identification of households that are most probably at risk;
- The greatest impact on productive resources in the last 20 years has been the population explosion since the end of the civil war in the early 1990's (predates any Project activities);
- Even before this sharp increase in inhabitants, the culture for many years has used social and geographical measures to deal with too much population using too few resources; these measures remain active up to the present day;
- The resettlement options providing households with alternative methods of increasing income and production have been largely successful; the addition of Basic Business Skills, improved training options have been contributory;
- The Land Use Mitigation Action Plan has succeeded in identifying affected households that had been missed earlier. They have been or will soon be included in exercising a resettlement option. By the end of 2010 the problem of non-viable households is clearly at a manageable level.

- The introduction of both the Synergy and Impact program make it possible to deal with vulnerable HH at the onset of the compensation process. Insuring that data on vulnerable affected households is upgraded and that the appropriate Relocation options are offered to the eligible.

Annexes

Annex 1:

Comparison of Population and Land Availability between Former Quarters of Split Villages

	Bégada I	Bégada II	Béla I	Béla II	Dildo	Bayande	Dokaïdilti	Banelaou
Population district	669	624	474	374	638	716	398	138
% population district	52%	49%	56%	44%	47%	53%	74%	26%
Population density (person/corde)	0.22	0.23	0.25	0.27	0.49	0.39	NA	NA
Population density (corde/person)	4.49	3.87	4.06	3.65	2.03	2.55	NA	NA
# HH in district	151	109	79	65	127	148	59	26
% HH in district	58%	42%	55%	45%	46%	54%	69%	31%
Avg. corde/HH	20	22	24	21	10	12	11	12
Avg. corde/capita	6	6	4	7	2	3	2	3

	Danmadja I	Danmadja II	Ngalaba I	Ngalaba II	Wolo	Bero I	Bero II	Bero III	Bero IV
Population district	369	210	512	694	118	769	1645	375	932
% population district	64%	36%	39%	52%	9%	21%	44%	10%	25%
Population density (person/corde)	1.75	2.07	0.48	0.37	0.55				
Population density (corde/person)	0.57	0.48	2.09	2.71	1.83				
# HH in district	61	41	102	129	19	121	257	64	150
% HH in district	60%	40%	41%	52%	8%	20%	43%	11%	25%
Avg. corde/HH	11	11	10	15	11				
Avg. corde/capita	2	2	2	3	2				

Annex 2

Distribution of Individual HH per Village by Per Capita Land Holdings

Village	All/Compensated	<2/3	<1	<2.5	2.5+
Bégada	All	12	11	56	176
	Compensated	9	9	42	126
Béla	All	11	8	32	94
	Compensated	5	1	18	69
Bero	All	95	62	213	222
	Compensated	61	44	172	185
Danmadja	All	13	15	49	24
	Compensated	12	12	44	20
Dildo	All	33	39	111	89
	Compensated	9	19	51	36
Dokaïdilti	All	10	12	37	26
	Compensated	9	11	32	21
Madjo	All	16	11	55	46
	Compensated	13	9	50	40
Maïkeri	All	23	10	55	62
	Compensated	11	4	44	52
Mbanga	All	17	17	82	153
	Compensated	11	13	65	129
Mouarom	All	3	3	35	44
	Compensated	2	3	29	38
Ngalaba	All	21	19	103	105
	Compensated	18	15	86	93
Poutouguem	All	10	12	25	14
	Compensated	8	11	22	11
TOTAL	All	264	219	853	1055
	Compensated	168	151	655	820

Capita Land Distribution (Cordes per Capita)

Land category	Bégada	Béla	Bero	Danmadja	Dildo	Dokaïdilti	Madjo	Maïkeri	Mbanga	Mouarom	Ngalaba	Poutouguem	Average
<2/3	6%	8%	17%	16%	13%	12%	14%	10%	6%	8%	8%	1%	10%
<1	5%	5%	10%	21%	15%	15%	9%	7%	6%	3%	8%	20%	10%
<2.5	22%	22%	36%	39%	40%	42%	43%	39%	30%	36%	41%	42%	36%
2.5+	68%	65%	37%	25%	32%	31%	34%	44%	57%	53%	42%	23%	43%

Village Impact Classification According to Number of HH

Land Holding Status

	% Non-Viable HH / All HH	% Non-Viable Compensated HH / All Compensated HH
Bégada	4.7%	4.8%
Béla	7.6%	5.4%
Bero	16.0%	13.2%
Danmadja	12.9%	13.6%
Dildo	12.1%	7.8%
Dokaïdilti	11.8%	12.3%
Madjo	12.5%	11.6%
Maïkeri	15.3%	9.9%
Mbanga	6.3%	5.0%
Mouarom	3.5%	2.8%
Ngalaba	8.5%	8.5%
Poutouguem	16.4%	15.4%
TOTAL	11.0%	9.4%

High	15.0%
Approach High	10.0%
Moderate	5.0%
Low	0.0%

Annex: 3

Gender and their relative position as HHH

Village	#HH	# Males	# Females	MHHH	FHHH	% FHHH
Bégada	255	608	679	187	72	28%
Béla	145	428	402	126	18	13%
Bero	592	1924	1945	527	84	27%
Danmadja	101	284	286	87	14	14%
Dildo	272	649	677	213	55	21%
Dokaïdilti	85	243	290	75	10	12%
Kome	192	476	464	157	35	22%
Madjo	129	412	427	112	19	15%
Maïkeri	140	382	338	115	25	22%
Mainani	109	323	279	103	6	6%
Mbanga	269	717	780	205	64	24%
Mouarom	85	213	231	72	12	14%
Naïkam	54	138	137	49	5	10%
Ngalaba	248	664	654	173	76	31%
Poutouguem	61	155	151	51	10	20%

Age distribution by village

Village	Avg Age Males	Avg Age Females	Avg Age Population
Bégada	18.5	20.5	19.5
Béla	18.3	20.1	19.2
Bero	17.3	18.8	18.1
Danmadja	19.8	19.5	19.6
Dildo	19.8	22.2	21.1
Dokaïdilti	19.8	21.0	20.4
Kome	20.3	20.8	20.5
Madjo	16.6	19.4	18.0
Maïkeri	20.6	21.0	20.8
Maïnani	19.1	21.3	20.1
Mbanga	17.4	21.2	19.3
Mouarom	19.8	20.4	20.1
Naïkam	20.3	19.7	20.0
Ngalaba	18.9	22.2	20.5
Poutouguem	20.0	19.4	19.7

Age and Gender of land holders over 30 cordes Per Capita

	Male land holder	Age	Female land holder	Age
Bégada	1	50	3	73; 75; 77
Béla	2	52; 65	0	
Béro	0		1	64
Dildo	0		1	78
Komé	2	53; 56	1	33
Mbanga	0		1	67
Naïkam	1	25	0	
Ngalaba	0		1	61

Annex 4: Summary of resettlement factor by village

All Begada HH at Resettlement factor

HH viability factor	Total # current HH	Male HHH		Female HHH	
		206		63	
		before	now	Before	Now
Zero	0	0	0	0	0
<2/3	17	5	8	8	9
<1	16	8	12	5	4
<2.5	82	59	65	15	17
2.5+	154	134	121	35	33

All Bela HH at Resettlement factor

HH viability factor	Total # current HH	Male HHH		Female HHH	
		127		17	
		before	now	Before	Now
Zero	0	0	0	0	0
<2/3	12	6	9	3	3
<1	7	8	6	1	1
<2.5	32	27	28	3	4
2.5+	93	86	84	10	9

All Bero HH at Resettlement factor

HH viability factor	Total # current HH	Male HHH		Female HHH	
		521		84	
		before	now	Before	Now
Zero	11	3	5	3	6
<2/3	90	49	70	18	20
<1	68	33	55	10	13
<2.5	215	167	194	28	21
2.5+	221	197	197	24	24

All Danmadjia HH at Resettlement factor

HH viability factor	Total # current HH	Male HHH		Female HHH	
		87		15	
		before	now	Before	Now
Zero	1	0	0	0	1
<2/3	15	10	13	2	2
<1	21	7	16	2	5
<2.5	40	41	35	8	5
2.5+	25	30	23	2	2

All Dildo HH at Resettlement factor

HH viability factor	Total # current HH	Male HHH		Female HHH	
		216		58	
		before	now	Before	Now
Zero	5	4	4	0	1
<2/3	31	16	20	11	11
<1	40	27	32	8	7
<2.5	111	101	95	16	16
2.5+	88	69	65	23	23

All Dokaidilti HH at Resettlement factor

HH viability factor	Total # current HH	Male HHH		Female HHH	
		72		10	
		before	now	Before	Now
Zero	0	0	0	0	0
<2/3	10	4	7	3	3
<1	13	6	11	2	2
<2.5	36	41	31	2	2
2.5+	26	24	23	3	3

All Madjo HH at Resettlement factor

HH viability factor	Total # current HH	Male HHH		Female HHH	
		120		13	
		before	now	Before	Now
Zero	3	1	3	0	0
<2/3	16	11	13	3	3
<1	12	11	11	0	1
<2.5	57	46	52	6	5
2.5+	45	50	41	5	4

All Maikeri HH at Resettlement factor

HH viability factor	Total # current HH	Male HHH		Female HHH	
		115		25	
		before	now	Before	Now
Zero	11	1	8	1	3
<2/3	2	7	2	1	0
<1	10	8	10	0	0
<2.5	55	48	47	8	8
2.5+	62	51	48	15	14

All Mbanga HH at Resettlement factor

HH viability factor	Total # current HH	Male HHH		Female HHH	
		206		63	
		before	now	before	Now
Zero	0	0	0	0	0
<2/3	17	5	8	8	9
<1	16	8	12	5	4
<2.5	82	59	65	15	17
2.5+	154	134	121	35	33

All Mouarom HH at Resettlement factor

HH viability factor	Total # current HH	Male HHH		Female HHH	
		75		11	
		before	now	before	now
Zero	3	0	2	1	1
<2/3	4	5	4	0	0
<1	3	0	2	0	0
<2.5	31	22	25	7	6
2.5+	46	48	42	4	4

All Ngalaba HH at Resettlement factor

HH viability factor	Total # current HH	Male HHH		Female HHH	
		173		77	
		before	now	before	now
Zero	2	0	0	2	2
<2/3	19	8	12	6	7
<1	20	13	14	4	6
<2.5	103	63	73	21	30
2.5+	106	90	74	36	32

All Poutouguem HH at Resettlement factor

HH viability factor	Total # current HH	Male HHH		Female HHH	
		51		10	
		before	now	before	now
Zero	0	0	0	0	0
<2/3	9	3	7	1	2
<1	12	4	10	2	2
<2.5	26	27	23	4	3
2.5+	14	17	11	0	3

Annex 5: Change in HH landholding status

Change in status	Bégada	Béla	Bero	Danmadja	Dildo	Dokaïdilti	Madjo	Maïkeri	Mbanga	Mouarom	Ngalaba	Poutouguem	TOTAL
Non-viable to zero	2	0	5	1	1	0	2	9	0	2	0	0	22
Marginal to zero	0	0	0	0	0	0	0	0	0	0	0	0	0
Marginal to Non-Viable	2	2	17	3	4	2	3	0	3	0	4	4	44
Comfortable to Non-Viable	3	1	8	1	1	1	1	0	1	1	1	0	19
Wealthy to Non-Viable	0	0	1	0	1	0	0	0	0	0	0	0	2
Comfortable to Marginal	6	0	28	15	8	7	4	3	6	3	7	8	95
Wealthy to Marginal	0	0	0	0	0	0	0	0	0	0	0	0	0
Wealthy to Comfortable	14	3	31	7	3	1	10	4	15	6	19	6	119
Overall social impact of Project	27	6	90	27	18	11	20	16	25	12	31	18	301

Annex 6

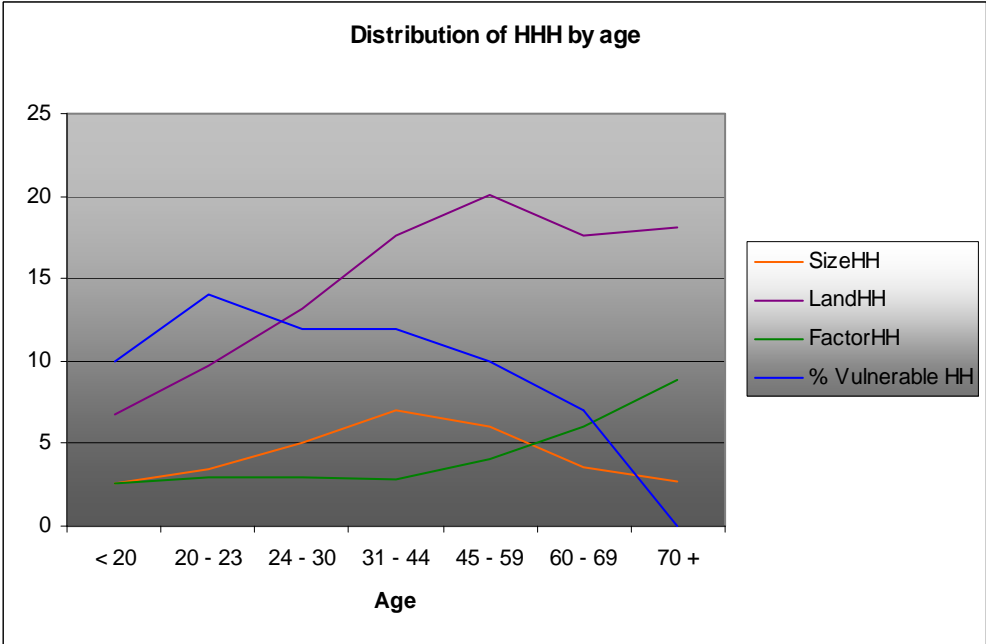
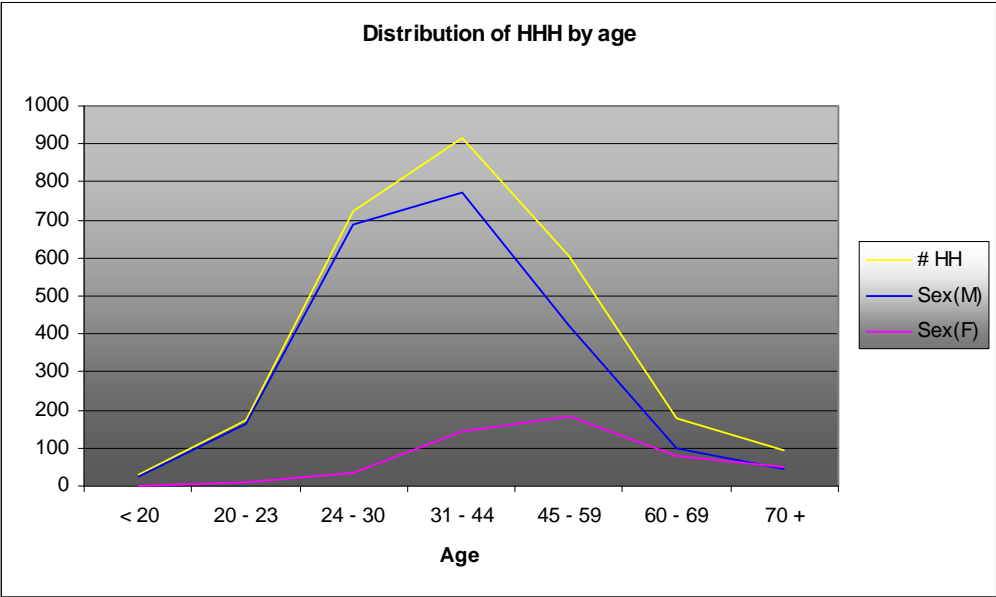
Comparison of viability level between the initial evaluation (declarative) and the reality (survey). By village				
	False Negative	False Positive	True Positive	True Negative
Bégada	9	33	1	145
Béla	1	7	4	81
Béro	46	114	16	287
Danmadja	9	26	3	50
Dildo	5	23	4	83
Dokaïdilti	1	28	8	36
Komé	2	0	0	47
Madjo	9	50	3	49
Maïkéri	8	7	3	93
Maïnani	2	8	0	72
Mbanga	10	50	1	160
Mouarom	0	15	2	55
Naïkam	0	1	0	23
Ngalaba	16	48	2	146
Poutouguem	8	0	0	44
Total	126	410	47	1,372

Annex 7: KPI Population Statistics

Presented below you will find statistics regarding the population in general and in particular on households and their head. Then it tracks HHH (Household Head) who are vulnerable, considering that young HHH males (under 25) are more likely to become vulnerable. They are identified as youth bear. The results presented in the table show several household characteristics by age bracket:

Age	# HH	Sex(M)	Sex(F)	Size HH	Land HH	Factor HH	# Vulnerable HH	% Vulnerable HH
< 20	29	27	2	2.6	6.73	2.61	3	10
20 - 23	175	165	10	3.4	9.78	2.95	24	14
24 - 30	722	688	34	5	13.16	2.91	90	12
31 - 44	917	774	143	7	17.55	2.88	108	12
45 - 59	603	419	184	6	20.07	4.05	58	10
60 - 69	179	99	80	3.6	17.64	6.08	12	7
70 +	94	46	48	2.7	18.05	8.82	0	0

Age	Age bracket
# HH	# of households per age bracket
Sex (M)	# of household led by a male
Sex (F)	# of household led by a female
Size HH	Average size of household (# of dependents)
Land HH	Average size of land holds (field area)
Factor HH	Average of vulnerability factor
# Vulnerable HH	# of households who are vulnerable (vulnerability factor < 0.667)
% Vulnerable HH	Proportion of vulnerable households among an age bracket



Degree youth bear with heavy charge

# HHH young males	# Young males	% HHH youth bear
192	6726	2.9

Degree youth bear with heavy charge by village (surveyed)

Village	# HHH young males	# Young males	% HHH youth bear
Bégada	16	464	3.4
Béla	10	322	3.1
Béro	55	1519	3.6
Danmadja	4	204	2
Dildo	11	473	2.3
Dokaïdilti	4	174	2.3
Komé	12	350	3.4
Madjo	12	332	3.6
Maïkéri	8	268	3
Mainani	4	152	2.6
Mbanga	25	624	4
Mouarom	11	169	6.5
Naïkam	6	101	5.9
Ngalaba	6	500	1.2
Poutouguem	8	109	7.3

Village	Village name
# HHH young males	# of young males (under 25) who are households head
# Young males	# of young males
% HHH youth bear	Proportion of young males who have to bear charge of leading a household

This table shows the proportion of young males who have to bear charge of leading a household. Only villages that were surveyed are listed in the table.

Population growth (between village survey and KPI survey campaigns)

Births	Weddings	Deceases	Leavings	Adds	Pop Surveyed	Pop Growth	% Growth
66	15	35	22	57	715	66	9.2

Population growth (between village survey and KPI survey campaigns) per village

Village	Births	Weddings	Deceases	Leavings	Adds	Pop Surveyed	Pop Growth	% Growth
Bégada	8	2	5	3	4	65	4	6.2
Béla	0	0	2	0	2	43	0	0
Béro	16	2	7	5	10	235	14	6
Danmadja	2	1	0	1	4	21	5	23.8
Dildo	7	3	6	2	11	50	10	20
Dokaïdilti	4	1	4	0	2	35	2	5.7
Madjo	6	0	1	1	6	54	10	18.5
Mbanga	9	2	5	1	6	101	9	8.9
Mouarom	3	1	1	0	5	24	7	29.2
Ngalaba	11	3	4	9	7	87	5	5.7

Village	Village name
Births	# of births that occurred in the household since the last village survey
Weddings	# of weddings that occurred in the household since the last village survey
Deceases	# of deceases that occurred in the household since the last village survey
Leavings	# of leavings that occurred in the household since the last village survey
Adds	# of adds that occurred in the household since the last village survey
Pop Surveyed	Population (# of HHH and dependents) among the 106 household that was surveyed at the last village survey
Pop Growth	Population increase or decrease in the village between village survey and KPI survey = Births + Adds - (Deceases + Leavings)
% Growth	= (Pop Growth / Pop surveyed) x 100

We took in consideration changes that occurred in the households selected for KPI surveys. Date represents changes among the household individuals (HHH, dependents) between the last village survey and the last KPI survey (2 KPI surveys were done for each household: Food & Investment, Health & Education). Changes considered include birth, death, departure, immigration. Wedding information is not used.

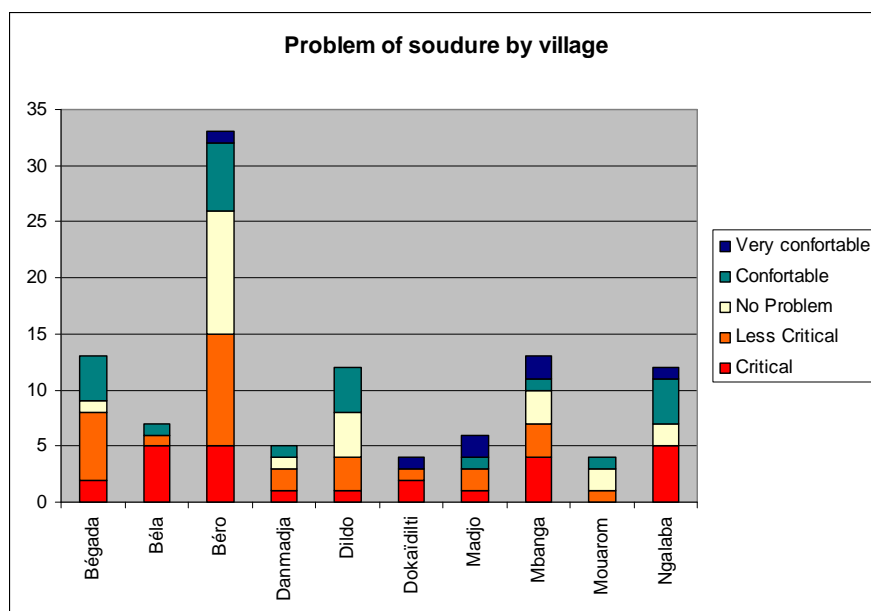
Annex 8 – KPI Statistics about financial capacity, employment

Most of data come from village survey campaigns. KPI surveys were used to get more recent information about tontine and to analyze soudure data. Indeed the soudure field is populated in the database as a text field. So we had to classify the soudures by financial situation for the household.

Problem of soudure by village

Village	Situation					Total
	Critical	Less Critical	No Problem	Comfortable	Very comfortable	
Bégada	2	6	1	4		13
Béla	5	1		1		7
Béro	5	10	11	6	1	33
Danmadja	1	2	1	1		5
Dildo	1	3	4	4		12
Dokaïdilti	2	1			1	4
Madjo	1	2		1	2	6
Mbanga	4	3	3	1	2	13
Mouarom		1	2	1		4
Ngalaba	5		2	4	1	12
Total	26	29	24	23	7	109

This table classifies households by financial situation regarding their ability to provide for one's family. Criteria are the soudure collected during KPI survey.



**Average amount invested in Tontine
Per year by sex of Household Head**

Sex of HHH	Average investment per Year
Female	30123
Male	79246

Average investment per Year Average amount of household annual investment, by sex of the household head
Sex of HHH Sex of the household head

This table shows the average amount invested by households in a Tontine per year. This average amount is compared between households led by females and households led by males.

Amount invested per year by households (Tontine + Saving)

Range Investment	# HH	Min Range (K CFA)
0 - 39999	198	0
40000 - 79999	501	40
80000 - 119999	255	80
120000 - 159999	121	120
160000 - 199999	13	160
200000 - 299999	67	200
300000 - 399999	17	300
400000 - 499999	5	400
500000 - 599999	10	500
600000 - 699999	3	600
700000 - 799999	2	700
800000 - 899999	1	800
900000 - 999999	1	900
1000000 - 1099999	5	1000
1200000 - 1299999	2	1200
1300000 - 1399999	2	1300
1500000 - 1599999	3	1500
2000000 - 2999999	11	2000
3000000 - 3999999	3	3000
4000000 - 4999999	1	4000
5000000 - 5999999	1	5000
6000000 - 6999999	1	6000
10000000 - 10999999	1	10000

Range Investment Range of investment done per year by a household
HH # of households who are in the respective range of annual investment

Min Range (K CFA)

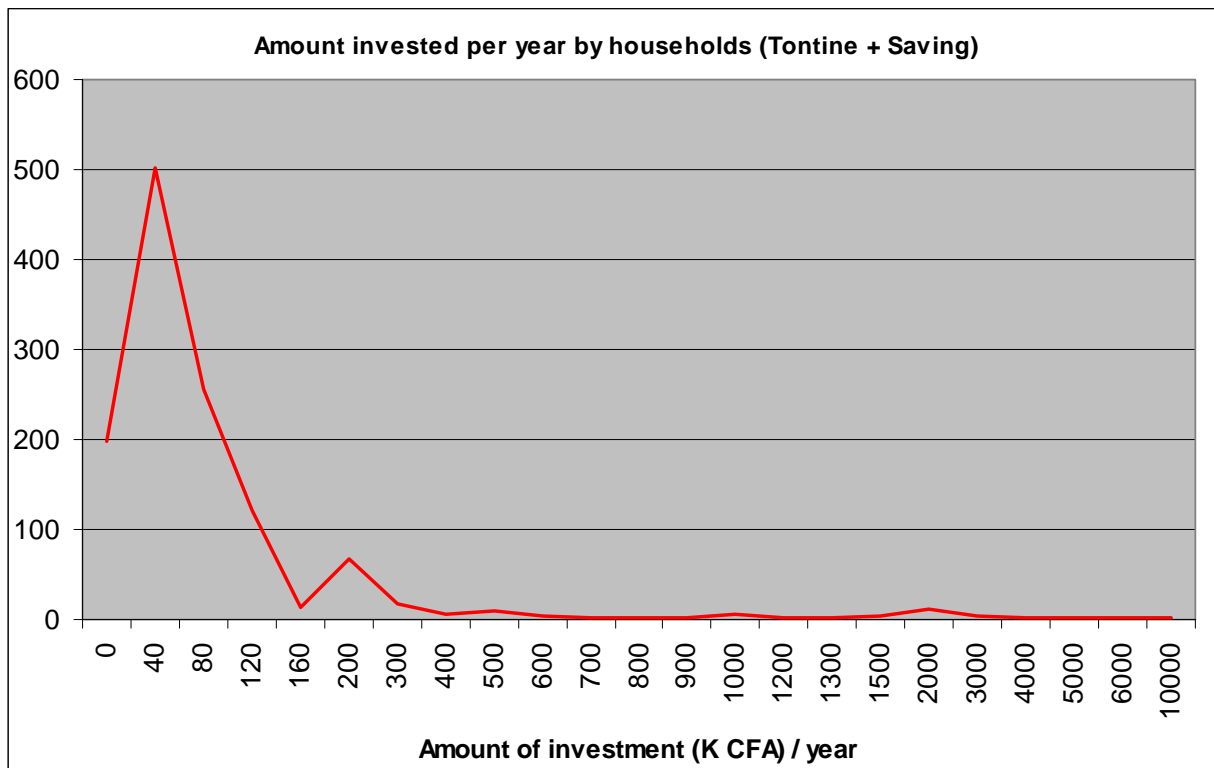
Minimum value of the range in K CFA (Kilo CFA)

This table displays the # of HH per range of amount of investment per year in K CFA (Thousand CFA). Steps of ranges changes according to a bracket of minimum values of range:

Min Range \leq 200 000 CFA: ranges of 40 000 CFA

Min Range \leq 2 000 000 CFA: ranges of 100 000 CFA

Min Range $>$ 2 000 000 CFA: ranges of 1 000 000 CFA



**Young males unemployed (seek employment)
Among dependents young males (age 15-24)**

# Young Male Dep Unemployed	# Young Males Dep	Unemployment rate
46	950	4.8

Young Male Dep Unemployed # of young males who are dependent in a household and seek employment

Young Males Dep Total # of young males who are dependent in a household

Unemployment rate Unemployment rate among young males:

$$[\# \text{ Young Male Dep Unemployed}] / [\# \text{ Young Males Dep}] * 100$$

This table shows the unemployment rate among young males. Only young males with age 15-24 and who are dependent of household (no HHH) are considered, assuming HHH have incomes or activities to bear the household. Moreover a dependent is considered unemployed only if he seeks employment.

Annex 9 – KPI Education Statistics

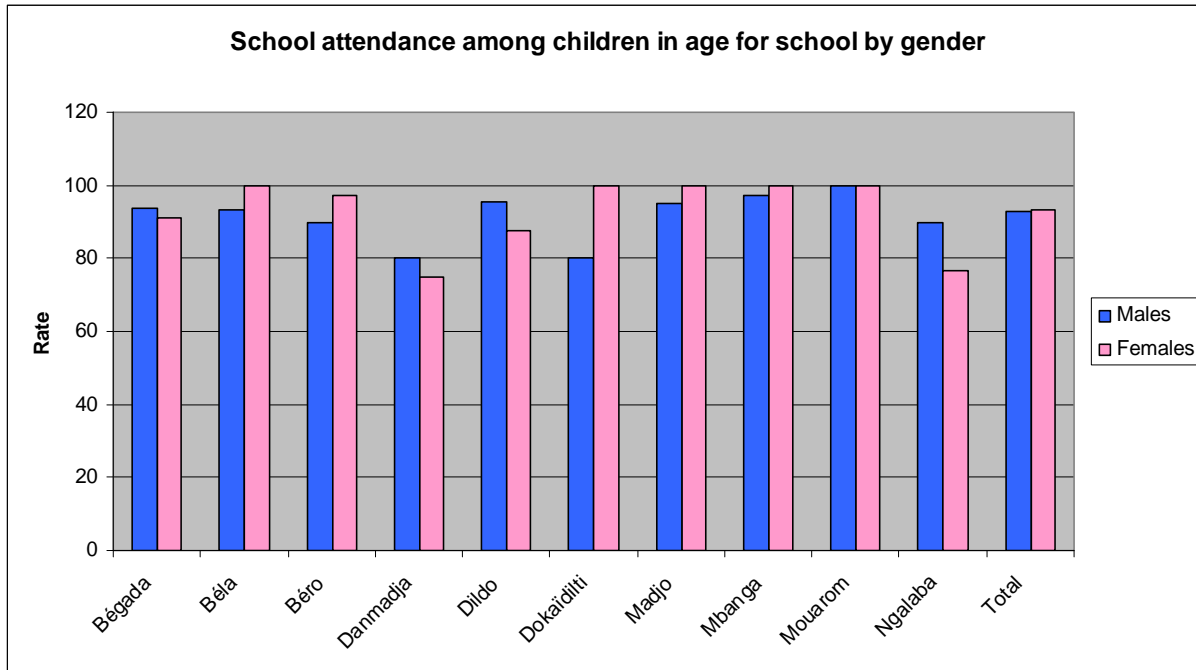
Particularly, it focuses on school attendance, education level and the capacity to face school fees.

School attendance among children in age for school

	Age for School	Attend School	Age for School (M)	Age for School (F)	Attend School (M)	Attend School (F)	% Attend School (M)	% Attend School (F)
Bégada	27	25	16	11	15	10	93.8	90.9
Béla	22	21	15	7	14	7	93.3	100
Béro	75	70	40	35	36	34	90	97.1
Danmadja	9	7	5	4	4	3	80	75
Dildo	30	28	22	8	21	7	95.5	87.5
Dokaïdilti	13	11	10	3	8	3	80	100
Madjo	29	28	21	8	20	8	95.2	100
Mbanga	58	57	36	22	35	22	97.2	100
Mouarom	16	16	10	6	10	6	100	100
Ngalaba	47	40	30	17	27	13	90	76.5
TOTAL	326	303	205	121	190	113	92.7	93.4

Age for School	# of children in age for school
Attend School	# of children who attend school
Age for School (M)	# of male children in age for school
Age for School (F)	# of female children in age for school
Attend School (M)	# of male children who attend school
Attend School (F)	# of female children who attend school
% Attend School (M)	Rate of school attendance among male children in age for school
% Attend School (F)	Rate of school attendance among female children in age for school

This table shows the proportion of children of school age who are currently attending school. A comparison is done between males and females. Data were collected during KPI survey.

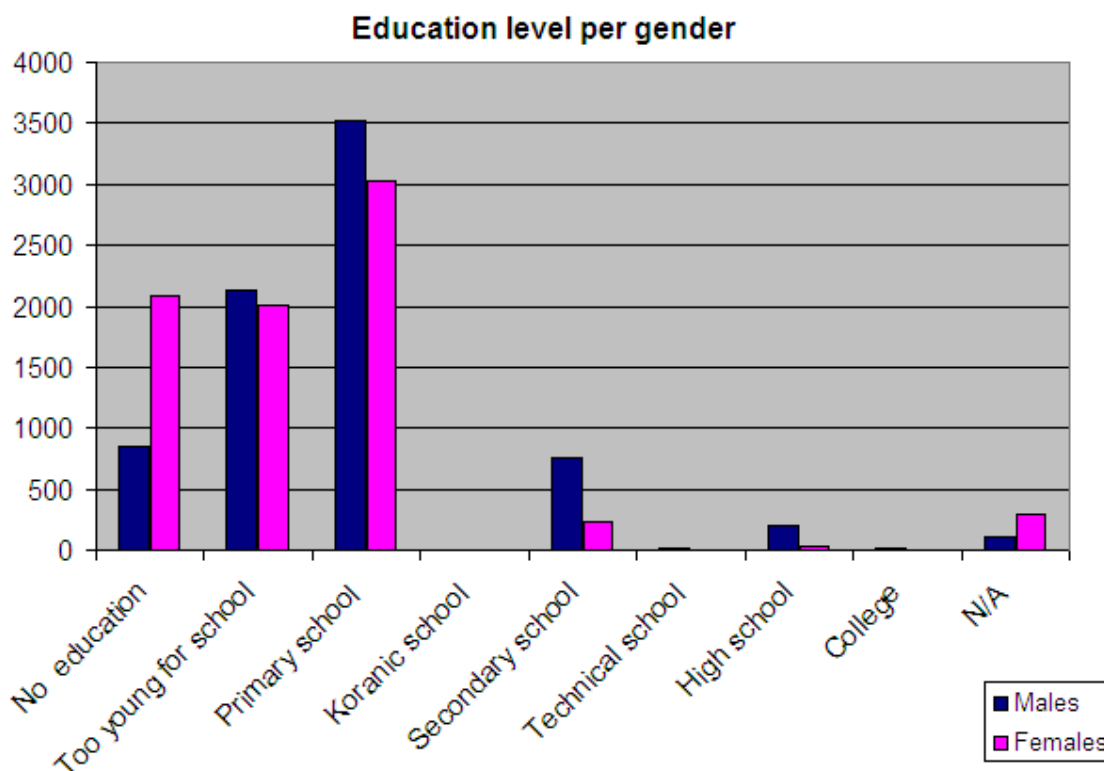


Education level per gender

Education Level	Male	Female
No education	849	2092
Too young to study	2124	2009
Primary school	3528	3028
Koranic school	2	2
College	761	224
Technical education	8	0
High school	197	38
University	11	0
N/A	102	300

Male # of males who reached the respective education levels
 Female # of females who reached the respective education levels

This table shows # of individuals per education level. A comparison is done between males and females.



Literacy rate per gender

Male	Literate male	Female	Literate female	Rate for male	Rate for female
7582	979	7693	264	12.9	3.4

Male Total # of males surveyed
 Literate male # of males who are literate
 Female Total # of females surveyed
 Literate female # of females who are literate
 Rate for male Rate of literate males among the surveyed population
 Rate for female Rate of literate females among the surveyed population

This table displays the rate of literate individuals among the population of villages that were surveyed. A person is considered literate when he/she has completed the primary school. However the only information available from the survey is the education level a person has reached. And there is no way to determine if the person has completed or not this level. So here we assume literate individuals are those who have at least reached a secondary school level.

Annex 10 – KPI Health Statistics

Proportion of children under 5 sleeping under bed nets

# Bed Nets	# HH
0	1259
1	696
2	458
3	194
4	92
5	37
6	21
7	11
8	7
9	4
10	2
11	1
28	1

54.8% of households have bed nets. The purpose of this table is to show the proportion of children under 5 sleeping under bed nets. But surveys only tell how many bed nets a household is using. So we assume that if a HH has bed nets then children are sleeping under them since young children sleep with their mother.

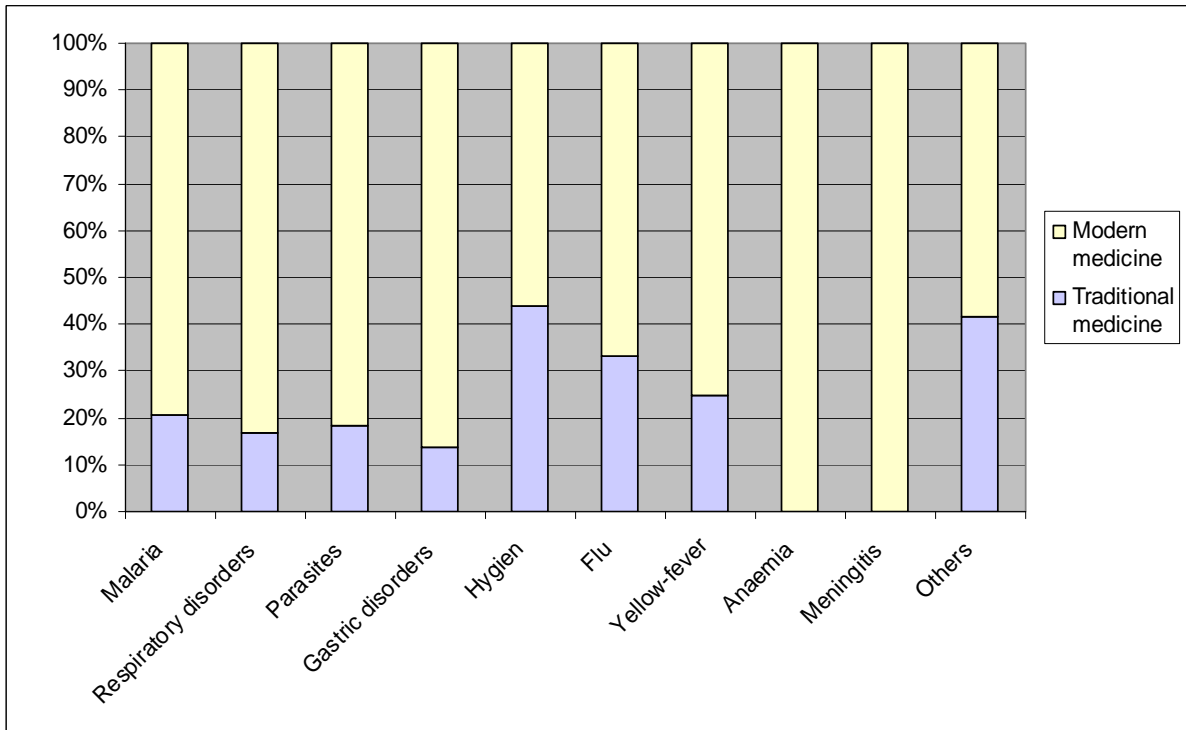
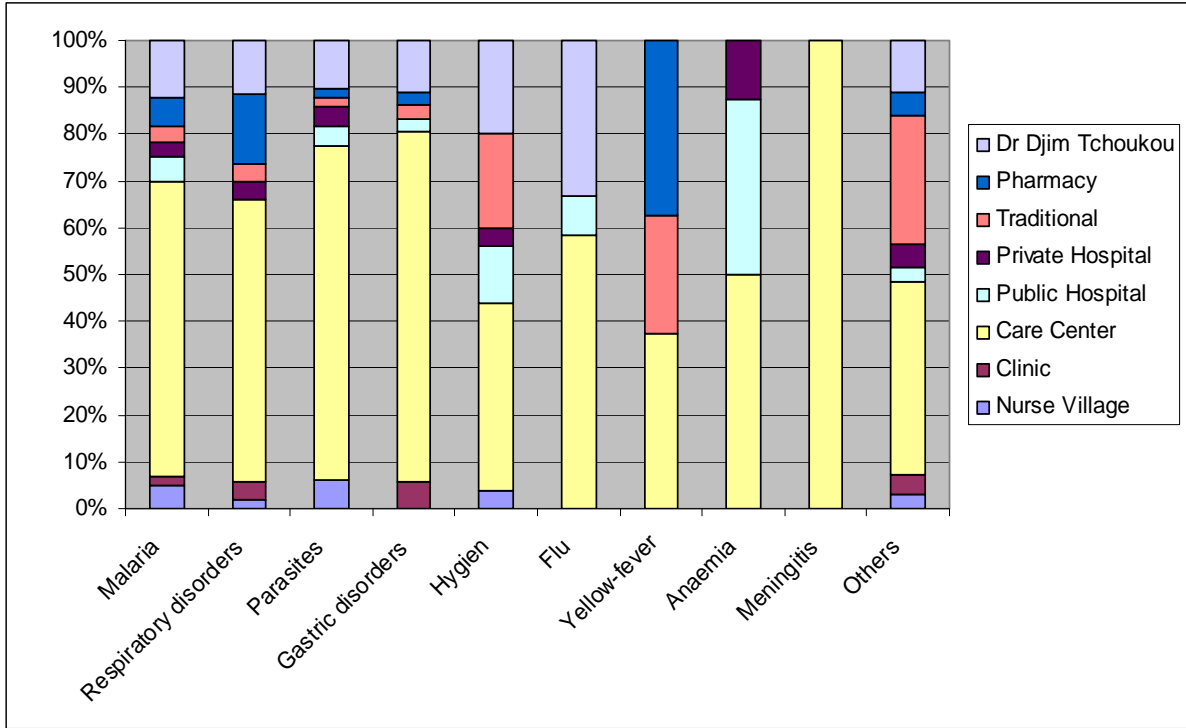
Households that can face health care expenses

Can face expenses	Total HH	% HH can face expenses
2383	2783	85.6%

During the village surveys campaign, HHH were asked if they could face health care expenses for themselves and their dependents. (see table next page)

Medicine practices

Disease categories	Nurse Village	Clinic	Care Center	Public Hospital	Private Hospital	Traditional	Pharmacy	Dr Djim / Tchoukou	Traditional medicine	Modern medicine
Malaria	7	3	92	8	4	5	9	18	30	116
Respiratory disorders	1	2	32	0	2	2	8	6	9	44
Parasites	3	0	35	2	2	1	1	5	9	40
Gastric disorders	0	2	27	1	0	1	1	4	5	31
Hygiene	1	0	10	3	1	5	0	5	11	14
Flu	0	0	7	1	0	0	0	4	4	8
Yellow-fever	0	0	3	0	0	2	3	0	2	6
Anemia	0	0	4	3	1	0	0	0	0	8
Meningitis	0	0	1	0	0	0	0	0	0	1
Others	3	4	41	3	5	27	5	11	41	58



This information was collected during the KPI surveys campaign. Diseases are classified in categories (10 categories identified).

The first chart represents the medical practice people select to deal with their ailment. During the KPI survey, they had choice between 8 medicine practices to answer the poll.

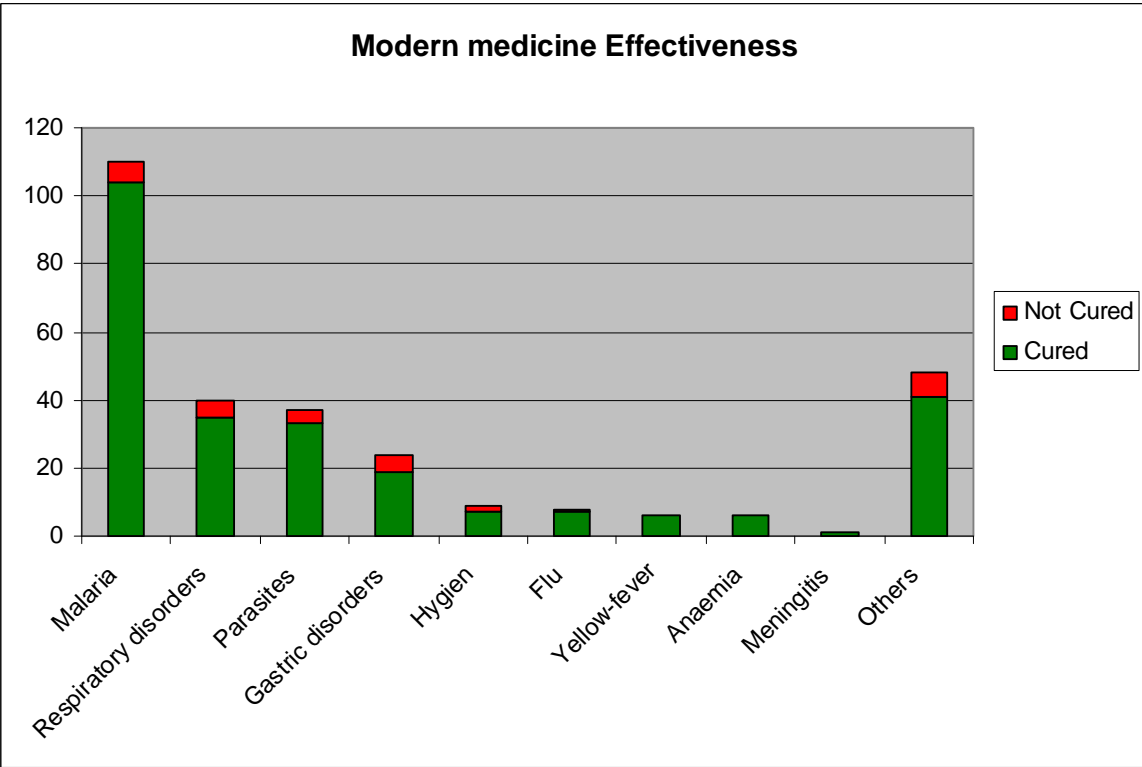
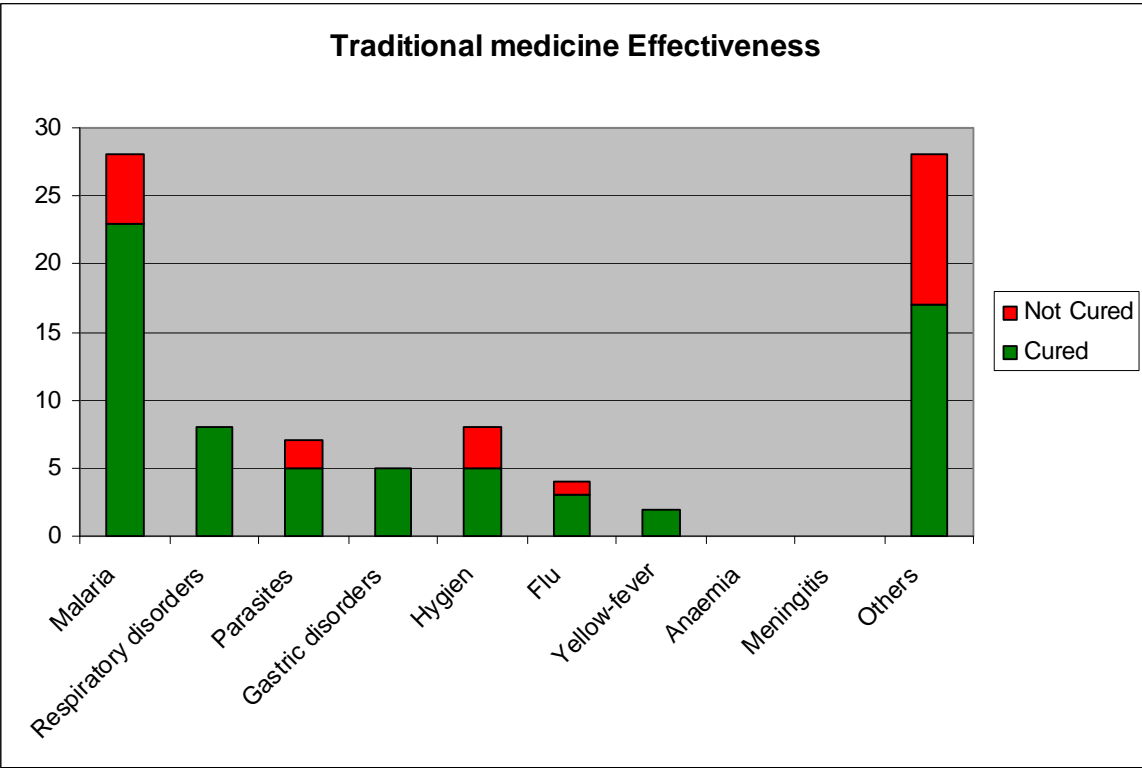
The second chart has gathered medicine practices in 2 categories:

- Modern medicine: Clinic, Care center, Hospital, Pharmacy
- Traditional medicine: Nurse Village, Traditional, Dr Djim / Tchoukou

Medicine effectiveness

	Individual	Traditional medicine	Modern medicine	Cured	Traditional medicine cured	Modern medicine cured	Traditional medicine not cured	Modern medicine not cured
Malaria	131	28	110	123	23	104	5	6
Respiratory disorders	46	8	40	41	8	35	0	5
Parasites	42	7	37	37	5	33	2	4
Gastric disorders	28	5	24	23	5	19	0	5
Hygiene	16	8	9	11	5	7	3	2
Flu	13	4	8	10	3	7	1	1
Yellow-fever	7	2	6	7	2	6	0	0
Anemia	6	0	6	6	0	6	0	0
Meningitis	1	0	1	1	0	1	0	0
Others	70	28	48	55	17	41	11	7

Category	Disease categories
Individual	# of individuals who caught the disease
Traditional medicine	# of individuals who used traditional medicine for treatment
Modern medicine	# of individuals who used modern medicine for treatment
Cured	# of individuals who were cured from the disease
Traditional medicine cured	# of individuals who used traditional medicine for treatment and were cured
Modern medicine cured	# of individuals who used modern medicine for treatment and were cured
Traditional medicine not cured	# of individuals who used traditional medicine for treatment but were not cured
Modern medicine not cured	# of individuals who used modern medicine for treatment but were not cured



This information was collected during the KPI surveys campaign. The table displays the number of individuals who were cured or not for modern versus traditional medicine.

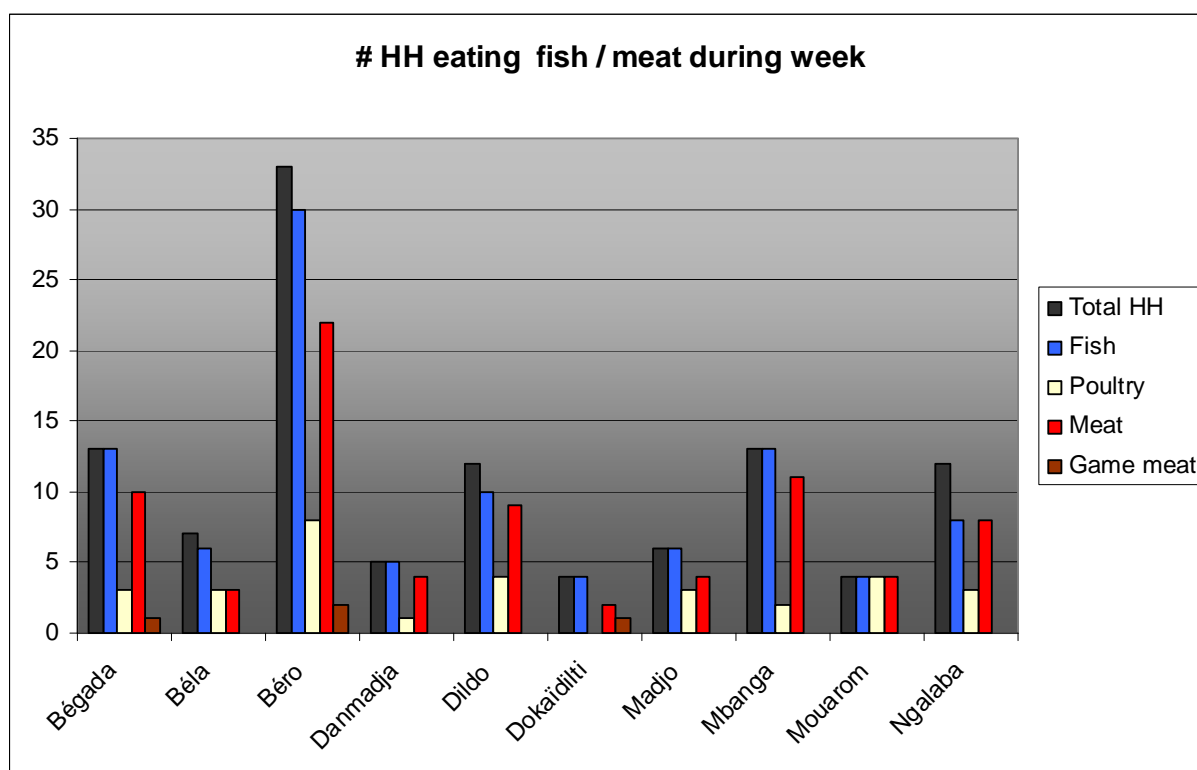
Annex 11 – KPI Food Statistics

Fish/Meat indicator

Village	# HH	Eat fish	Eat poultry	Eat meat	Eat game meat
Bégada	13	13	3	10	1
Béla	7	6	3	3	0
Béro	33	30	8	22	2
Danmadja	5	5	1	4	0
Dildo	12	10	4	9	0
Dokaïdilti	4	4	0	2	1
Madjo	6	6	3	4	0
Mbanga	13	13	2	11	0
Mouarom	4	4	4	4	0
Ngalaba	12	8	3	8	0

HH # HH surveyed in the village (KPI survey)
 Eat fish # HH that eat fish at least once a week
 Eat poultry # HH that eat poultry at least once a week
 Eat meat # HH that eat meat at least once a week
 Eat game meat # HH that eat game meat at least once a week

This table identifies the # of households that eat fish or meat at least once a week.



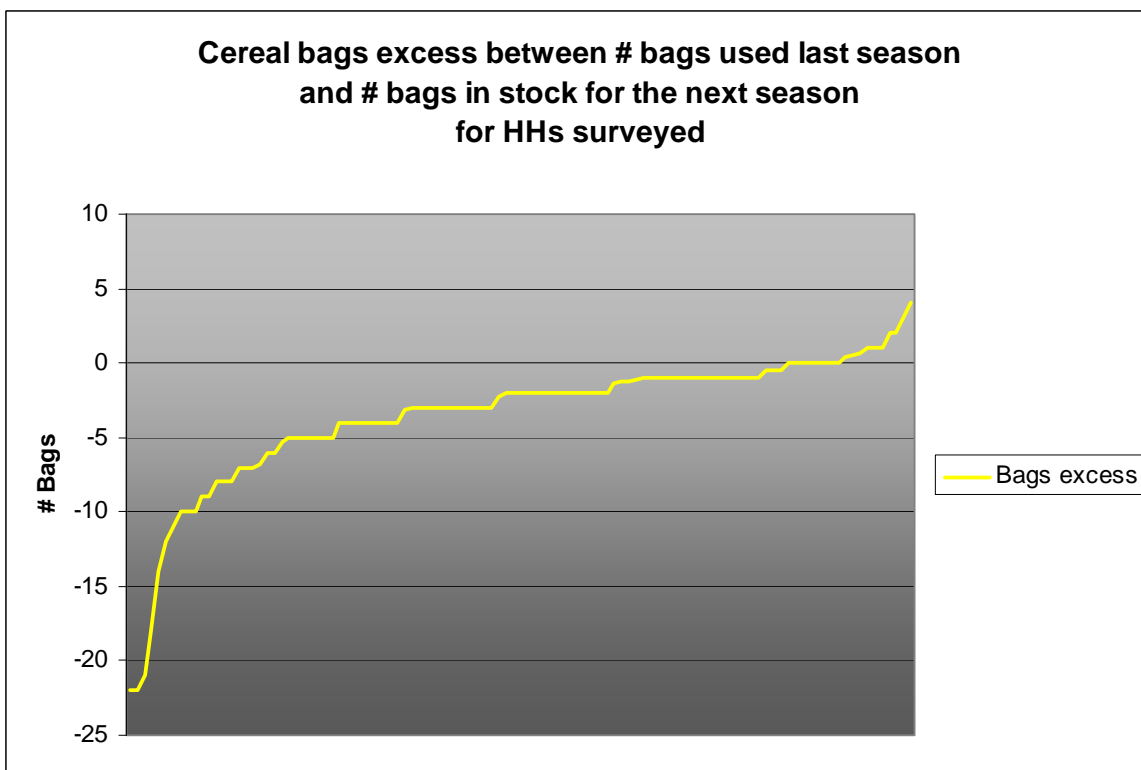
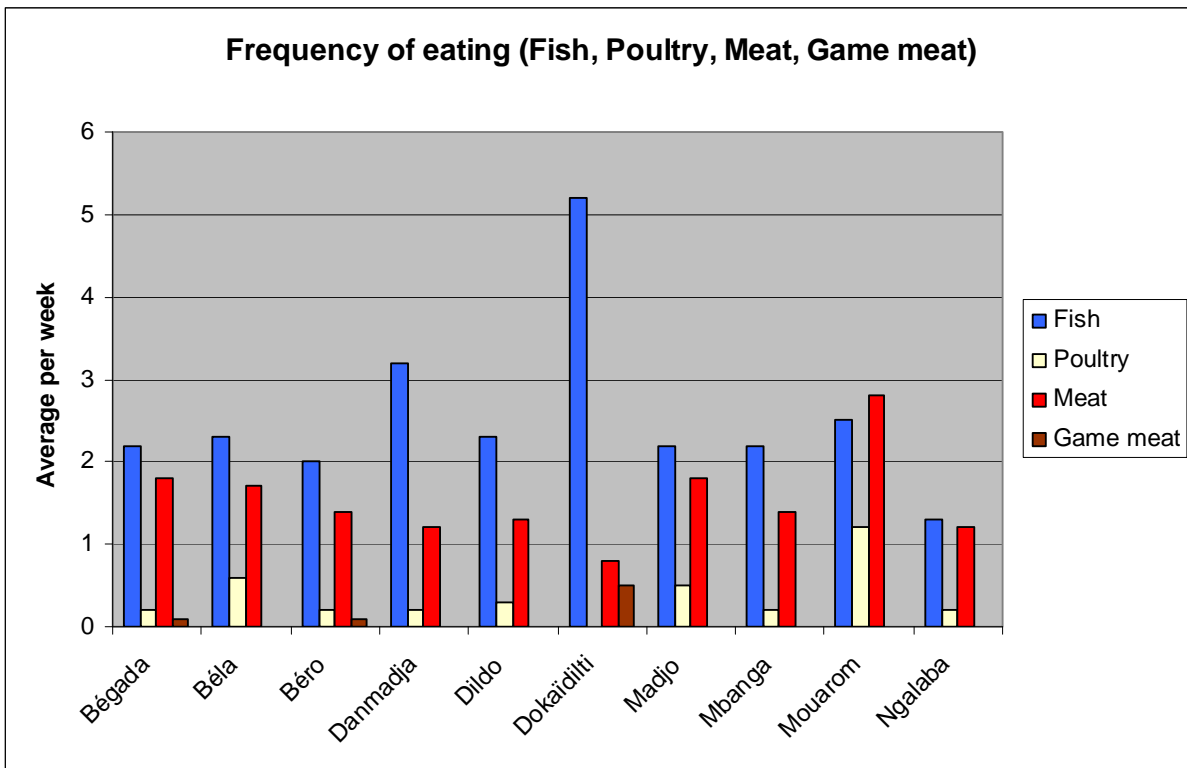
Frequency of eating (Fish, Poultry, Meat, Game meat)

Village	Avg fish per week	Avg poultry per week	Avg meat per week	Avg game meat per week
Bégada	2.2	0.2	1.8	0.1
Béla	2.3	0.6	1.7	0
Béro	2	0.2	1.4	0.1
Danmadja	3.2	0.2	1.2	0
Dildo	2.3	0.3	1.3	0
Dokaïdilti	5.2	0	0.8	0.5
Madjo	2.2	0.5	1.8	0
Mbanga	2.2	0.2	1.4	0
Mouarom	2.5	1.2	2.8	0
Ngalaba	1.3	0.2	1.2	0

Avg fish per week	Average of frequency the households living in the village eat fish per week
Avg poultry per week	Average of frequency the households living in the village eat poultry per week
Avg meat per week	Average of frequency the households living in the village eat meat per week
Avg game meat per week	Average of frequency the households living in the village eat game meat per week

This table identifies the average frequency households eat fish or meat per week.

Note: We have to determine the significant # fish/meat per week that represents the minimum dietary energy consumption.



This food indicator identifies the number of households that have entered the rainy season (i.e. hungry season) with sufficient stock to last until the first harvesting begins.

This chart was made from the following data: how many bags were used during the last rainy season and how many bags are in stock before the next rainy season. A calculate field gave us how many bags will supposedly be in excess (or missing if < 0) at the end of the next rainy season. Then the chart represents the distribution of this surplus or deficit among households.