

**Site Specific Plan
Madjo-Bero Village
November 2009**

Context of the Land Use Situation

Since construction began in 2000, the Chad Cameroon Oil Export Project (the Project) has compensated nearly 12,900 individual land users for almost 7,100 Hectares (Ha) of land in 375 villages along the entire length of the Project from Kome, Chad to Kribi, Cameroon.

Compensation in the Oil Field Development Area (OFDA) has been paid for nearly 3,500 Ha of land involving about 4,000 individual land users. The Project has utilized 3.5% of the 100,000 ha of land in the OFDA. When all of the land taken for construction and not needed for permanent facilities has been returned the percentage still in use by the Project will be just over 1.5% of the total OFDA area.

All land users and villages have been compensated according to the Environmental Management Plan (EMP) that was approved prior to Project construction. The Project's compliance with the EMP compensation requirements has been documented in the Project Update reports and by the World Bank's External Compliance Monitoring Group (ECMG) and the International Advisory Group (IAG).

A set of principles set out in the EMP have guided the land acquisition and compensation effort, including:

- A transparent compensation procedure with, at minimum, four information and consultation steps so that all village residents can see that no other resident is gaining an advantage.
- Sensitivity to cultural practices and local legal requirements. Most land is controlled by the village and allocated by the local chief. In Chad, nearly all land is owned by the state. So farmers, rather than owning land as in Europe or North America, have only the use of the land for crops. The Project therefore does not buy land but compensates for farmer labor and lost crop opportunities as provided in the EMP.
- Recording all compensation transactions. Each payment is archived with a photo of the transaction and the recipient's thumb print.
- Avoiding resettlement of households through project redesign and by offering two resettlement alternatives - Improved Agriculture Training and Off-Farm Employment Training.

These principles have been developed into a set of guidelines and procedures that govern how compensation, resettlement, and other mitigations are applied. These guidelines are contained in an in-house Land Management Manual (LMM), which serves as a Desk Guide to implementation. This guide is periodically updated to include improvements and modifications (last revision in September 2008).

Evolution of the OFDA Land Use Situation

As the three original OFDA oilfields were being developed, and results began coming in from the completed wells, it became clear that more rather than fewer of the projected wells would be needed in order to develop Chad's oil. This continued drilling, and the infrastructure to collect the oil and to supply electricity to the wells, was consuming more land than originally anticipated on the basis of the low-end estimate. The project's efforts to address this land use situation began in mid-2005, when it declared a Level II Noncompliance Situation (NCS) regarding the pace of returning to communities temporary use land that had been reclaimed in accordance with the Environmental Management Plan (EMP).

By the end of 2006, with the help and input from the World Bank Group (WBG), the project had developed initial mitigation actions and had begun implementing them. An action plan was agreed in 2007, which included among other actions the development of Site Specific Plans to address particular problems facing certain villages that had surrendered substantial areas to project use and for which land return was lagging.

Purpose of a Site Specific Plan

The purpose of a Site Specific Plan (SSP) for each of these villages is to develop measures that mitigate the precise problems the village's population is encountering within their own village area. First, the study must determine the problems specific to that village. Then the mitigations proposed must be feasible, using the resources that are available to the restricted vicinity and maximizing the knowledge and capabilities of its inhabitants. The plan consolidates all applicable livelihood restoration tactics into a strategy that will lead to livelihood restoration in this heavily affected village.

Although the absolute foot print of the Project (Permanent Land Take and Temporary Land Take Not Returned) has not grown to any extent since December 2005, the slow return of temporary use land plus the increase in compensated land has highly impacted certain villages located in the OFDA. These impacts include:

- Reduced pool of land available for agricultural use
- Access to bush resources
- Depletion of bush resources
- Shortened fallow availability

- The Land Use Mitigation Action Plan (LUMAP) Site Specific Plan for each highly impacted village in the OFDA develops mitigation measures by clearly defining the village's situation.

Focus of a Site Specific Plan

Within the OFDA, land acquisition for production facilities has affected 47 official villages according to 2008 administrative categorization -- 32 if the geographic rather than administrative units are counted -- 61 if all the unofficial quarters are included. For

purposes of a SSP, it is the **geographic unit** that will be considered since the aim is to remediate impacts on the geographical area of the village and its inhabitants.

Out of the 32 geographical villages in the OFDA, 10 were categorized as more affected by ongoing project land needs than others. Implementation of SSP at Dokaidilti and Dildo has moved these villages to the low impact category. Madjo was classified as High according to land acquisition and social impact and for this reason a SSP has been developed. At the end of 2Q 2008, before In Fill drilling had started, Madjo was classed as High; land use was only 5.2% or Moderate but 76% of people were, according to declarative data in the formerly used EEPIC Compensation Database, under 2/3 corde per HHM and nonviable.

In 3Q 2009 the Village Land Use Survey was completed and the data and analysis became available. Land use had increased to 5.7% because of In Fill Drilling, still Moderate, but the measured landholdings of the population showed that only 6.0% of the population was nonviable, putting Madjo in the Low category. Since a village is classed by its worst indicator, the village remains in the Moderate category and on the Watch List for any change in status.

Purpose of the Madjo Bero Site Specific Plan

The purpose of the Madjo Bero SSP is to provide the village as a whole with sufficient livelihood to offset its land losses to the Project. The SSP additionally evaluates the land-holding situation of all the HHs in the village to judge whether the village as a whole is at risk and, if so, what actions would be efficacious. The plan also looks at the more affected people in the village to appraise their situation and take remedial action if needed. For at-risk HHs this can be done by increasing revenues from Off-Farm training or Improved Agriculture, through providing additional land to the village, particularly to those below the viability threshold, or other means that can be employed through a precise identification of the individual HHs' and the village's condition. The mitigations proposed must be feasible, using the resources that are available to the restricted vicinity and maximizing the knowledge and capabilities of its inhabitants. The plan consolidates all applicable livelihood restoration tactics into a strategy that will lead to livelihood restoration in this heavily affected village.

Elements of the Madjo Bero Site Specific Plan

- Land use status of the community prior to the Project
 - Nature and quantity of resources available before the Project
- Resources currently available
 - The inhabitants already have the knowledge and habits to exploit these resources
- Socioeconomic survey data and analysis to obtain current status of the village:
 - Community inhabitants
 - Which village and individual resources have been impacted by the Project
 - Households in difficulty
- Ways in which the village has been unable to deal with Project impact

- Define the livelihood difficulties found at the specific site
- Identification of impacts unforeseen in the EMP and CRCP
- Will new additional measures be needed to reverse Project impact?
- Review of possible actions for Site Specific Plans providing for village level livelihood enhancement
- Actions so that all Project-affected agriculturally non-viable HHs have maintained or improved their livelihood
- List of actions selected in priority order
 - Quantify resources needed to reverse Project impact
 - Identify entities responsible for execution
- Implementation plan for each listed action, with time-bound actions and dedicated budgets

Land Use Status Prior to the Project

The OFDA

- The population of the 10 most affected villages in the OFDA doubled between 1993 and 2006.
- The average population growth was 124% and the modal increase in population ranged from 90-96% in these villages
- Compared with natural population growth the Project's impact on land (bush, fallow, settlement, fields) was very limited.
- Project land take caused only a 4% increase in population density per ha compared to the increase caused by natural population growth.
- In the OFDA the population growth reduced the amount of bush available to people by one half between 1993 and 2006. Only 8% of the decrease in bush area can be attributed to Project land take.

Note: The data used in this analysis are correct as of November 2009; the figures may change slightly as additional fields cultivated by Madjo Bero residents are discovered in other villages being surveyed; since this additional land only ameliorates Madjo Bero's situation any changes in the data will be to the advantage of the village and its residents.

Madjo Bero's Land and Population, past and present.

Lying within Bero canton on the eastern boundary formed by the Pende River (a tributary of the Logone River and often referred to as the Logone Oriental or East Logone River), Madjo Bero village is bordered by the small village of Dokaidilti to its south. Bero village forms its western border. On the north is the village of Ndokoyo. On the opposite, eastern bank of the Pende and slightly to the north, the village of Madjo Doba has been created by various Madjo Bero residents seeking new agricultural land. This new area belongs to the canton Doba Rural. As it is not heavily populated and there is land available. Given the Pende can easily be traversed by foot or by canoe during more than half of the year, it has been a farm hamlet for many of the inhabitants of Madjo, some of whom have with time established their permanent residence there.

To distinguish between those who are permanent residents on the left (western) bank and the right (eastern) bank of the Pende they refer to themselves as Madjo and Madjo Doba. The official village name within Canton Bero is Madjo Bero and the village of Madjo Doba is officially recognized in canton Doba Rural.

- Madjo Bero falls fifth from the bottom of the major villages in the OFDA in amount of bush/fallow, grouped with the two riverine villages of Dokaidilti and Madana Natpeur. Also in this group is one village established long ago as a farm hamlet and therefore with limited land (Missimadji) and another, Merméouel, located in Canton Miandoum, where land pressure is higher than in Bero.
- Madjo Bero's population growth between 1993 and 2000 went from 342 to 512. As of 2006 the Canton chief gave Madjo's population as 1039; it is unknown whether this represents the number of residents in Madjo Bero or the number of taxpayers (which would include residents who had moved to Madjo Doba but were not officially recognized as residents of another canton). The number of residents counted in the 3Q 2009 Village Survey is 848.
- Madjo's population increase between 1993 and the Canton figures given in 2006 = 204%. The average growth in most area villages in this period fell somewhere in the 90-100% range.
- Since the actual number of residents in 2009 was 848, that means that the split over the years between Madjo-Bero and Madjo-Doba was able to counterbalance a population increase of 56%.
- The numbers in the three bullets below are based on a manual interpretation of a satellite image dating from November 2003. At that time, the approximate village limit of Madjo gave an area of 1921 ha, categorized as follows:
 - 84.7ha of bush
 - 1821 ha of cultivated and fallow land
 - Settlement area of 16 ha
- By topographic measurement of Madjo Bero's land, its total available land area in November 2009 is 1984 ha or 92.4% of its pre-project area (2148 ha):
 - During the Village Survey, the village declared a flooded zone of 483 ha and 0 ha of Bush. (Bush that was estimated on the 2003 satellite image is, according to the farmers claiming the land, long-term fallow).
 - The history of land take and land return plus the impact of In Fill drilling is as follows:
 - In 2Q 2007 Madjo had lost 5.2% of its pre-project arable land.
 - In 3Q 2008 – 5.2%.
 - In 3Q 2009 – 5.7%.
- 25% of Madjo's land is farmed by people from the surrounding villages, particularly Madjo-Doba.
- The Project land take has increased the population density by 7% from the beginning of the project to today, the population increase accounts for -17% and the settlement expansion for 0.5%: ($0.43 = 1.07 \cdot 0.83 \cdot 1.01 \cdot 0.48$).
- Madjo had 0.16 people per ha at the census of 1993, 0.48 people/ha pre-project and now has 0.43.

- Madjo Bero’s population density falls at the lower end surveyed villages in the OFDA:

Village	1993 pop density	2000 pop density/ha	2007 pop density/ha	Village Survey Data
Bégada	0.24	0.29	0.38	0.39
Béla	0.14	0.27	0.45	0.38
Béro	0.34	0.92	0.56	
Danmadjia	0.46	0.84	1.72	1.19
Dildo	0.37	0.70	0.79	0.71
Dokaïdilti	0.24	0.52	1.41	0.78
Madjo	0.18	0.27	0.54¹	0.39
Mbanga	0.18	0.44	0.53	0.49
Mouarom	0.15	0.19	0.38	0.33
Ngalaba	0.44	0.64	0.88	0.63
Average	0.27	0.53	0.74	0.59

- In the 1990s Madjo Bero’s density increased, as it did in all the OFDA’s major villages, due to the high birth rate. That, alone, tripled Madjo’s population in the 7 years between the national census and the inception of the Project. As is typical of this cultural area, the population has exercised auto-control by the biggest farmers emigrating to less used land and, subsequently attracting other HH. Thus the density of the village has greatly declined.

Madjo Bero’s Current Demographics

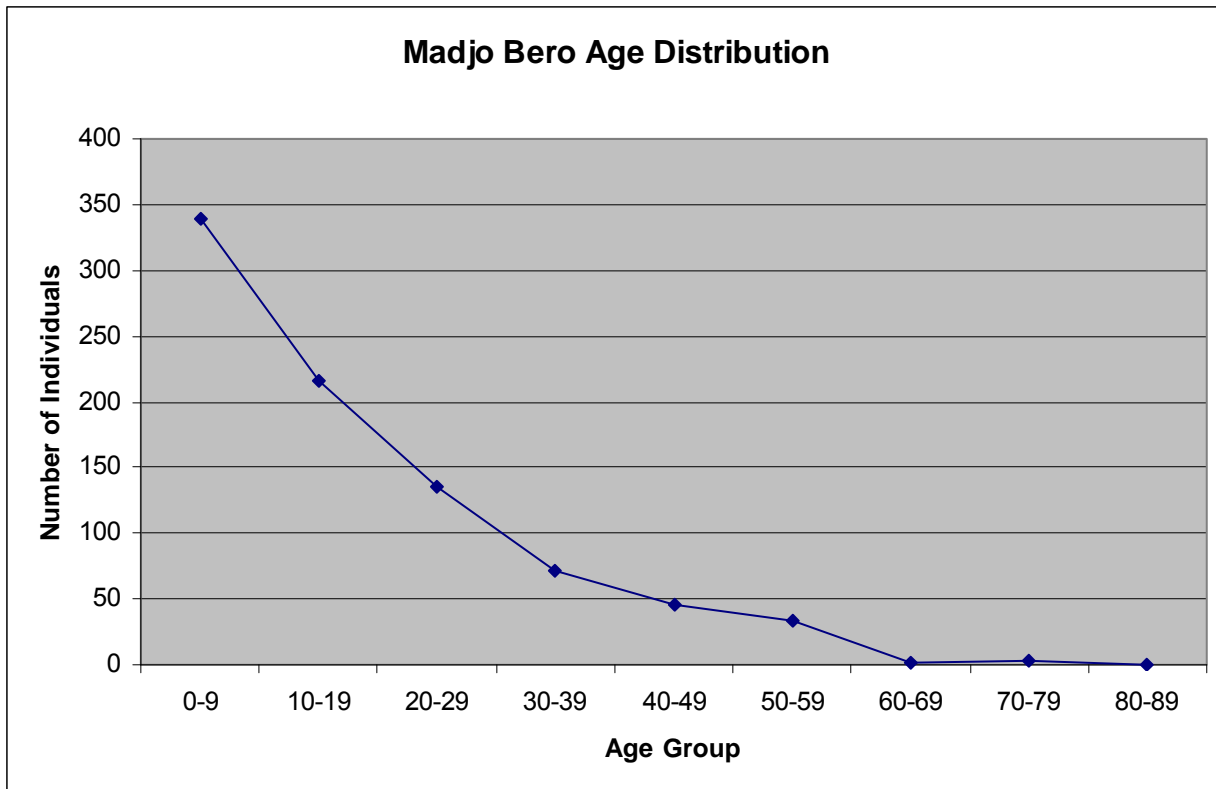
Today, looking at Madjo’s households and using topographic measurements of land holdings rather than individuals’ reported dependents and holdings:

- Madjo has 133 households (HH) and 848 inhabitants.
- 15% of HH are headed by women.
- Madjo Bero’s population is very young; 40% of the population is under 10 years of age. This is why Madjo has 5 permanent classrooms and needs to rebuild at least 5 temporary classrooms each school year:

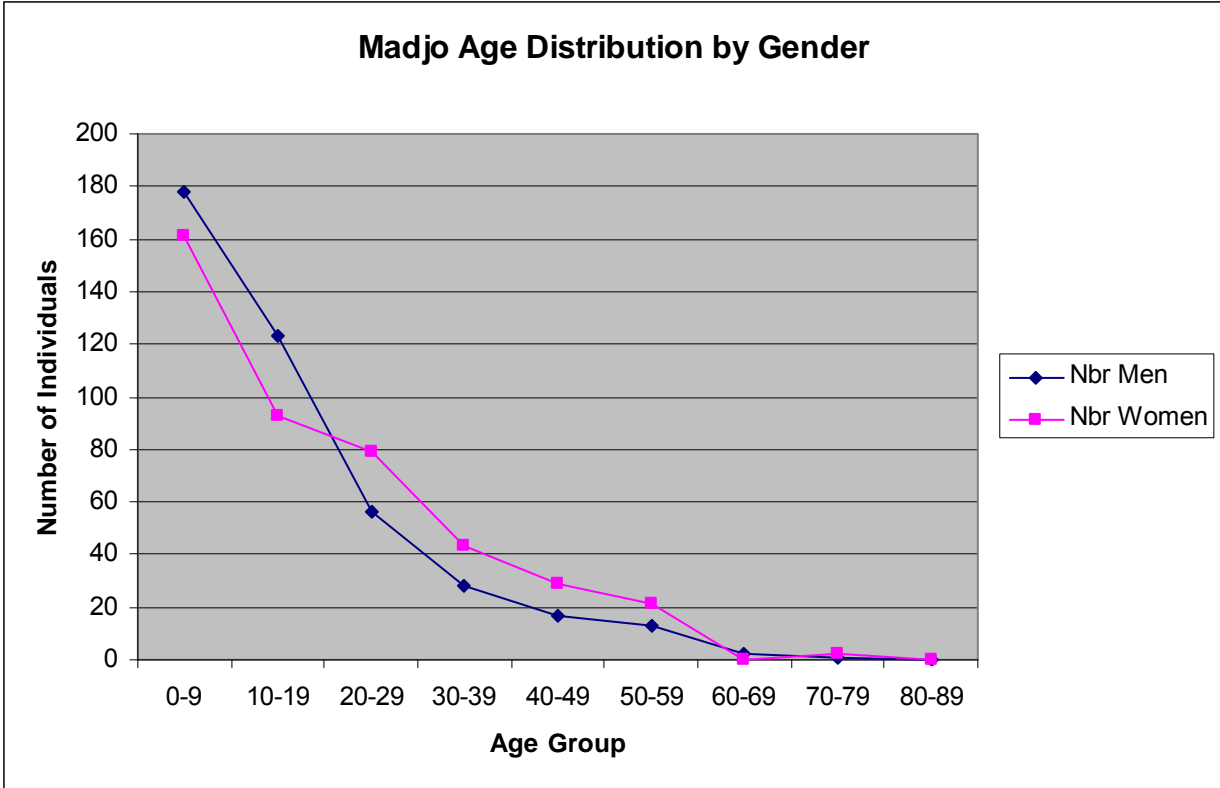
Age	Number individuals	% of pop
0-9	339	40%
10-19	216	26%

¹ Using Madjo’s 2006 population, since 2007 is not available.

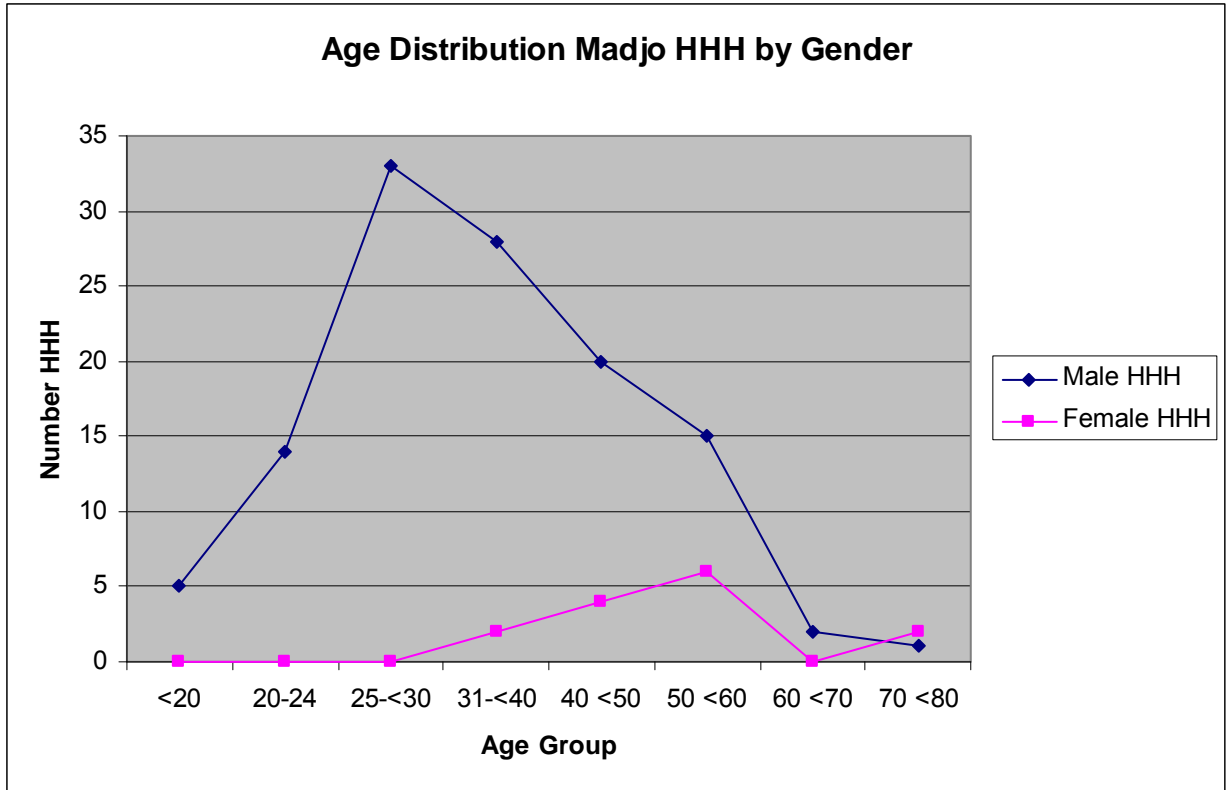
20-29	135	16%
30-39	71	8%
40-49	46	5%
50-59	34	4%
60-69	2	0.2%
70-79	3	0.4%
80-89	0	0.0%



- Only 33% of the population is of the age considered mature enough to head a household. Another 0.6% are at the age where, although they may have independent HH, they depend on their children for most of their subsistence.



- Madjo’s age distribution according to gender is typical, with more women surviving longer than men in their middle age.
- Hence the number of female HHH (widows, separations) increases with age.

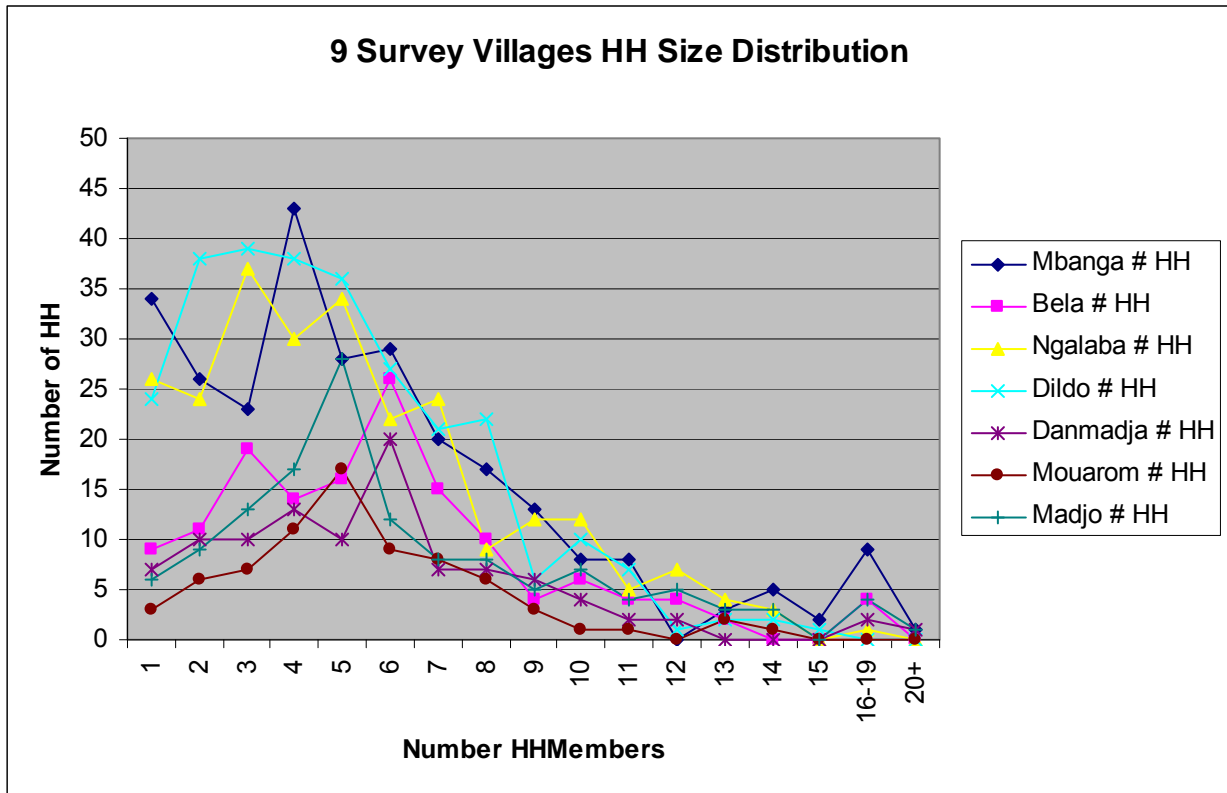


- Although there are a number of Female HHH (FHHH) in Madjo, 28% of those FHHH cultivate their own family land in Madjo.

HH Size

- While the average HH size in the area is about 5.6, in Madjo Bero average is 6.4.
- The **mode** of HH composition at Madjo Bero is 5 HHM.
- The overall distribution of Madjo Bero's households by size, in comparison with other surveyed villages, is:

# HHM	Madjo # HH	Mbanga # HH	Bela # HH	Ngalaba # HH	Dildo # HH	Danmadja # HH	Mouarom # HH
1	6	34	9	26	24	7	3
2	9	26	11	24	38	10	6
3	13	23	19	37	39	10	7
4	17	43	14	30	38	13	11
5	28	28	16	34	36	10	17
6	12	29	26	22	27	20	9
7	8	20	15	24	21	7	8
8	8	17	10	9	22	7	6
9	5	13	4	12	6	6	3
10	7	8	6	12	10	4	1
11	4	8	4	5	7	2	1
12	5	0	4	7	1	2	0
13	3	3	2	4	2	0	2
14	3	5	0	3	2	0	1
15	0	2	0	0	1	0	0
16-19	4	9	4	1	0	2	0
20+	1	1	0	0	0	1	0



Vulnerability or Non-Viable Agricultural HHs

Age

- The age of the HHH plays a role in the HH's vulnerability; HHH at certain ages are more likely to have insufficient land for their HHM. But it must be remembered that the **HH land holding of 2/3 corde per HHM covers both land in cultivation and in fallow. A HH may have under 2/3 corde per HHM but put most of that land in cultivation so that it currently has plenty to eat, while the fallow that will be needed in a few years lies in the family land pool, held by an older relative.**
- Hence there is a large number of vulnerable HHHs in their 20s, usually males, because women at this age are newly married and dependent on their husbands, mortality, etc. not having yet had much impact:

Age HHH	# All HHH	# Vulnerable HHH	# Male Vulnerable HHH	# Female Vulnerable HHH
less than 20	5	4	4	0
21-30	47	12	12	0
31-40	30	1	0	1
41-50	24	2	0	2
51-60	21	0	0	0
61-70	2	0	0	0
71-80	2	0	0	0
81-90	0	0	0	0

- As is typical of other villages, the number of vulnerable female HHH increases with age.

Size

- The average HH size of all Madjo Bero's vulnerable HHs is only 5.3 versus the large HH found among vulnerable families in most other villages. But the younger HHH have larger HH (6.7 -7.0) than the older ones, putting a burden on the younger HHH.
- The total number of individuals in the vulnerable HH = 119, of which 93 belong to Project-affected HH.

Age HHH	Avg HH Size	Avg <2/3 c HH Size
<20	7.0	7.0
20-24	6.8	6.7
25-<30	6.4	0.0
31-<40	6.5	3.0
40 <50	6.2	4.0
50 <60	4.7	0
60 <70	8.5	0
70 <80	6.0	0

Land Holdings

- Looking at the number of individuals within HHs shows the percent of the entire population, not just of HHs, that finds itself at a particular economic level:
 - 14% of Madjo Bero's population lacks sufficient agricultural land, though there may be other HH sources of revenue.
 - Another 9% live on the margin of agricultural poverty
 - The remaining 77% of the population find themselves in good circumstances:

Range of Land Holdings	Number of HHs	Number of Individuals	% HH	% Individual
0	3	22	2	3
0.001 - 0.667	16	97	12	11
0.668 - 0.999	12	72	9	8
1.000 - 2.499	57	391	43	46
2.500 - ...	45	256	34	31
Total	133			

Description of Project Impact

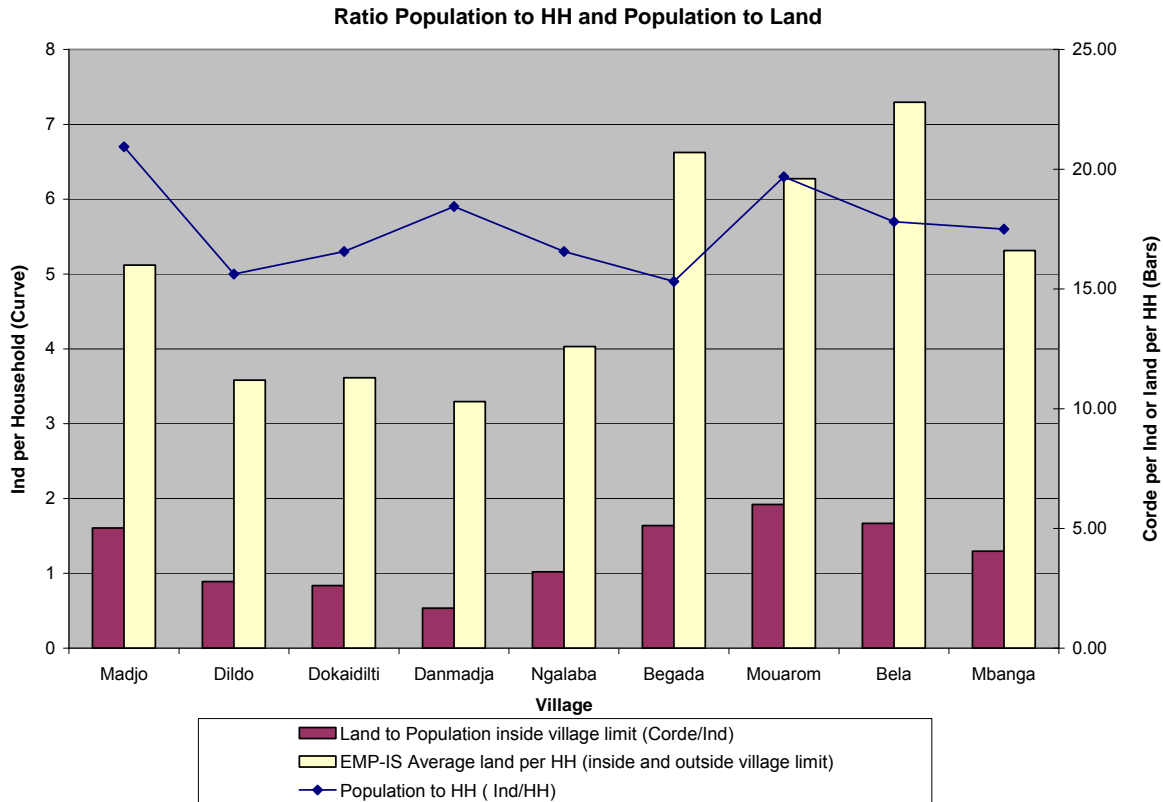
Most of the land occupied by project well pads lies well east of the village area, close to and paralleling the Loule River. Just to the west of the well pads lie two large borrow pits. A few well pads are scattered elsewhere. Hence the location of oil facilities has little impact on the villagers' daily movements.

- **As a village, Madjo Bero is not in a vulnerable state.** There is still plenty of land and the average viability factor per capita is quite high:

Status of Average Madjo Bero HH

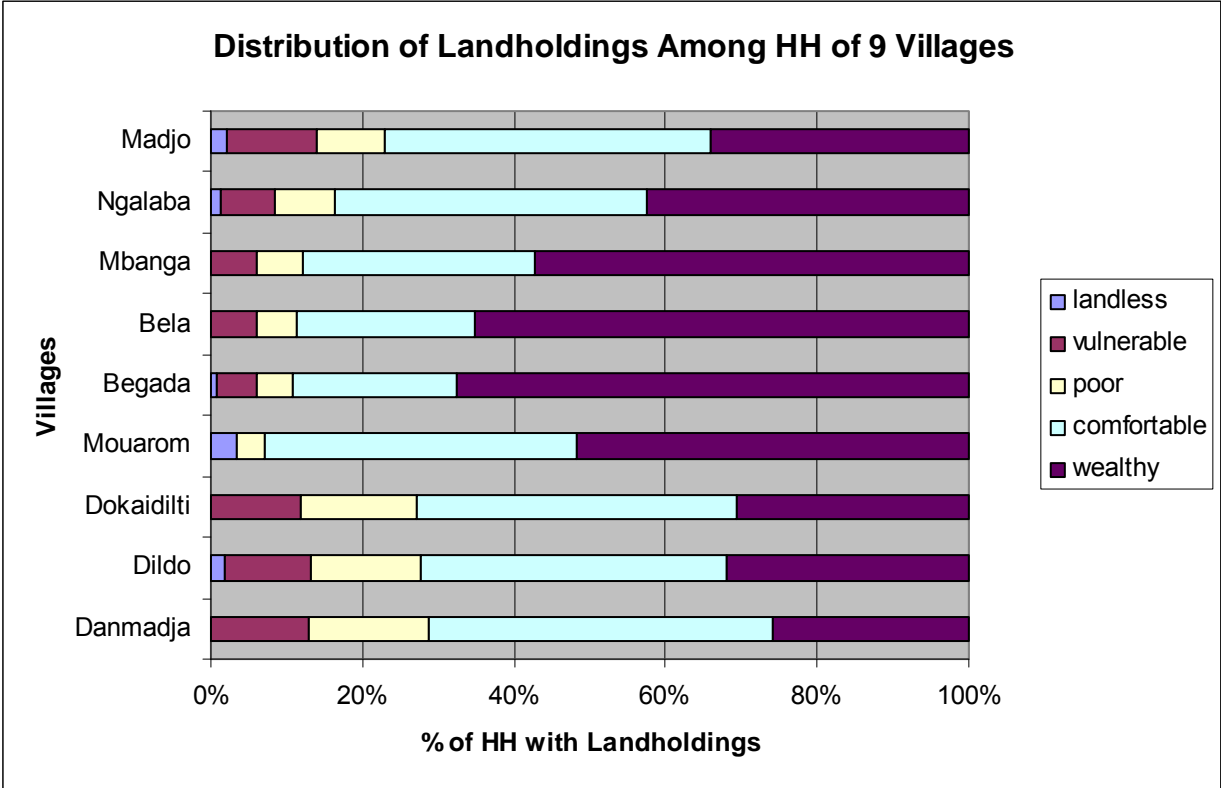
Pre-project		With Project	
Avg Land/HH	Avg fct/HH	Avg Land/HH	Avg fct/HH
17.492 c	2.996	16.017	2.738

- Madjo Bero's ratio of the number of HHs to village population is similar to other villages.
- The ratio of population to land area in Madjo lies somewhere in between the other fishing villages and agricultural ones. While fishing villages need less land for viability than farming villages, Madjo's recent split seems to have given the village's HH a good amount of farmland, for the present:



The graph below depicts the proportions of each village population falling into the different land holding categories. Madjo Bero supports the proposition emitted in the Begada SSP:

- Land pressure does not directly create more non-viable HH but instead increases the number of marginal HHs. Non-viability is caused by a conjunction of land pressure and other social factors such as age, personality, handicaps, gender and ability to access family land:



- More HH in Madjo Bero are simply comfortable rather than wealthy landholders.
- Like Danmadja, Dildo and Dokaidilti, Madjo has more vulnerable HH judged by the landholding criterion alone than the mainly agricultural villages like Mbanga or Begada:

Skewed Land Holdings in 8 Villages (Begada, Bela, Danmadja, Dildo, Dokaidilti, Mbanga, Mouarom, Ngalaba) vs Madjo Bero				
Agricultural Sustainability	Vulnerable	Marginal	COMFORTABLE	Wealthy
Resettlement factor	0-0.67	0.68-0.99	1.00-2.49	2.5 +
% HH in villages at factor	10	10	35	45
% HH Madjo Bero at factor	14	9	43	34

- **Considered as Households**, upon completion of the village survey in November 2009
 - 19 HHs are below the agricultural viability level of 2/3 corde per HHM; 3 FHHH and 16 Male HHH (MHHH)
 - The total number of individuals in these HHs is 119
 - 7 of these HH were never affected by Project land take
 - 11 of the compensated nonviable are MHHH
 - 1 is FHHH
 - The total number of individuals in these Project-affected Non Viable HH is 93
- Considering Non-Viable HH that have never surrendered land to the Project:
 - 2 FHHH never affected by the Project are age 41 and 57. Their HH contain 3 and 4 individuals respectively
 - Of the 5 MHHH, two are 19 years old, one 33, one 25 and one 27.
 - The total number of individuals in the non-viable but never compensated HHs is 26.
- Considering project-affected non-viable HH:
 - The sole FHHH is 32, with 3 dependents.
 - Of the 11 MHHH, 3 are young; the 20 year old has a HH of 8; two 23 year olds have 3 and 8 HHM
 - The 5 MHHH in their late 20s and early thirties have 5, 3, 8, 16, and 10 HHM respectively.
 - 3 MHHH are older men (44 with 9 HHM; 50 with 6 HHM, and 54 with 13 HHM)
- Considering the 12 marginal HHs in Madjo Bero:
 - 3 are non-compensated HH.
 - 1 is headed by a female (2 HHM).
 - The total number of individuals in these HH is 72.
- The marginal HHH range in age from 19 to 53.
- There are 51 comfortable landholding HH 1-2.4 c/HHM) encompassing 323 HHM.
- 39 wealthy ones with 235 HHM.

Land Distribution among HH (green = mode)										
	OFDA	Dildo	Dokaidilti	Ngalaba	Begada	Danmadja	Mouarom	Bela	Mbanga	M
cordes	1995 HH	2008 HH	2007 HH	2008 HH	2009 HH	2008 HH	2008 HH	2009 HH	2009 HH	
0	see < 1	1.80%	0.00%	1%	1%	0.00%	1.20%	0%	0%	
< 1	4.70%	1.10%	1.20%	0%	1%	1.00%	1.20%	0.70%	0.40%	
< 2	10.50%	9.10%	2.40%	4%	3%	5.90%	1.20%	2.10%	4.10%	
< 3	12.10%	8.00%	9.40%	4%	3%	9.90%	1.20%	5.60%	3.00%	
< 4	16.00%	8.40%	8.20%	5%	3%	8.90%	4.70%	5.60%	8.20%	
< 5	14.80%	8.70%	4.70%	7%	2%	11.90%	4.70%	2.10%	4.80%	
< 6	9.30%	7.30%	8.20%	9%	3%	7.90%	2.40%	4.90%	3.30%	
< 7	8.00%	6.90%	4.70%	6%	4%	5.00%	4.70%	0.70%	4.10%	
< 8	5.10%	4.40%	8.20%	4%	3%	9.90%	5.90%	3.50%	3.00%	
< 9	6.80%	3.30%	11.60%	4%	4%	2.00%	4.70%	6.30%	3.70%	
< 10	2.30%	5.50%	5.90%	5%	5%	4.00%	7.10%	3.50%	4.50%	
> 10	8.20%	36.00%	35.30%	41%	69%	33.70%	61.20%	65.30%	61.10%	

The 1995 HH data used is “declared” rather than topographical measurements of the number of cordes per HH.

- The modal land holdings in Madjo Bero is less than 2 cordes, like Dildo, another fishing village; at Dokaidilti and Danmadja fishing villages the mode is 3-4 cordes
- 69 of the top landholding households have more than 10 c of land for the entire HH (**not**. Per HHM)
- The landholdings per HHM are as follows:

All Madjo HH Land Categories		
HH viability factor	Total # current HH	% HH in land category
zero	3	2%
<2/3	16	12%
<1	12	9%
<2.5	57	43%
2.5 +	45	34%

Land Available to Villages

	Dokaidilti	Dildo	Ngalaba	Danmadja	Mouarom	Begada	Bela	Mbanga	Madjo
Village Area in Hectares	686	1887	2118	480	1352	3321	2200	3068	2148
Settlement area in Hectares (% village)	24 (3%)	46 (2%)	97 (5%)	34 (7%)	23 (2%)	56 (2%)	35 (2%)	62 (2%)	27 (1%)
Project Perm. Land Take + Temp. No Returned in Hectares (% village)	79 (12%)	185 (10%)	253 (12%)	61 (13%)	149 (11%)	288 (7%)	172 (8%)	189 (6%)	135 (6%)
Available Land inside the village limit in Hectares (% village)	583 (85%)	1656 (88%)	1768 (83%)	385 (80%)	1180 (87%)	2977 (90%)	1993 (91%)	2817 (92%)	1986 (92%) incl 483 of Flooded Area
Available Land Density inside the village limit (Hectares/Person)	1.09	1.23	1.34	0.68	2.64	2.32	2.38	1.88	2.34 1.77 excl Flooded Area
Cultivated (Field) or Owned (Fallow) outside the village in Hectares (% of total land of the residents)	40 (8%)	106 (6%)	69 (4%)	122 (23%)	217 (26%)	76 (3%)*	73 (4%)	70 (3%)*	114 (10%)
Total Cultivated (Field) or Owned (Fallow) of the residents in Hectares (% of total land of the residents)	490	1561	1601	487	850	2763	1666	2270	1110
Available Land Density inside and outside the village limit (Hectares/Person)	0.92	1.16	1.21	0.85	1.90	2.15	1.99	1.51	1.88 1.31 excl. Flooded Area

Use of Available Land per Village

	Dokaidilti	Dildo	Ngalaba	Danmadja	Mouarom	Begada	Bela	Mbanga	Madjo
Cultivated (Field) or Owned (Fallow) by non-residents inside the village limit in Hectares (% of available land inside village limit)	121 (21 %)	141 (9 %)	141 (8 %)	17 (4 %)	531 (45%)	272 (9%)	389 (20%)	577 (20%)	504 (25%)
Cultivated Field Farmed by Resident inside the village limit in hectares (% of available land)	302 (52 %)	668 (40 %)	1043 (59 %)	241 (63 %)	291 (25%)	1190 (40%)	755 (39%)	1122 (40%)	443 (22%)
Fallow Owned by Resident inside the village limit in hectares (% of available land)	149 (26 %)	792 (48 %)	553* (31 %)	124 (32 %)	342 (29%)	1497 (50%)	838 (42%)	1078 (38%)	553 (28%)
Ratio Fallow/Field	0.49	1.19	0.53	0.51	1.18	1.26	1.11	0.96	1.25

* 63 Ha of bush included in fallow

Demography of Villages

	Dokaidilti	Dildo	Ngalaba	Danmadja	Mouarom	Begada	Bela	Mbanga	Madjo
Nbr of Residents	534	1346	1324	570	447	1285	837	1501	848
Men	243	657	668	284	216	608	434	718	418
Women	291	689	656	286	231	677	403	783	430
Avg Age in Years	19	20	20	19	19	19	18	18	17
Nbr HH	85	275	250	101	85	259	144	269	133
Avg. HH size (# HH Members)	6.3	4.9	5.3	5.7	5.3	5.0	5.9	5.6	6.4
Avg. cordes Land per HH inside and outside village	11.3	11.2	12.6	10.3	19.6	20.7	22.8	16.6	16.0
Avg. Resettlement Factor (Based on all land inside and outside village)	1.80 Corde/HhM	2.29 cordes/HHm	2.39 cordes/HHM	1.8 Corde/HhM	3.69 cordes/HhM	4.17 cordes/HhM	3.88 cordes/HhM	2.95 cordes/HhM	2.5 cordes/HhM
% Area cultivated (Field) or owned (Fallow) by women out of total area "owned" by village residents inside and outside village	15%	17%	29%	22%	14%	30%	12%	22%	28 %

Project Impact on Madjo Bero
Compensation

Compensation affected the village as follows:

- 65% of Madjo Bero’s productive inhabitants (older than 20 years old = 268 individuals) were compensated
- 111 or 84% of Madjo Bero’s households were compensated
- 54% of the individuals compensated were men, in contrast to 46% of the women who received compensation:

Age	Nbr Individual	Nbr Men	Nbr Women	Nbr Compensated Individual	Nbr Compensated Men	Nbr Compensated Women
0-9	319	165	154	1	1	0
10-19	196	111	85	24	13	11
20-29	131	56	75	71	44	27
30-39	66	26	40	43	22	21
40-49	44	17	27	33	16	17
50-59	32	11	21	23	8	15
60-69	2	2	0	2	2	0
70-79	3	1	2	2	1	1
80-89	0	0	0	0	0	0
N/A	2	0	2	1	0	1
Total	795	389	406	200	107	93

The data in this table does not include 53 individuals who have not yet been integrated.

- Under-age (0-9) but compensated individuals shows the practice that has developed of subdividing a field at compensation identification, attributing a portion to a child, and then collecting the set minimum compensation, which is worth more than the area if it had been included in the adult’s field.
- In Madjo there are five 19 year old HHH who have their own fields.

Surrendering land to the Project is not the only cause of Non-Viability, as the following table shows. Some of the people compensated for land were already Non-Viable before the Project began. Whether or not the Project made any compensated HH Non-

Viable, if a household is compensated and is found to be under 2/3 corde per HHM, the compensated person is eligible for a resettlement option:

# All Madjo HH at Resettlement Factor					
HH viability factor	Total # current HH	Male HHH		Female HHH	
		before	now	before	now
		118		14	
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

As noted above in discussing Declared versus Measured Data, the latter is far more accurate in identifying vulnerable HHs and is used in the following table:

All Compensated HHs in Madjo						
Resettlement Factor	Nbr HH	Nbr Individuals	% All HH	% of Population	Nbr Resettlement Option	Nbr HHM in Reset Op HH
< 0.667	12	93	10.91	12.3	4	45
0.668 - 0.999	9	60	8.18	7.9	5	32
1.000 – 2.499	51	373	46.36	49.2	29	255
> 2.500	38	232	34.55	30.6	18	129
Total	110	758	100	100	56	461

- Among the 12 Non-Viable HHs affected by the Project only 4 were correctly identified as Non-Viable on the basis of their declarative data and offered a resettlement option.
- The remaining 8 HH uncovered by the Village Land survey will all be offered a resettlement option for the group of non-viable HH that will be resettled in 2010.

Change in social status

Social Impact 1998 through 2009 in Madjo-Bero		
Social Situation	#	%
All HH	133	100%
All Compensated HH	111	83%
Compensated HH Situation remains the same	91	68%
Landholding Situation Changed	20	15%
No land	2	2%
Non-Viable with some land	4	5%
HH dropped to Marginal	4	3%
Wealthy HH reduced to COMFORTABLE	10	8%

- Of the 19 nonviable HH in Madjo Bero, only 4 of them were made non-viable by Project land acquisition; all the others were already nonviable before the Project.
- 4 HH fell from being comfortable landholders to marginal ones.
- Out of the 57 comfortable HHs in Madjo Bero today, 10 used to be wealthy land holders.
- The total social impact of the Project on changes in HH situation is 20 HH/133 HH, or 15%.

Resettlement Program Impact on Madjo Bero

The information in this section has been developed from surveys and monitoring results of Improved Agriculture and Off-Farm training plus the Social/Land Survey. For HH for which no Improved Agriculture or Off-Farm survey information is available, the Social/Land Survey provide the only, though detailed, basis for judging impact. The Resettlement Programs purpose is to remediate the social situation of HHs that are Non-Viable and whose situation has been worsened by the Project.

Up through the completion of the village survey 59 people had been trained, 25 in Improved Agriculture and 34 in Off Farm. 8 of these farm trainees were retrained in an Off Farm skill after they had lost too much land to succeed even with their new farming techniques.

- 33 graduates who had established a track record showing success or commitment in using their choice of resettlement option received reinforcement training in 2009 to strengthen their earning capacity and ensure livelihood restoration.
- Improved Agriculture =25
 - 18 in vegetable gardening (11 women and 7 men)
 - 3 in rice
 - 2 in animal husbandry (1 pigs, 1 poultry)
 - 1 couple in fishing and fish preservation
 - 1 in rainfed agriculture

- Off Farm = 8
 - 2 in masonry
 - 2 in sewing
 - 3 in transformation of local foods
 - 1 in dyeing and knitting

Two men who had been trained as butchers but never applied their skills had instead become a gardener and a fisherman; 2 women trained as seamstress and restaurateur had become vegetable gardeners. And so, along with those from Madjo who were being reinforced, they were given more training in utilizing their self-chosen skills.

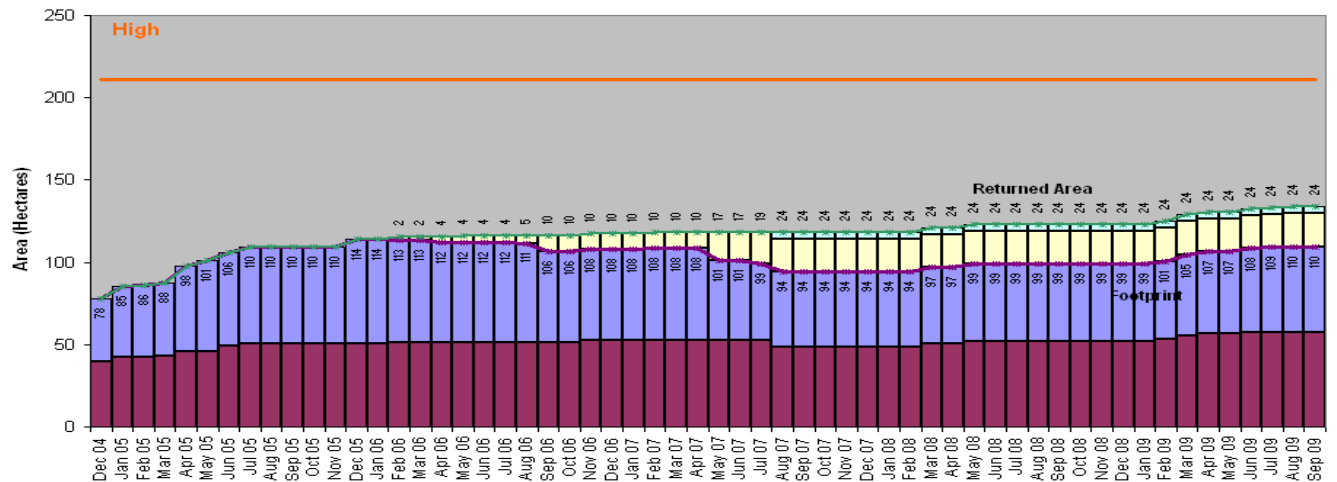
- Success of reinforcement in vegetable growing:
 - The 3 vegetable growers associations of ex-trainees had continued over the past few years with better or less success to plant and sell – some a wide range of vegetables. The 2002 group needed a new pipe for their motor pump but had been unable to agree on financing so they continued on with only traditional varieties.
 - Now, as a result of reinforcement all 3 groups recognize that they can finance themselves in modern gardening.
 - The reinforcement has allowed them to diminish their expenses as well as increase their revenues.
 - The Madjo associations showed the greatest interest and skill of all the people reinforced in vegetable gardening in 2009.
 - All participant Madjo graduates (except one) and several volunteer participants in the reinforcement have planned the next campaign.
 - All learned how to produce onion seed instead of having to purchase it in the market.
 - 2 women, one graduate and one volunteer, managed to master the art of reproducing onions from bulbs and hence will be able to produce onions during the period of their rarity.
- Successful reinforcement in rice farming: all three mastered the art of planting a seed nursery and transplanting in rows.

Land Return

No HH Became Viable Through Project Land Return

- Most of the land acquired in Madjo Bero was for subterranean installations (38 ha) such as flow lines – land which can be returned to agricultural use with only mild restrictions – and well pads (19 ha) of which about half can be returned for farming. Likewise the 10 ha needed for electric lines is useable land. Early in the Project land for a gathering station (4 ha) was acquired from Madjo land but the station was never built due to low production from that part of the field and constitutes Permanent Returned Land.
- Land return to nonviable HH will not move any of them above the viability factor.

Land acquired and returned since January 2005 in Madjo village



Physical Resettlement

No one in Madjo Bero has chosen to be resettled in another village because of lack of land, preferring other options to resettlement. On the other hand, the population of Madjo-Bero has exercised the traditional tactic of adjusting population size to overall resource availability by splitting into Madjo-Doba and Madjo-Bero. As a result, about 10 of the people trained in Improved Agriculture or in Off Farm skills have not only benefited from this extra source of non-agricultural income but also self-resettled themselves.

Supplemental Community Compensation

Madjo Bero, like the other impacted villages in the OFDA, is being included in a Supplemental Community Compensation program. According to the principles of compensation, Individual compensation for land covered the lost crop plus the cost of putting another field in cultivation for a replacement crop in the next year. Community compensation was given for permanent land take or for temporary land taken for more than one year. In highly affected villages the time for return of temporary land has been protracted and there has been more stress on community land resources. LUMAP is providing Supplemental Compensation for the “temporary” land that was not returned within 1 year.

Madjo Bero started the Participatory Rural Appraisal (PRA) process with the Non Governmental Organization (NGO) BELACD-Doba in 2Q 2008. Madjo Bero has set its development priorities and has chosen one school classroom as within its budget/degree of impact of land acquired. The construction of the school will be completed by the end of 2009.

Madjo Bero's Current Needs and Resources

- The amount of land needed by those compensated families at risk to become economically viable is 6.5 ha.
- The amount of land needed by the other non-viable families untouched by the project to be economically viable is 2.6 ha.
- The total land shortage for needy HH in Madjo Bero is 9.1 ha.
- Madjo Bero's arable land = 2817 ha; they also have 70 ha of farmland in other villages.
- 61% of HH are holding more than 10 cordes of land apiece and 57% have more than 2.5 cordes per HHM.
- Like Dokaidilti, Mouarom and Bela a large percentage of Madjo Bero's land in cultivation or in fallow is farmed by people from outside Madjo Bero – 20% of Madjo Bero's land.
- At present Madjo Bero has enough land within its boundaries to leave a field in fallow for 20 years; if the land Madjo Bero's inhabitants still farm outside their village is included, fallow could last up to 18 years.
- 3-4 years is the current norm for fallow to recover in the OFDA
- Madjo Bero village has enough arable land to provide all its inhabitants more than 2/3 c per HHM.
- Madjo Bero village has enough land to maintain the desired rotation of 4 years of cultivation, 3 years of fallow.

Infill Drilling in Madjo-Bero Fault Block

35 In Fill wells are planned for Madjo over the next 2 years.

By its very nature, in fill drilling targets the places of highest production within a fault block, so any additional land acquisition occurs in areas which have already been densely occupied by Project construction. In these spots there is not much additional land which could be acquired for the first time. HH cannot therefore be deprived of much more land in these areas.

At the Madjo village level In Fill drilling will concentrate on the 57 hectares already in use for well pads and flowlines (flowlines are reclaimed and can be farmed). This area represents only 3% of the arable land contained within Madjo's boundaries.

The impact of land acquisition for In Fill drilling would be on the HH who have land near existing well pads where In Fill wells will be drilled to take advantage of sweet spots.

- Current landholding situation of HH with land in fault block
 - 86 HH possess fields within the fault block
 - 5 of them are already vulnerable and
 - 5 are marginal
- Resettlement benefits of HH with land in fault block

- 4 of the 5 nonviable HH in fault block have already benefited from a resettlement option.
- The remaining will be offered resettlement benefits in 2010-11.

In the very worst case, in which the Project turned the entire fault block into a construction site (unlikely, as Drilling is aiming only for the sweet spots) the impact can be calculated from the Village Survey data.

- Worst Case Scenario for HH with land in fault block
 - 86/133 Madjo HH have fields within the fault block
 - 25 of the 86 would become non-viable in terms of land = 20 additional HH made nonviable
 - 11/86 would become Marginal = 6 additional marginal HH
 - The remaining 40 HH have ample land holdings outside the fault block and are unlikely to suffer from the small pieces of land that might be needed for infill.

In contrast to the Worst Case, basing the predicted impact on an extrapolation from the number of HH made non-viable so far by the in fill construction built to date gives 2.3 additional HH made nonviable.

Recommended Site Specific Actions

The LUMAP calls for the Site Specific Plan to consider all of the options in the CRCP and its implementing procedures described in the Land Management Manual (LMM). As a whole, the village of Madjo Bero is one of the best placed villages in the OFDA for available land.

For the individual HH which are currently non-viable, specific interventions will be used:

- 8 project-affected HH are non-viable; they will be offered resettlement options in the class of 2010. First they will participate in Literacy, Numeracy and Business Skills training in 1Q 2010 and then implement their option.
- If these options do not succeed during the 2 year's of monitoring, then the HH will be offered land replacement.

The following table describes each option and its relevance to the At Risk Households in Madjo Bero as per the CRCP, LMM procedures and Management of Change to the LMM currently in place:

Site Specific Actions for Madjo Bero

CRCP/LMM Resettlement Option	Description	Desirable Option (Yes/No)	Comments
Land Reclamation & Return	Reclaim land and return to community & former users; free land targeted to vulnerable HH	Yes	Small parcels of well pads constitute the major land returned in Madjo. Improvements to vegetable garden and rice growing areas offer a better perspective on increasing land use.
Physical Relocation Individuals	Physically move at risk household to new location outside of current village	No	No one in Madjo has chosen physical resettlement as an option for livelihood restoration. Instead they benefit from training and voluntarily undertake on their own to resettle themselves in Madjo-Doba.
Third Party Compensation	Land User with surplus land may donate to at risk household and receive normal land compensation payment	No	Madjo Bero's fortunate location on a floodplain used to a limited extent for rice cultivation means nonviable HH can access additional land without 3 rd party compensation.
Off Farm Training	Provide training to earn income in non-agricultural work	No	The rural demand for non-agricultural skills is saturated.
	Reinforce training to increase income earned to viable level	Yes	25 reinforced in 2009.
Improved Agriculture	Provide training to generate more production of subsistence crops and produce cash crops	Yes	Improved agriculture, especially dry season vegetable gardening and rainy season rice farming can take advantage of Madjo's riverside location.
	Reinforce training to generate more production of subsistence/ cash crops	Yes	8 Improved Agriculture graduates reinforced in 2009.

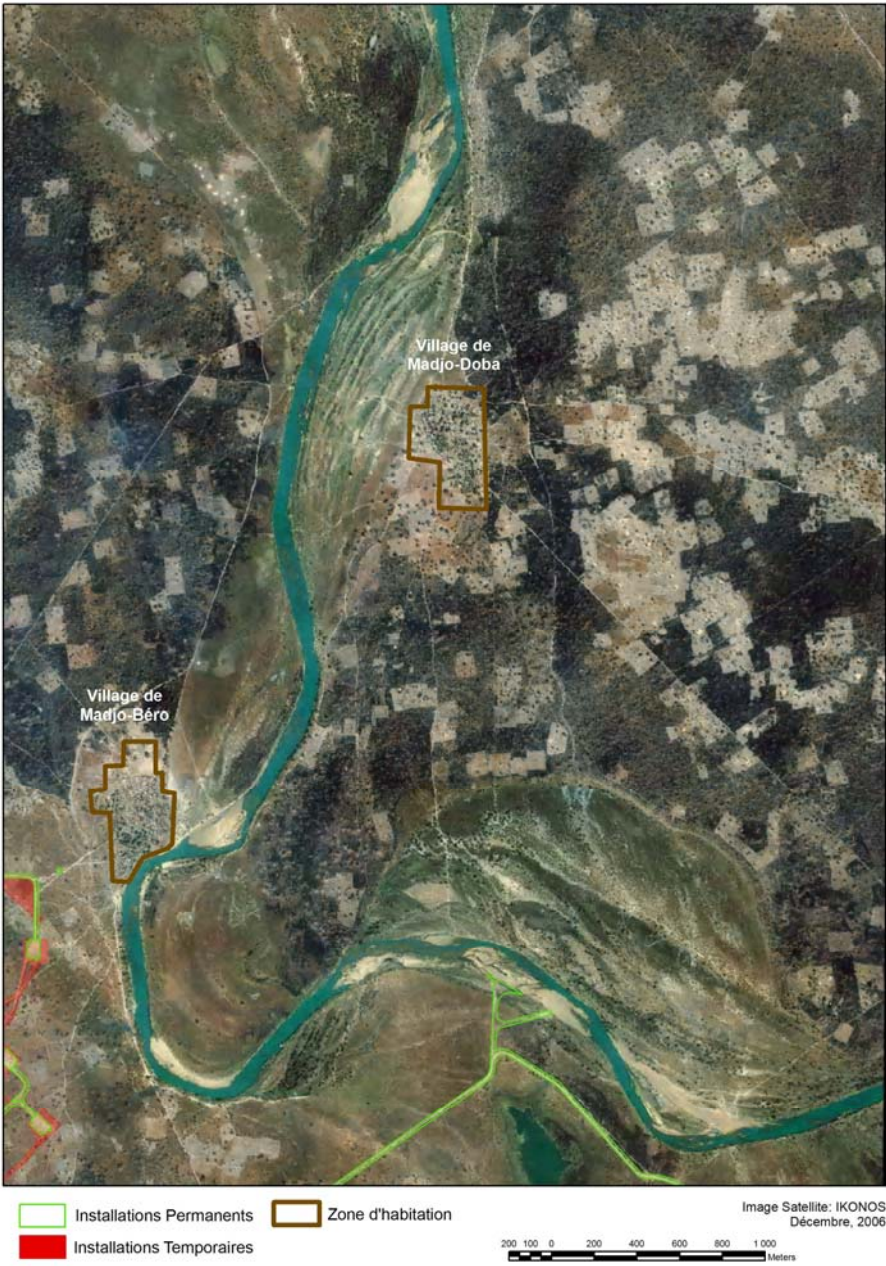
Rainy Season Resettlement	Provide field clearing, rainy season hut, well, bicycle, and hand cart for use in distant farm field	No	Madjo's village area is too small to require moving in order to exploit unused land.
Physical Relocation of Village	Physically relocate entire village to new location in cooperation and in concert with government	No	The traditional mechanisms for voluntary and gradual resettlement are working well.
Supplemental Community Compensation	Phase 1: Rapid Participatory Assessment of Needs & Resources	Yes	Carried out in 2008-9, resulting in choice of rice perimeter; cancelled for budgetary reasons. The village chose a schoolroom as next option.
	Phase 2: Oversee implementation; Create management committee	Yes	Under construction and will be finished by end 2009.

Site Specific Plan Implementation Timeline

Grey = Completed; Blue = Underway; White = To implement

Action (grey indicates completed, blue underway)	<u>Timeline</u>
Land and social surveys completed	July 08-Oct 09
Madjo Bero choice of Supplemental Community Compensation	3Q 09
Construction Madjo Bero Supplemental Community Compensation	4Q 09
EEPCI works with Africa Rice Center and GOT to develop and then transfer land to At-Risk individuals choosing this options	2010-11
EEPCI offers Reinforcement Training and equipment	2009
EEPCI offers Basic Business Training and Improved Agriculture Training	2010-11

MAPS AND DIAGRAMS

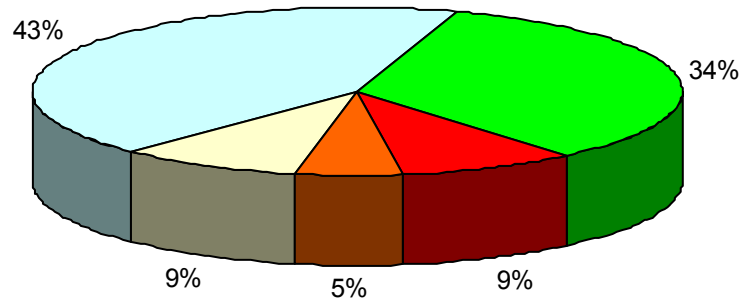


Madjo-Bero and Madjo-Doba

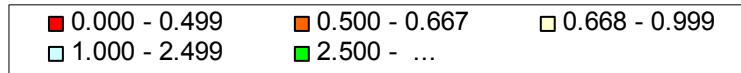


Madjo Installations (well pads and flowlines)

Land Distribution among all the Households of Madjo



Eligibility Factor (Corde/Dependant)



	Total HH		Compensated HH			
	Nbr HH	Nbr. Individual Within HH	Nbr. Of Comp. HH	Nbr. Individual Within Comp HH	% HH	% Individual Within Comp HH
0.000 - 0.499	12	81	7	61	6.4%	8.1%
0.500 - 0.667	7	38	5	32	4.6%	4.2%
0.668 - 0.999	12	72	9	60	8.1%	7.9%
1.000 - 2.499	57	398	51	373	46.4%	49.2%
2.500 - ...	45	263	38	232	34.5%	30.6%
Total	133	852	110	758	100%	100%

