

Bero Village Site Specific Plan

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. Out of the 32 geographical villages in the OFDA, 10 were categorized as more affected by ongoing project land needs than others. For purposes of previous SSPs, it was the

geographic unit that was considered since the aim is to remediate impacts on the geographical area of the village and its inhabitants. For Bero both the geographic and political units will be considered, for reasons explained below.

In mid-2007 Bero was classified as a High impact village according to land acquisition and social impact and for this reason this SSP has been developed. At the end of 2Q 2008, before In Fill drilling had started, Bero was still classed as High despite intensive land restoration and return, mostly of Borrow Pits. Land use, both permanent and temporary but not returned (i.e. land out of use to Bero inhabitants) was still 12.3% or High impact. At that time, according to the declarative data in the EEPIC Compensation Database, 44% of people were under 2/3 corde per HHM and nonviable. Thus, according to the data available at the time, both land and social criteria put Bero into the High impact category.

In 4Q 2009 the Village Land Use Survey was completed and the initial view of data became available. Land use had continued to increase because of In Fill Drilling, to 13.2%. But the measured landholdings of the population showed that 17%, rather than 44%, of the population was nonviable; this was reported in the Fourth Quarter Village Report for 2010; 11% of the nonviable HH had been compensated and were eligible to choose a resettlement option. Of the 11% of compensated nonviable HH, less than half, 31 HH had been rendered agriculturally non-viable because of Project land acquisition. Although the integration is virtually complete as of this writing, some adjustments continue as new facts are discovered through questions of clarification.

Purpose of the Bero Site Specific Plan

The purpose of the Bero SSP is to provide the village as a whole with sufficient livelihood to offset its land losses to the Project. The previous SSPs have evaluated the land-holdings of the HHs in the entire geographic village to judge whether the village as a whole is at risk and, if so, what actions would be efficacious. In the case of Bero, the data was examined both as a geographic unit and as separate and independent villages that have split off from Bero 2, the dynamic unit in the area. This has been done because the split between villages has been caused mainly by political factors rather than issues of land access. This is a traditional coping mechanism for dealing with social problems just as dividing to seek new land is a traditional mechanism. But since land is not the driving factor in these splits it is best to look at each new village's access to land.

Like previous SSPs the plan also looks at the more affected people in the different villages to appraise their situation and recommend 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 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 February 2010. The figures may change slightly as additional fields cultivated by Bero residents are tied to residents as the data is improved; since this additional land only ameliorates the

landholding situation of the residents, any changes in the data will be to the advantage of the village and its residents.

An additional EMP-IS improvement will also modify Bero's numbers, as well as those of other villages. By integrating all the villages in a single GIS layer; the EMP-IS can now match a cultivator in one village with the database for cultivated fields measured in other villages.

The almost complete coverage of the OFDA with the village survey methodology will not only allow the re-integration of all the fields in the database so that it attributes to the farmer all the fields he has, wherever they are; it also allows the attribution of litigious fields. To this point these fields have not been counted among the landholdings of any individual/HH, thus under-counting their total. Since much of Bero cultivates in areas that lie north and northwest of the oil-bearing fault blocks, however, a part of the 5500 hectares that Bero inhabitants cultivate in villages outside Bero boundaries have not been mapped and cannot be attributed to specific farmers in Bero. This means that the number of Non-Viable HH may be fewer than the current data indicates but cannot be demonstrated.

Finally another improvement to the EMP-IS is underway, an "update methodology" of the overall village survey compilation so that additional land acquisition and changes in HH composition can be registered in the EMP-IS.

Bero's Land and Population, past and present.

Bero is the main village in Bero canton, long established (it is divided in half by the "German Road" dating from WW1). Bero 1 and 2 were separate and official villages at the beginning of the Project. (Bero 1 lies on the German Road to the north of Bero 2.) Bero 2, the larger village and the headquarters of the canton chief, previously had a number of farm hamlets under its control and many still exist. (See Maps of Bero North and Bero South in Map Annex). Bero Canton, as can be seen from the Map Annex, is long and skinny; geographic Bero village farmers in need of land have tended to hive off and move, setting up farm hamlets quite distant from the home village. The Canton's western boundary is formed by the Loule River (a tributary of the Nya River to the north) with Mbanga land on the other bank. As noted in the Mbanga SSP, the watercourse has not impeded Bero 2 residents from crossing to farm (see Map Annex). In addition to Mbanga land Bero 2 has another hamlet, Bessangndoh. It is in good part land such as this that has allowed the villages to split.

Bero 2 also utilizes land around the Project's main facilities. Two hamlets were there when the Project arrived, one of which became Mududoigne quarter, a commercial area serving Kome 5 Camp. Now its 5 families originally from Bero devote themselves mainly to commerce and farm some of the land that remains to them. Almost all of the other 75 HH at Mududoigne do not farm. Bero 2 inhabitants have displaced the other quarter to a separate area near the Project's main camp.

Bero 3, which is located on the German Road north of Bero 1, village uses available land to the north and has 3 major hamlets: Belegadjibate; Ndoh Ndih and Ndoh-Djenne, the last two indicating the villages whose land ('ndoh") they are cultivating.

Bero 1 has a major hamlet, Ndoh Ngaboura; most of its fields that are outside the village limits towards the northwest villages of Kagroye and Mekapti, also outside the oil area.

Bero 4 cultivates towards Missimadji (pretty much outside the oil field area but where the handful of wells producing gas for the Project's turbines is located) and has a hamlet, Moundanromkagti ("I have picked myself up and moved into the bush") as well.

Geographic Bero also has a group of herders who have settled in land to the south of Bero 4 village. Bero is fairly resentful of the herders clearing and cultivating land. Therefore, the land farmed by the herders was not surveyed during the village land use survey in order to avoid sparking conflict:

- Bero lies fifth from the top out of 25 OFDA villages in amount of fallow land available to the village.
- Bero's population growth between 1993 and 2000 went from 1429 to 2098. As of 2006 the Canton chief gave Bero's population as 4519; it is unknown whether this represents the number of villagers in Bero or the number of taxpayers (which would include residents who had moved to Bero Canton center because of the oil Project). The number of residents counted in the 4Q 2009 Village Survey is 3867.
- Bero's population increase between 1993 and the Canton figures given in 2006 = 216%. The average growth in most area villages in this period fell somewhere in the 90-100% range.
- During the Project construction period the only villages to increase in population due to population influx in the OFDA were the canton OFDA centers. Bero 2's population increase was midway between the other two OFDA cantons:
 - Kome Canton Center 2.29% increase in canton population
 - Bero Canton Center 1.30%
 - Miandoum Canton Center 0.50%
- The village survey results do not provide data that would demonstrate why the population has decreased in the last 3 years; whether in-migrants returned home or whether native villagers moved out to other constituencies in search of land.
- 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 Bero gave an area of 4241 ha, categorized as follows:
 - 576 ha of bush.
 - 3572 ha of cultivated and fallow land.
 - Settlement area of 93 ha.
- By topographic measurement of Bero's land, its total available land area in December 2009 is 5169 ha or 89% of its pre-project area (5786 ha):

- During the Village Survey, the village declared 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 4Q 2007 Bero had lost 12.2% of its pre-project arable land.
 - In 3Q 2008 – 12.3%.
 - In 4Q 2009 – 12.3%.
- 11% of Bero’s land is farmed by people from the surrounding villages.
- At the same time, Bero residents farm 18% of Mbanga’s land.
- The Project land take has increased the population density by 12.2% from the beginning of the project to today, the population increase accounts for 85.2% and the settlement expansion for 0.9%: ($0.77 = 1.122 * 1.852 * 1.009 * 0.37$).
- Bero had 0.25 people per ha at the census of 1993, 0.37 people/ha pre-project and now has 0.77.
- 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	0.18	0.29	0.38	0.43
Béla	0.15	0.27	0.47	0.42
Béro	0.25	0.92	0.40	0.77
Danmadjia	0.43	0.84	1.72	1.48
Dildo	0.39	0.70	0.79	0.81
Dokaïdilti	0.29	0.52	1.41	0.92
Madjo	0.16	0.53	0.24	0.43
Mbanga	0.18	0.44	0.54	0.53
Mouarom	0.18	0.19	0.38	0.38
Ngalaba	0.39	0.64	0.88	0.75
Average	0.26	0.53	0.72	0.69

- In the 1990s Bero’s density increased, as it did in all the OFDA’s major villages, due to the high birth rate. That, alone, nearly tripled Bero’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 declined. Some of those in the 1.3% of population increase that occurred with people attracted to the project may have left as well.

Bero's Current Demographics

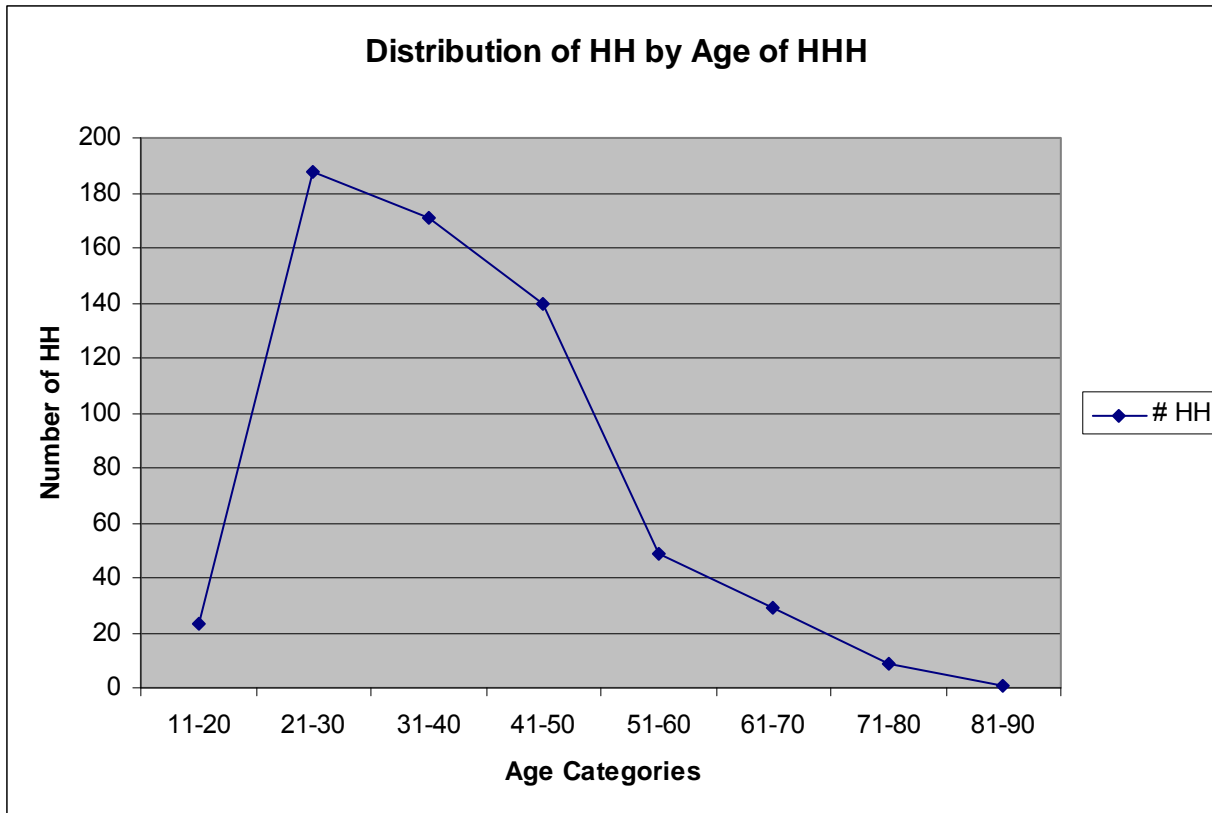
Today, looking at Bero's households and using topographic measurements of land holdings rather than individuals' reported dependents and holdings:

- Bero has 610 households (HH) and 3867 inhabitants.
- 14% of HH are headed by women.
- Bero's population is very young; 36% of the population is under 10 years of age.

Age

Bero's population is indeed very young, and the curve formed by the distribution of HHH is an indication of the large number of young people born in the boom of 1993 and following that are becoming HHH:

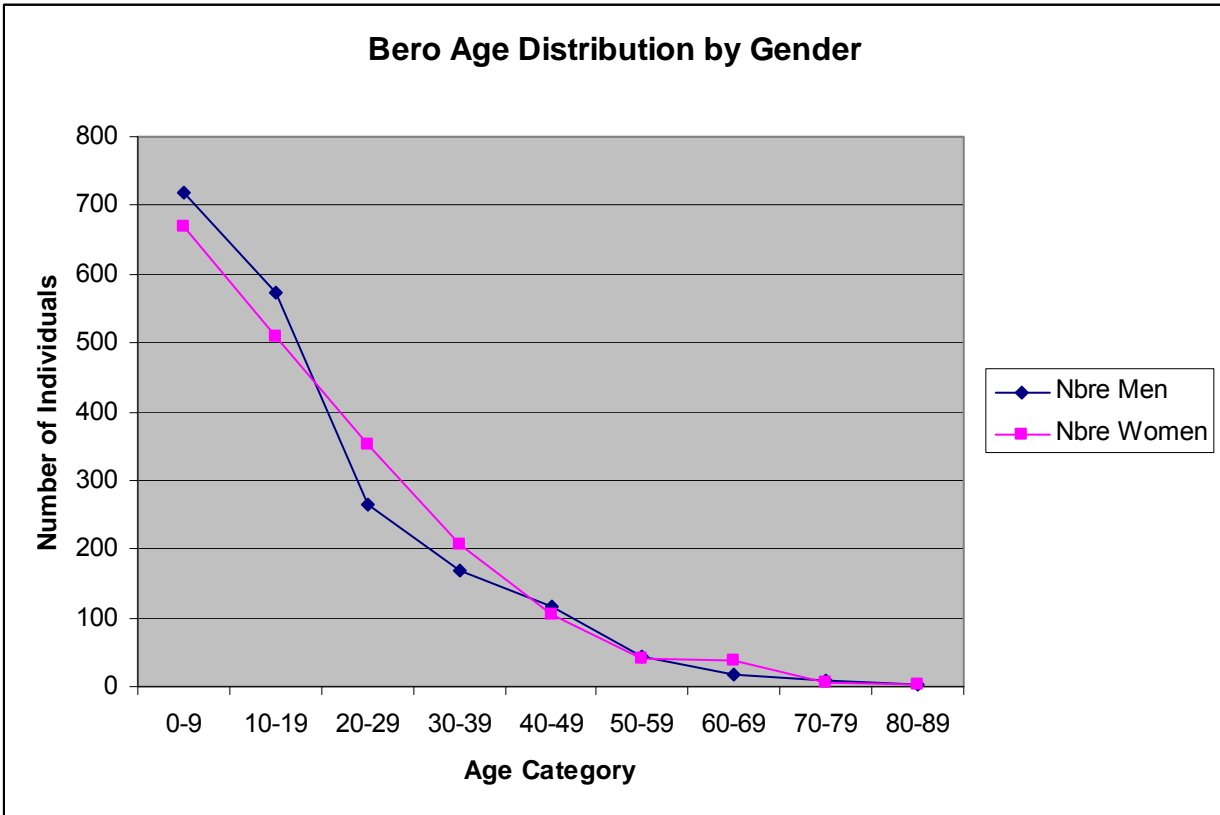
Age	Number individuals	% of pop
0-9	1389	35.9%
10-19	1081	28.0%
20-29	618	16.0%
30-39	375	9.7%
40-49	223	5.8%
50-59	87	2.2%
60-69	54	1.4%
70-79	16	0.4%
80-89	4	0.1%
N/A	20	0.5%



- Only 37% of the population is of the age considered mature enough to head a household.
- Another 2.0% are at the age where, although they may have independent HH, they depend on their children for most of their subsistence.
- Finally 4% of HHH are between the ages of 15-19, all male except for 1 19-year old female. This figure reflects either or both the phenomena that act at this age, maturing boys setting up their own homesteads or children being orphaned at a stage where they are somewhat capable of taking care of themselves (hence refusing relatives' offers to take them in).

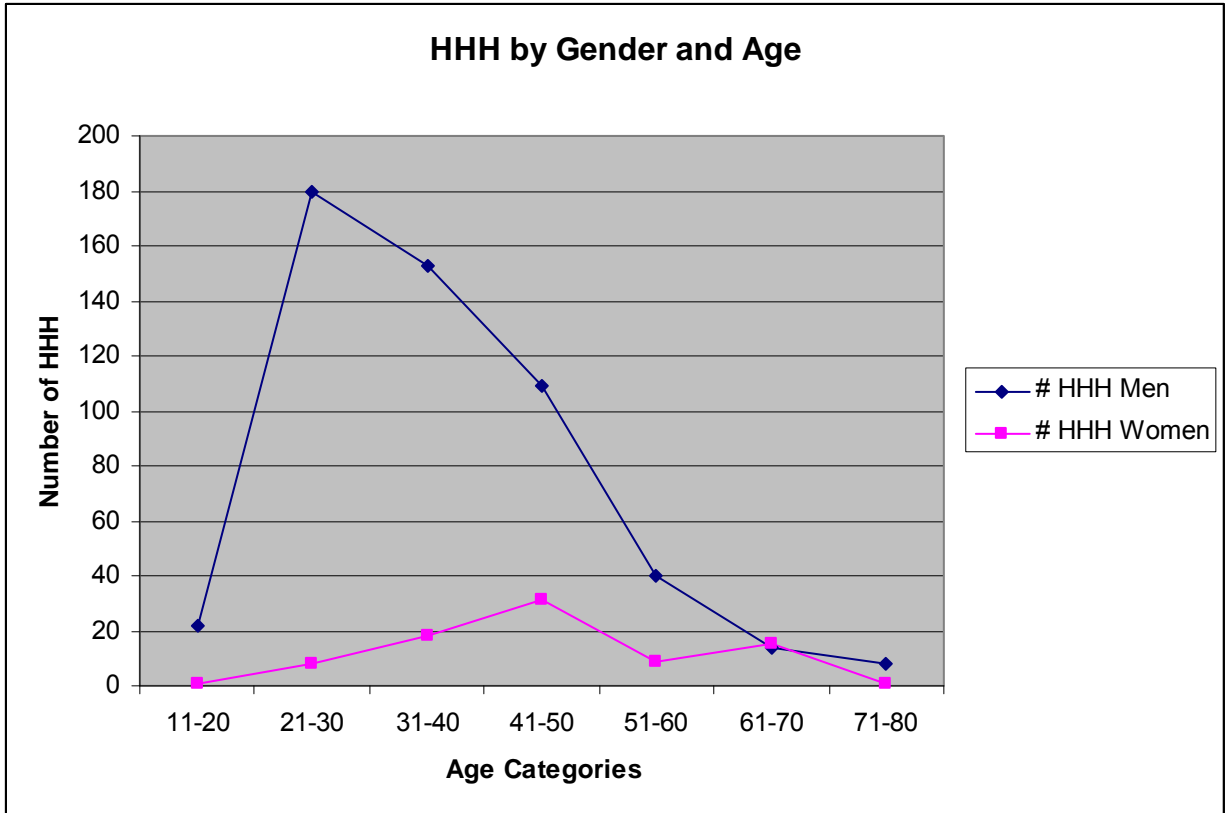
Gender

- Bero'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 Bero, 28% of those FHHH cultivate their own family land in Bero. The other female HHH access land from husband/husband's family.
- The tripling of Bero's population in the years between 1993 and today is also visible in the high number of people under 20 years old.



- The independent elderly people, both male and female, insisting on maintaining their own HH is clear by the status of HHH maintained by the people over 70. If they have children in the same village their offspring usually contribute to the HHH's well-being:

Age Group	Male HHH	Female HHH
< 20	21	1
21-30	180	5
31-40	151	18
41-50	110	31
51-60	37	8
61-70	14	15
71-80	8	1
81-90	1	0



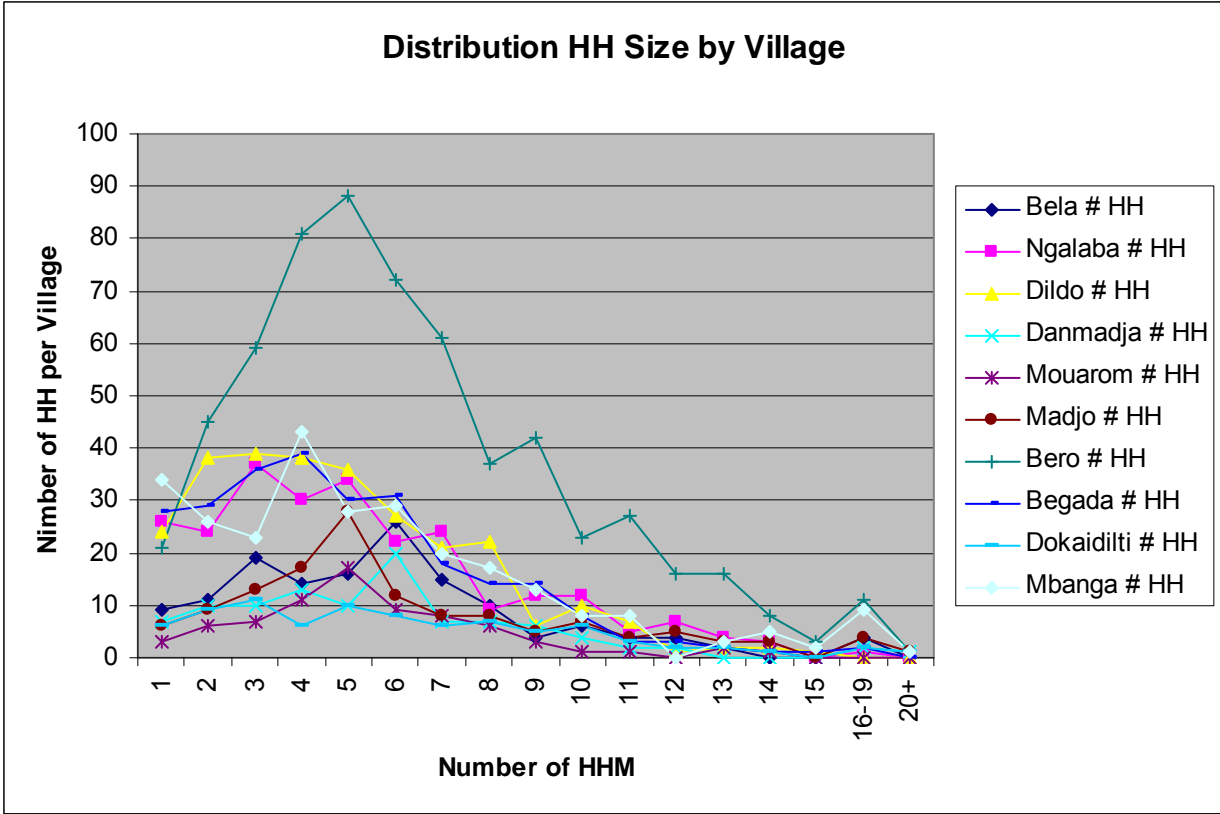
HH Size

- While the average HH size in the area is about 5.6, in Bero average is 6.3.
- The **mode** of HH composition at Bero is 5 HHM.
- The overall distribution of Bero’s households by size, in comparison with other surveyed villages, is:

Average Bero HH Size by Age

Age HHH	Avg. HH Size	Avg. <2/3 c HH Size
<20	3.1	3.1
20-24	5.1	5.1
25-<30	7.4	7.4
31-<40	7.8	7.8
40 <50	7.4	7.4
50 <60	3.4	3.4
60 <70	3.9	3.9
70 <80	4.0	4

# HHM	Madjo # HH	Mbanga # HH	Bela # HH	Ngalaba # HH	Dildo # HH	Danmadja # HH	Mouarom # HH	Bero # HH
1	6	34	9	26	24	7	3	21
2	9	26	11	24	38	10	6	45
3	13	23	19	37	39	10	7	59
4	17	43	14	30	38	13	11	81
5	28	28	16	34	36	10	17	88
6	12	29	26	22	27	20	9	72
7	8	20	15	24	21	7	8	61
8	8	17	10	9	22	7	6	37
9	5	13	4	12	6	6	3	42
10	7	8	6	12	10	4	1	23
11	4	8	4	5	7	2	1	27
12	5	0	4	7	1	2	0	16
13	3	3	2	4	2	0	2	16
14	3	5	0	3	2	0	1	8
15	0	2	0	0	1	0	0	3
16-19	4	9	4	1	0	2	0	11
20+	1	1	0	0	0	1	0	1



- Geographical Bero village follows the same distribution by HH size as others but stands out because counting all Bero sub-villages as one gives many more HH. The distribution of the various new Beros is shown later.

Land Distribution by Age

As in the other villages, land holdings commonly increase with age, eventuating in Bero in the 71 year-old HHH with 79.884 cordes:

Landholding Distribution by Age of HHH					
Age Group HHH	Land Holding in Cordes				Total in Age Group
	< 2/3	2/3 - < 1	1- < 2.5	2.5 +	
< 20	2	1	8	11	22
21-30	43	19	66	59	187
31-40	21	28	71	45	165
41-50	17	15	51	57	140
51-60	10	1	13	51	75
61-70	3	3	5	15	26
71-80	0	0	1	8	9
81-90	0	0	0	1	1
Total in Land Group	96	67	215	247	625

Vulnerability of Non-Viable Agricultural HHs

Age and Vulnerability

- 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 – this is typical of young male HHH.**
- 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	22	2	1	1
21-30	187	43	37	6
31-40	170	23	18	5
41-50	142	17	11	8
51-60	45	19	8	2
61-70	29	3	0	3
71-80	9	0	0	0
81-90	1	0	0	0

- As is typical of other villages, the number of vulnerable female HHH increases with age.
- Twice as many male HHH are non viable in the 21-30 year old age group than in the 31-40; as they age male HHH increase their land holdings, if possible, as is shown below.

Nonviable HH Size

- The average HH size of all Bero's nonviable HHs is 6.03 and of the nonviable compensated HH 6.80, comparable to the large HH sizes found among vulnerable families in most other villages.
- The total number of individuals in the vulnerable HH = 609, of which 435 belong to Project-affected HH:

Landholding Status Now	% HH @ resettlement factor
Zero	2%
< 2/3	15%
< 1	11%
< 2.5	36%
2.5 +	37%
Total HH	100%

Land Holdings by Resettlement Factor

Looking at the resettlement factor gives a clear picture of HH and individual access to land as a productive resource, whereas the number of cordes a HH possesses is a less direct indicator because there may be many or few HHM in a family with limited or extensive total amounts of land:

Village	All/Compensated	Zero	0 to <2/3	2/3 to <1	1 to <2.5	2.5 +
Begada	All	2	13	12	57	176
	Compensated	2	9	10	40	129
Bela	All	0	12	7	32	93
	Compensated	0	5	1	16	60
Bero	All	11	90	68	215	221
	Compensated	5	59	49	169	174
Danmadja	All	1	15	21	40	25
	Compensated	1	12	17	37	21
Dildo	All	5	31	40	111	88
	Compensated	1	10	16	45	31
Dokaidilti	All	0	10	13	36	26
	Compensated	0	9	12	31	21
Madjo Bero	All	3	16	12	57	45
	Compensated	2	10		51	39
Mbanga	All	0	17	16	82	153
	Compensated	0	10	13	63	125
Mouarom	All	3	4	3	31	46
	Compensated	2	4	3	26	39
Ngalaba	All	2	19	20	103	106
	Compensated	0	17	15	85	92
Total	All	16	137	144	549	758
	Compensated	8	86	87	394	557

Because Bero when taken as a whole has so many villages, a comparison of % of HH in various landholding categories is more easily comprehended:

Skewed Land Holdings in 9 Villages				
Agricultural Sustainability	Non Viable	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 Bero at factor	17	11	36	37

Looking at this table it would appear that the number of nonviable HH in Bero is larger than elsewhere at the expense of wealthy land holders, who are fewer in number than the other villages. This is not, in fact the case, if one looks at changes in status from

one landholding category to another during the Project period. The information showing how compensated HH have moved between categories is examined below under Project impacts.

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:

- 17 HH of Bero’s population lack sufficient agricultural land, though there may be other HH sources of revenue.
- Another 11% live on the margin of agricultural poverty.
- The remaining 73% of the population find themselves in good circumstances:

Range of Land Holdings per Dep.	Number of HHs	Number of Individuals	% HH	% Individual
0	11	32	2	1
0.001 - 0.667	90	577	15	15
0.668 - 0.999	68	478	11	12
1.000 - 2.499	215	1468	36	38
2.500 - ...	221	1287	37	33
Total	605	2482	100	100

Description of Project Impact

Most of the land occupied by project well pads lies well southeast of the main village areas of Bero 1 and 2. Kome 5 Camp was built on land being farmed by people from Bero 2 who had seasonal houses there. Just across the road, to the west of the camp a commercial district (Mududoigne) sprang up and most of the inhabitants of the adjacent farm hamlet (5 families from Bero 2 who founded the hamlet) have taken up commercial activities as well as doing a bit of farming.

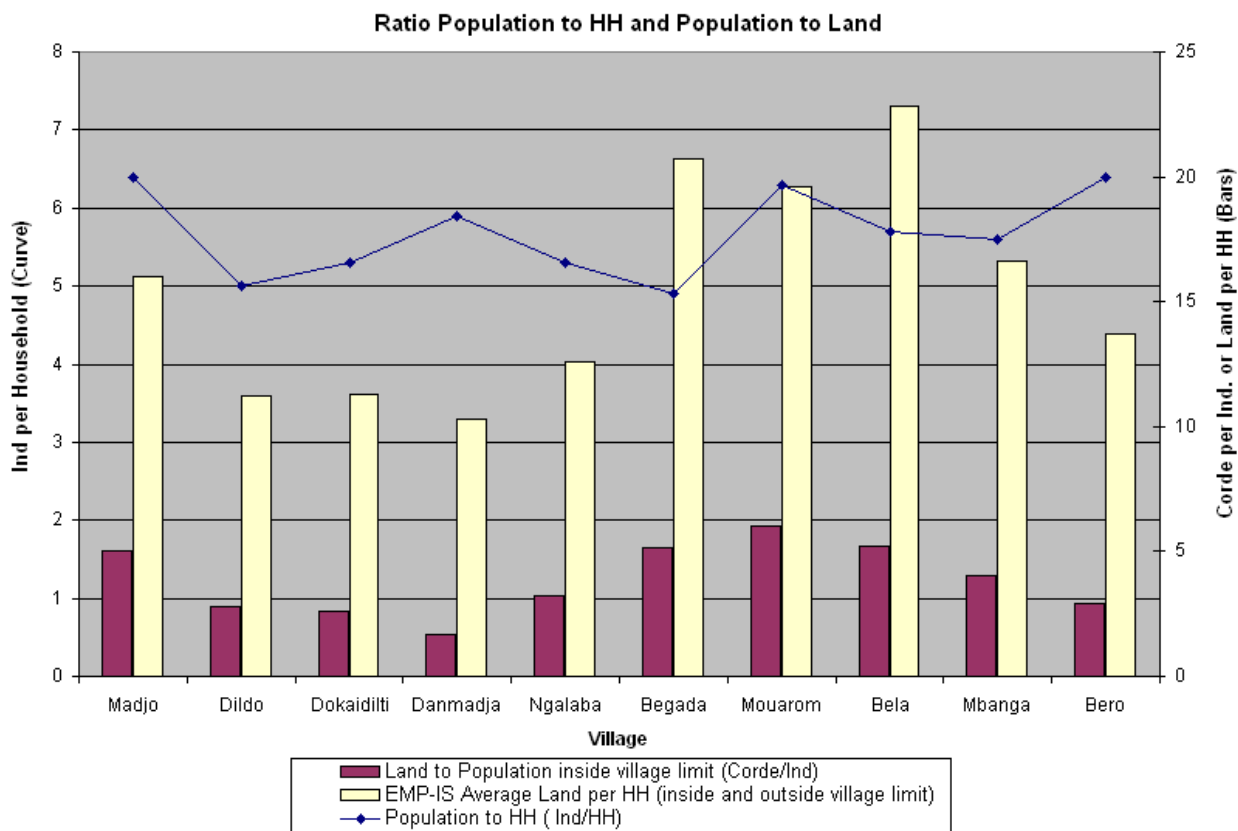
Geographical Bero is situated on and adjacent to a lateritic cuirass. Extensive borrow pits have been created just outside of Bero 1 and south of Bero 2; the laterite in these spots is on the surface and the areas had not been cultivated prior to the Project. Improving the soil of these pits during restoration means arable land was created where there was none before.

- As a village, geographical 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 Bero HH

Pre-project		With Project	
Avg Land/HH	Avg fct/HH	Avg Land/HH	Avg fct/HH
18.785 c	2.475	16.782	2.161

- Bero's ratio of the number of HHs to village population is similar to other villages.
- The ratio of population to land area in Bero respects the same ratio as the other villages that have been surveyed:



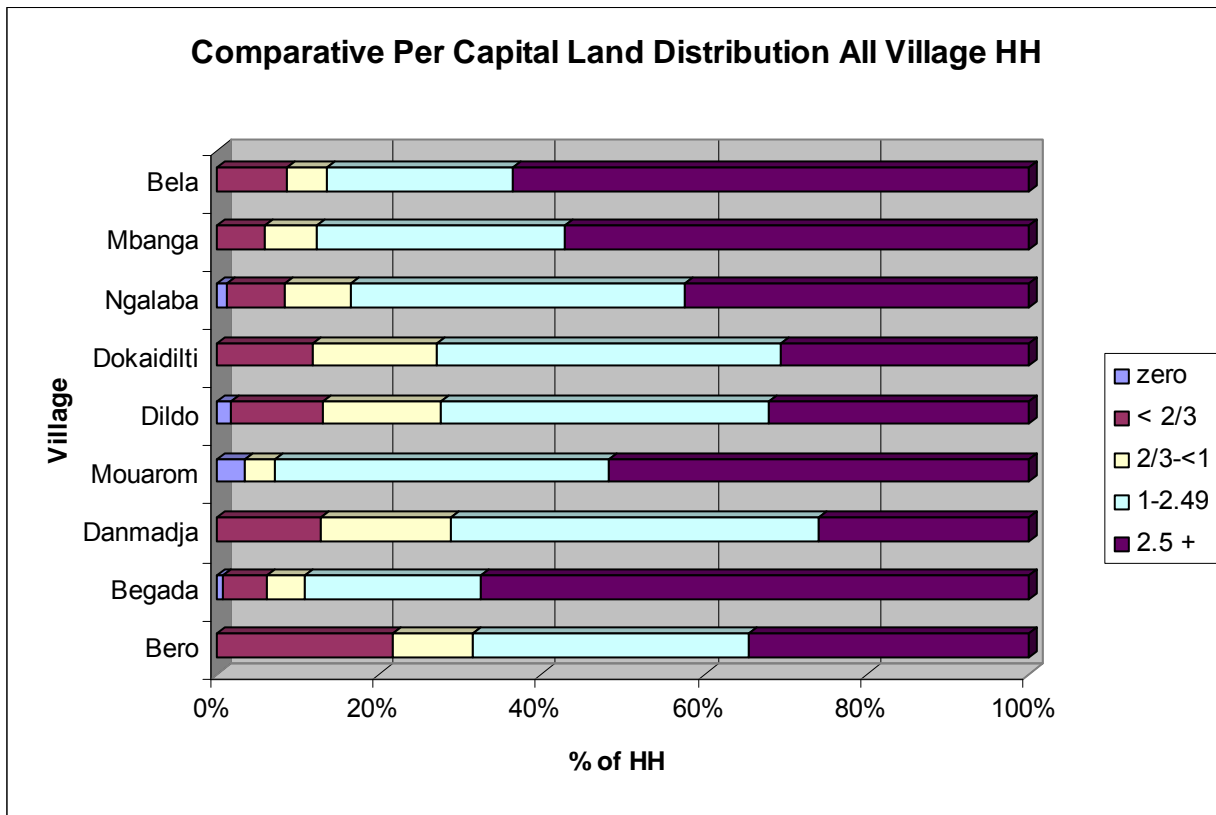
- A larger percent of HH in Bero are vulnerable than elsewhere.
- Like Danmadja, Dildo and Dokaidilti, all fishing villages, Bero has more vulnerable HH judged by the landholding criterion alone than the mainly agricultural villages like Mbanga or Begada.
- Fishing in Bero is not, however, a major activity. Bero does not, therefore, show the same land division among HH as other agricultural villages:

Per Capita Land Distribution in Agricultural Villages

Fct per capita	Begada	Mouarom	Mbanga	Ngalaba	Average %	Bero
< 2/3	5%	2%	6%	8%	5%	17%
< 1	5%	4%	6%	8%	6%	10%
< 2.5	22%	41%	30%	41%	34%	36%
2.5 +	68%	53%	57%	42%	55%	37%

The graph below depicts the proportions of each village population falling into the different land holding categories. Bero does not appear to support the proposition which has held for the other SSPs:

- 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:



- With a smaller percent of Non-Viable HH receiving compensation than in the population at large, the Project contribution to Non-Viability is less than its overall real estate impact on the rest of the population:

# HH at Vulnerability Factor Per Capita				
HH viability factor	Male HHH		Female HHH	
	before	now	before	now
	521		84	
zero	3	5	3	6
<2/3	49	70	18	20
<1	33	55	10	13
<2.5	167	194	28	21
2.5 +	197	197	24	24

- Surrendering land to the Project is not the only cause of Non-Viability, as some of the people compensated for land were already Non-Viable before the Project began.
- Even if a HH is already Non-Viable before the Project acquires any land, the compensated person is eligible for a resettlement option.

Current Household Situations

- Considered as Households, upon completion of the village survey in December 2009:
 - 101 HHs are below the agricultural viability level of 2/3 corde per HHM.
 - The total number of individuals in these HHs is 609.
 - 64 of the HH have been compensated at some time or another.
 - 46 of the compensated nonviable are MHHH.
 - 18 of the compensated nonviable are FHHH.
- Considering Non-Viable HH that have never surrendered land to the Project:
 - 37 of these HH were never affected by Project land take.
 - The total number of individuals in these HH is 182.
 - 29 are MHHH.
 - 8 are FHHH.

Land Distribution among HH (green = mode)											
	OFDA	Dildo	Dokaidilti	Ngalaba	Begada	Danmadja	Mouarom	Bela	Mbanga	Madjo	Bero
cordes	1995 HH	2008 HH	2007 HH	2008 HH	2009 HH	2008 HH	2008 HH	2009 HH	2009 HH	2009 HH	2009 HH
0	see < 1	1.80%	0.00%	1%	1%	0.00%	1.20%	0%	0%	2%	2%
< 1	4.70%	1.10%	1.20%	0%	1%	1.00%	1.20%	0.70%	0.40%	21%	1%
< 2	10.50%	9.10%	2.40%	4%	3%	5.90%	1.20%	2.10%	4.10%	32%	6%
< 3	12.10%	8.00%	9.40%	4%	3%	9.90%	1.20%	5.60%	3.00%	14%	7%
< 4	16.00%	8.40%	8.20%	5%	3%	8.90%	4.70%	5.60%	8.20%	12%	5%
< 5	14.80%	8.70%	4.70%	7%	2%	11.90%	4.70%	2.10%	4.80%	7%	5%
< 6	9.30%	7.30%	8.20%	9%	3%	7.90%	2.40%	4.90%	3.30%	1%	4%
< 7	8.00%	6.90%	4.70%	6%	4%	5.00%	4.70%	0.70%	4.10%	2%	4%
< 8	5.10%	4.40%	8.20%	4%	3%	9.90%	5.90%	3.50%	3.00%	5%	5%
< 9	6.80%	3.30%	11.60%	4%	4%	2.00%	4.70%	6.30%	3.70%	1%	4%
< 10	2.30%	5.50%	5.90%	5%	5%	4.00%	7.10%	3.50%	4.50%	2%	4%
> 10	8.20%	36.00%	35.30%	41%	69%	33.70%	61.20%	65.30%	61.10%	2%	56%

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

- Above 4 cordes per HH (not per capita) Bero's distribution of cordes of land per HH becomes even. Almost the same number of HH has 4 cordes, 5 cordes, all the way up to 15 cordes.
- Thus the modal number of cordes held by HH in Bero stretches from 4 to 15.
- At 15 cordes and above, the number of HH with 16, 17, etc. cordes decreases by half but still maintains its even distribution from 15 cordes to 23 cordes. After that the number of HH with large numbers of cordes tapers off.
- This steady spread of cordes among HH is untypical of most villages where HHs' total number of cordes held tends to form clumps and HH fall into one group or another.
- In most respects other than sheer size, geographic Bero falls into the middle range of villages, for example:
 - Area occupied by settlement:
 - Mode 2%.
 - Bero: 2.5%.
 - Project Permanent and Unreturned land:
 - 6 to 13% of village land.
 - Bero: 10.5%.
 - Arable land inside village limits:
 - 83 to 92%.
 - Bero: 87%.
 - Intensity of social interaction:
 - Low 5 villages (density 0.33 - 0.49).
 - Medium 3 villages (density 0.62 - 0.78) including Bero.
 - High 1 village (density 1.19).
 - Possible length of fallow:
 - More than adequate 5 @ 20+ years
 - Adequate 3 @ 10+ years, including Bero
 - Barely sufficient 1 @ 6 years Danmadja
 - The percent of compensated HH that have shifted their landholding status downward (e.g. from Wealthy to Comfortable, from Non-Viable to Zero):
 - High 27% of HH decline in status 1 village
 - Medium 12-15 % , including Bero 5
 - Low 4-10% 4
- Where Bero stands apart from other villages that have been surveyed, other than population size already mentioned above, is in the:
 - Large amount of land that is cultivated outside the village limits:
 - Hectares of outside land cultivated by the surveyed villages clump around 70 ha and 115 ha, whereas
 - Bero inhabitants cultivate 614 hectares of land in other villages.

- This vast amount is proportional to the much larger population so that available land density (counting land used by a village both inside and outside the village) ranges in other surveyed villages:
 - 0.92 to 2.15.
 - Bero at 1.42 is in the middle.

The steady spread of cordes among HH, untypical of most villages where HH's numbers of cordes tend to clump together. In all other surveyed villages that have split each ex-quartier is a mirror image of the other. This is not the case in geographical Bero, as the next section demonstrates. Bero 2 is very large compared to Bero 3; Beros 1 and 4 resemble each other more than Bero 2 or 1. A possible explanation for this wide variation between the different Beros is that their creation has been driven more by politics than by adjustment of population to land. All Bero ex-quartiers still remain in the initial village center and have been formed around contending political factions. Because these factions all covet the prize of canton chief, no faction has been willing to separate itself geographically the way most HHH looking for political status must do to leave the current village chief's sphere of influence.

This leaves the constituent HHs to maximize the land available to them rather than hiving off to increase dramatically the amount of land they can access. Each HH moves to the limits of land possible within a confined area. This pressure to share out family land holdings to the greatest extent possible can explain why, unlike other surveyed villages where the ex-quartiers have equivalent numbers of HH with land per capita above 20, 30, etc. cordes, in Bero ex-quartiers only two HH have more than 20 cordes/HHM; one has 24 cde/HHM and one elderly lady (age 63) is all alone, with 73 cordes all to herself.

For HH which are part of one political faction or another but are not actively playing the political game and can afford to leave the arena, the numerous hamlets created by the various Beros help to temper their land issues by giving them access to more land.

Land Available to Villages

	Dokaidilti	Dildo	Ngalaba	Danmadja	Mouarom	Begada	Bela	Mbanga	Madjo	Bero
Village Area in Hectares	686	1887	2118	480	1352	3321	2200	3068	2148	5786
Settlement area in Hectares (% village)	24 (3%)	46 (2%)	97 (5%)	34 (7%)	23 (2%)	56 (2%)	35 (2%)	62 (2%)	27 (1%)	145 (2.5%)
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%)	617 (10.5%)
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	5024 (87%)
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	1.3
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%)	614 (11%)
Total Cultivated (Field) or Owned (Fallow) of the residents in Hectares	490	1561	1601	487	850	2763	1666	2270	1110	5499
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	1.42

Use of Available Land per Village

	Dokaidilti	Dildo	Ngalaba	Danmadja	Mouarom	Begada	Bela	Mbanga	Madjo	Bero
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%)	553 (11%)
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%)	2004 (40%)
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%)	2414 (48%)
Ratio Fallow/Field	0.49	1.19	0.53	0.51	1.18	1.26	1.11	0.96	1.25	1.20

* 63 Ha of bush included in fallow

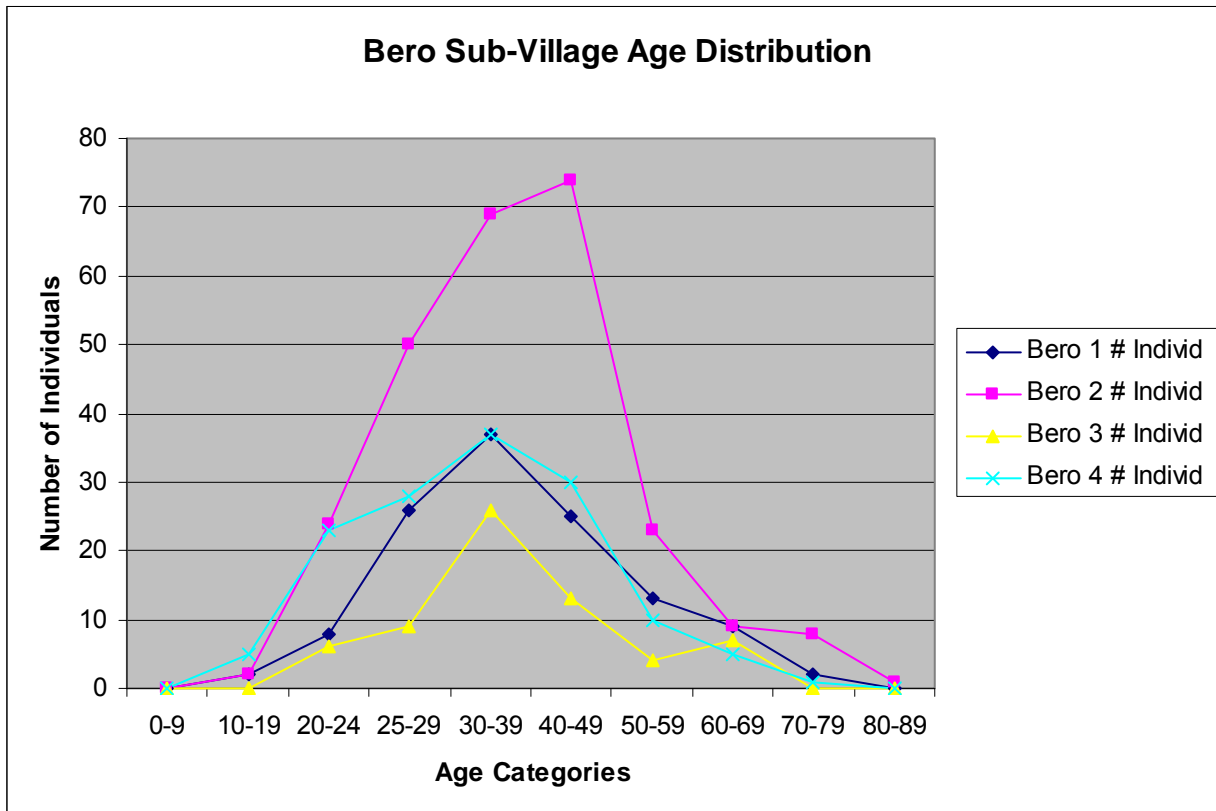
Demography of Villages

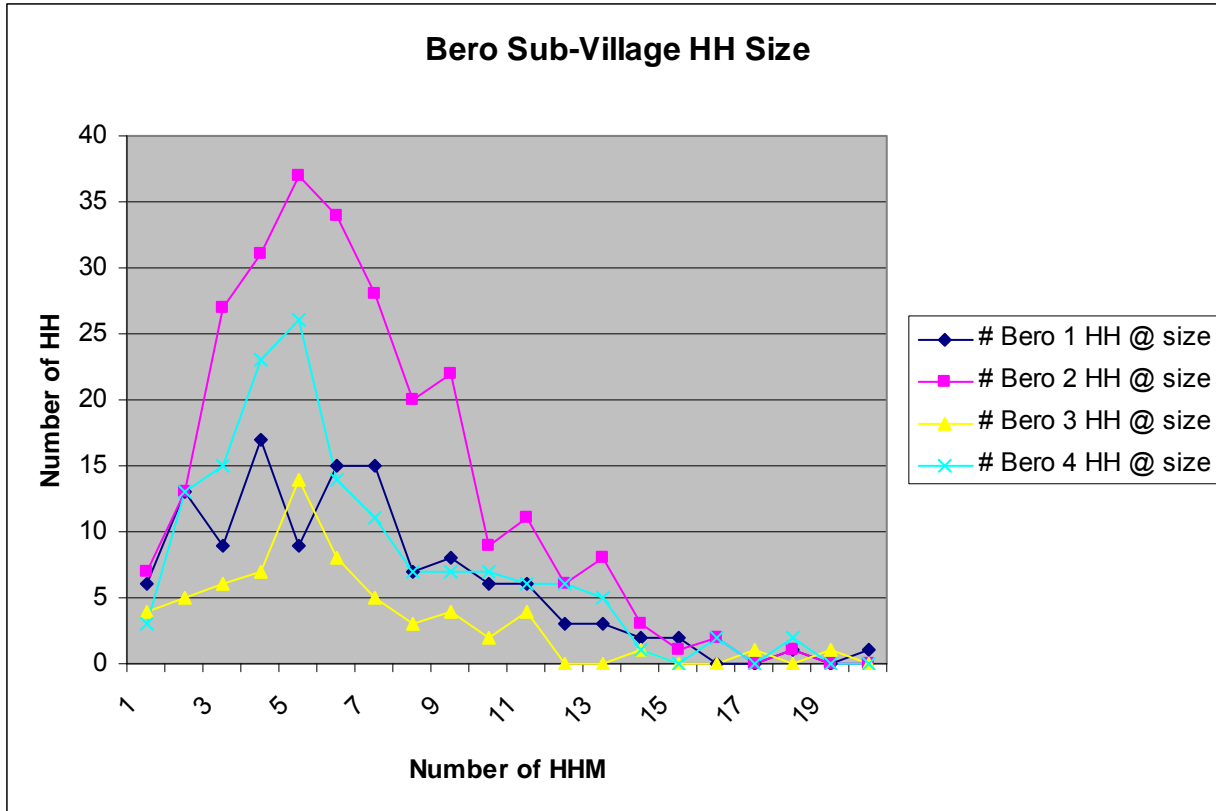
	Dokaidilti	Dildo	Ngalaba	Danmadja	Mouarom	Begada	Bela	Mbanga	Madjo	Bero
Nbr of Residents	534	1346	1324	570	447	1285	837	1501	848	3867
Men	243	657	668	284	216	608	434	718	418	1923
Women	291	689	656	286	231	677	403	783	430	1944
Avg Age in Years	19	20	20	19	19	19	18	18	17	18
Nbr HH	85	275	250	101	85	259	144	269	133	611
Avg. HH size (# HH Members)	6.3	4.9	5.3	5.7	5.3	5.0	5.9	5.6	6.4	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	13.7
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	2.16 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 %	18.5%

Differences Among Bero Offshoot Villages

Quartier	# HH	Pop	# HH compensated	# HH not compensated
Bero 1	123	798	64	59
Bero 2	260	1675	230	30
Bero 3	65	387	39	26
Bero 4	149	947	119	30

Quartier	MHHH	FHHH	% FHHH
Bero 1	113	10	8%
Bero 2	217	43	17%
Bero 3	52	13	20%
Bero 4	134	15	10%





Bero 1 has even distribution of HH sizes; the other sub-villages follow the regional norm of around 5 HHM per HH.

All Bero Population = 3867	Bero 1	Bero 2	Bero 3	Bero 4
Population quartier	798	1675	387	947
% pop quartier/total pop	21%	43%	10%	24%
Pop density people/corde (all village land)	0.07	0.15	0.03	0.08
Pop density cordes/person (all village land)	14.383	6.853	29.659	12.120
# HH in quartier	123	260	65	149
# Male HHH	113	217	52	134
# Female HHH	10	43	13	15
% M HHH/HH in quartier	92%	83%	80%	90%
% F HHH/HH in quartier	8%	17%	20%	10%
# HH Compensated	64	230	39	119
% HH in quartier compensated	52%	88%	60%	80%
# Trained	13	86	8	27
Av.corde/HH in quartier before	18.193	15.634	15.896	15.470
Av.corde/HH in quartier now	18.042	12.720	15.162	12.803
Av corde/capita in quartier before	2.827	2.427	2.670	2.434
Av corde/capita in quartier now	2.803	1.975	2.547	2.014
Av # HHM	6.4	6.4	6.0	6.4

Av Age HHH	37.9	38.4	38.4	35.3
Number Zero land	4	1	1	5
Number Non Viable	17	39	6	28
Number Marginal	10	33	8	17
Number OK	32	105	25	53
Number Wealthy <10 cde	57	82	24	44
Number Wealthy <20 cde	4	3	3	2
Number Wealthy <30 cde	1	0	0	0
Number Wealthy <40 cde	0	0	0	0
Number Wealthy >40 cde	1	0	0	0
Delta cde/capita now and before	-0.024	-0.452	-0.123	-0.420

In the comparison of what used to be different quarters of Bero and are now villages:

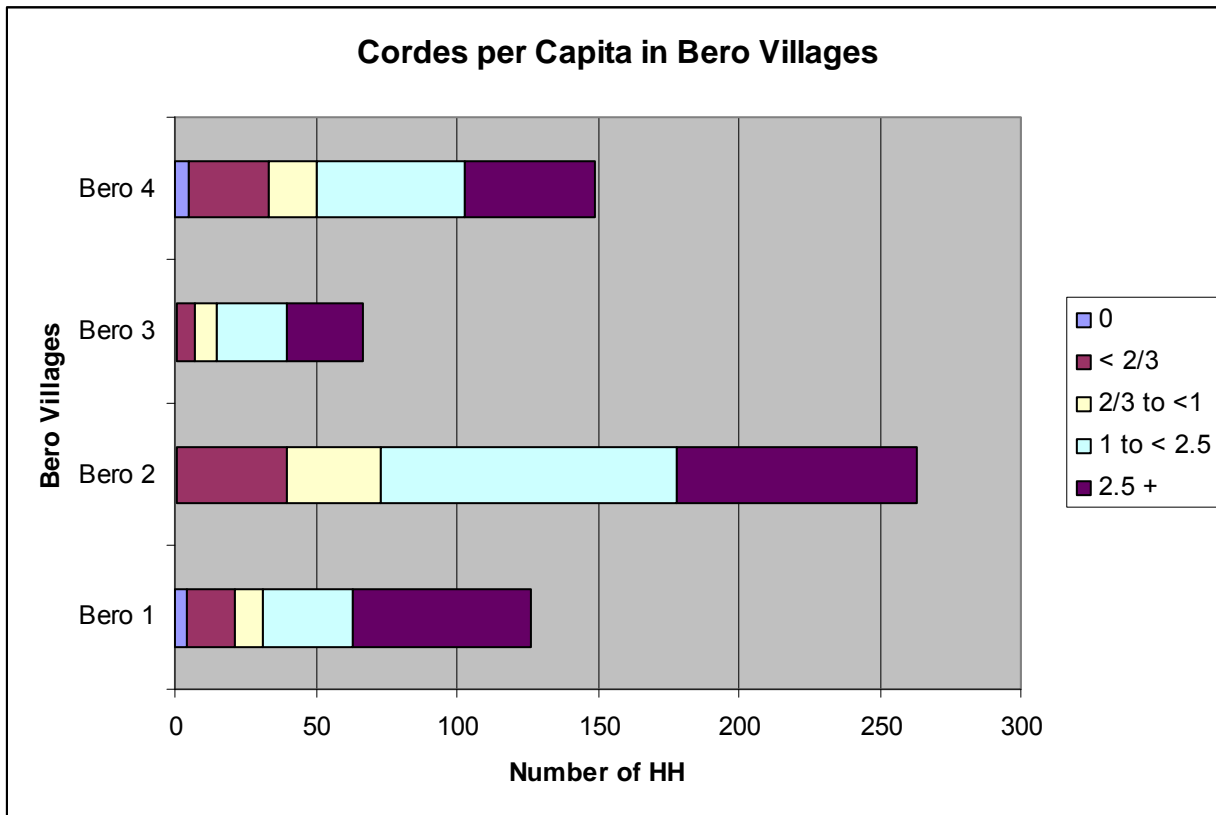
- Bero 2 retains almost half of geographical Bero's population.
- Bero 3's population is much smaller than in its confreres yet has a lot more land per person.
- Bero 1 has undergone the least land impact (Delta of cordes/capita before Project and now is -0.024).
- Bero 2 and 4 have born the brunt of land acquisition (Delta is -0.452 in Bero 2 and -0.420 in Bero 4).
- But in the end it is Bero 4 which has experienced the negative impacts of land acquisition:

	<u>Bero 2</u>	<u>Bero 4</u>
Non-Viable/ all HH	40/260	33/149
%	15%	22%
Of which HH with zero land	1/260	5/149

- If the Bero 4 HH is not in the unlucky group of HH with limited land holdings then Bero 4 seem to have fared just as well as Bero 2:

Marginal HH	33/260	17/149
%	13%	12%
Comfortable HH	105/260	53/149
%	40%	36%
Wealthy	85/260	46/149
%	33%	31%

Per Capital Land Distribution in Bero 1, 2, 3, 4



Project Impact on Bero

Compensation

Compensation affected the village as follows:

- 65% of Bero's productive inhabitants (older than 20 years old = 268 individuals) were compensated.
- 84% of 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	1389	720	669	2	1	1
10-19	1081	572	509	81	43	38
20-29	618	265	353	240	134	106
30-39	375	169	206	192	119	73
40-49	223	117	106	134	84	50
50-59	87	45	42	55	30	25
60-69	54	17	37	21	7	14
70-79	16	10	6	10	7	3
80-89	4	2	2	3	2	1
N/A	20	6	14	0	0	1
Total	3867	1923	1944	738	427	311

The data in this table does not include 53 individuals who have not yet been integrated into the EMP-IS.

- The large number of 10-19 year-olds who have been compensated (81) 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. Only 8 HHH, who have their own fields, are under age 20 in all of Bero.

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 HHs in Bero							
Resettle- ment Factor	Nbr HH	Nbr Individuals	% All HH	% of Population	Nbr HH Resettle- ment Option	Nbr HHM in Reset Op HH	% HHM in Rest Op HH
0.000	11	32	1.8	0.8	1	2	0.2
0.001 - 0.499	54	383	8.9	9.9	11	98	1.8
0.500 - 0.667	36	194	6.0	5.0	6	46	1.0
0.668 - 0.999	68	478	11.2	12.4	15	235	2.5
1.000 - 2.499	215	1461	35.5	37.8	56	480	9.3
2.500 - ...	221	1287	36.5	33.3	45	253	7.4
Total	605	3835	100	100	134	1114	22.1

This table depicts not only the division of land among HH but the number of people who have a given amount of land per capita to depend upon.

In Bero:

- 17% of the HH are Non-Viable
- That 17% of HH contain 15.7 % of the population
- 12.4% of the population is viable but must work hard for a living
- Whereas 71.1% of the population is perfectly well off

For the 17% of Non-Viable HH:

- Among the 58 Non-Viable HHs affected by the Project only 14 were correctly identified as Non-Viable on the basis of their declarative data and offered a resettlement option.
- The remaining **44 HH** identified through the Village Land survey as Non-Viable will all be offered resettlement benefits for the group of non-viable HH that will receive resettlement benefits in 2011.
- Training did benefit 134 HH in Bero containing 22% of the population.
- For the 68 (11%) HH in Bero that find themselves in a Marginal position, 15 of these HH also received training, thereby for the most part raising their standard of living above what they obtain from their land only.

Change in social status

Social Impact 1998 through 2009 in Bero		
Social Situation	#	%
All HH	605	100%
All Compensated HH/All HH	456	80%
Compensated HH Situation remains the same	366	75%
Landholding Situation Changed to:	90	20%
No land	5	1%
Non-Viable with some land	26	6%
HH dropped to Marginal	28	6%
Wealthy HH reduced to COMFORTABLE	31	7%

- 4 HH fell from being comfortable landholders to marginal ones.
- Out of the 57 comfortable HHs in Bero today, 10 used to be wealthy land holders.
- The total social impact of the Project on changes in HH situation is 20 HH/611 HH, or 15%.

In the other surveyed villages, the average percent of compensated HH whose status was modified as a result of Project land take is 12%. At 15% Bero is above the average but still falls in the moderate range, along with 4 other villages.

Overall Project Land Impact in Surveyed Villages	
Village	% HH change status
Danmadja	27
Madjo Bero	15
Bero	15
Mouarom	14
Dokaidilti	13
Ngalaba	12
Begada	10
Mbanga	9
Dildo	7
Bela	4

- Earlier data, before some fields were added to various land holders, gave 66 HH as NV (versus the current 64):
 - Of the 66 nonviable compensated HH in Bero, a little under half (31) of them were made non-viable by Project land acquisition; all the others were already nonviable before the Project.
 - If 31 HH were made NV by the Project, how long have they been Non-Viable?

Year	Already NV	Made NV by Compensation
1998	0	2
2001	1	3
2002	6	2
2003	8	3
2004	2	1
2005	6	5
2006	5	2
2007	1	2
2008	4	4
2009	2	4
2010	0	3
Total	35	31

The HH that are currently Non-Viable and without resettlement option will be offered one in the course of 2010.

Resettlement Program Impact on 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.

Training Options

Up through the completion of the village survey 134 people had been trained (in 134 Households), 88 in Improved Agriculture and 46 in Off Farm. 4 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.

- 32 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 (20):
 - 16 in animal husbandry:
 - 11 in poultry
 - 3 in pigs
 - 2 in sheep
 - 1 in agroforestry
 - 3 in rainfed agriculture

- Off Farm (12):
 - 2 in masonry
 - 4 in sewing
 - 2 in transformation of local foods
 - 4 in dying and knitting

Report Card

Improved Agriculture Reinforcement

- | | |
|-------|---|
| • A + | 5 |
| • A | 3 |
| • B | 2 |
| • C | 3 |
| • D | 1 |
| • F | 4 |

Four people receiving reinforcement received F's: 2 because they did not use their training to improve and 2 because instead of taking the training themselves, they let another family member do it. In both cases the family members are doing very well and merit B's. Two of those who received C are in fact very good at their activity but since

they are both customary judges they are often called to Doba town and their families do not take such good care of the animals.

Off Farm Reinforcement

- A + 1
- A 6
- B 2
- C 2
- D
- F

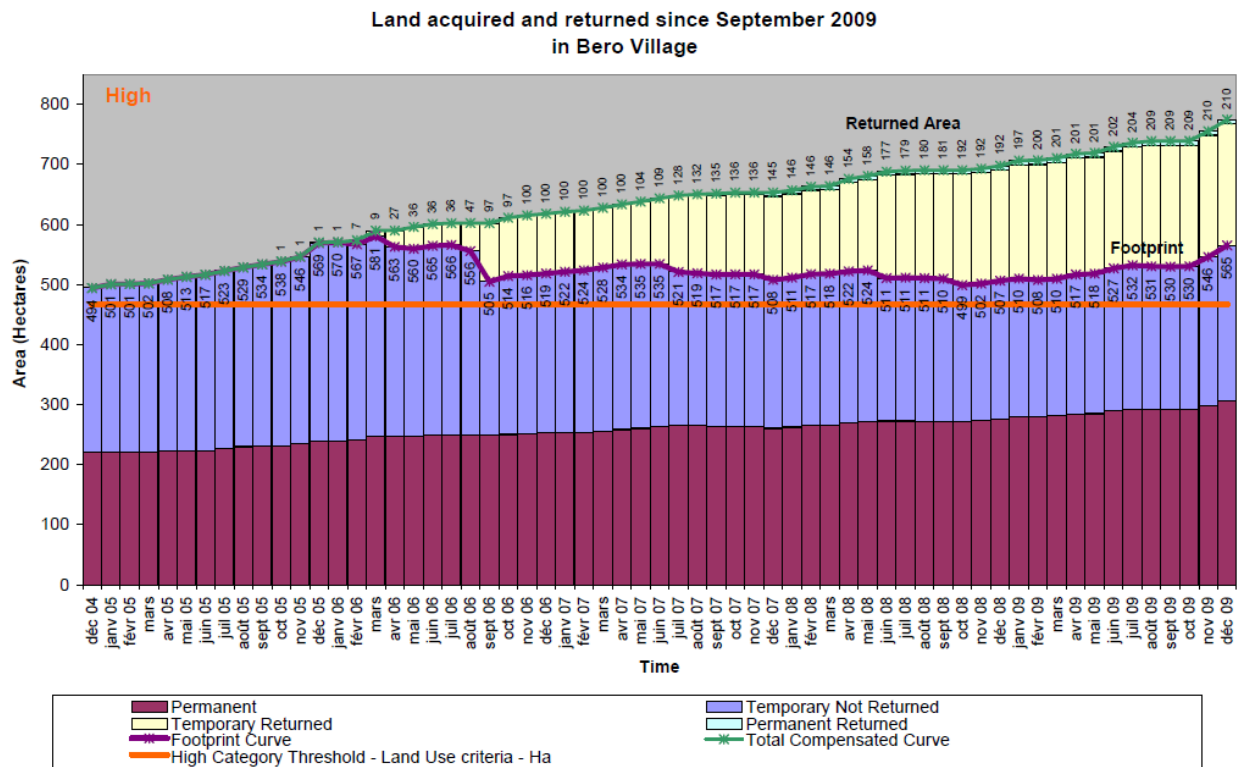
Plus 1 reinforcee for whom no information because is traveling. One tailor remained unable to master such things as pants pockets; his reinforcement did not help but he remains a viable tailor.

Land Return

Viable Through Project Land Return

- Most of the land acquired in Bero was for subterranean installations (approximately 183 ha) such as flow lines, gathering line, water injection line and underground cable – land which has and will continue to be returned to agricultural use with only mild restrictions. About 98 ha of well pad temporary land and 6 ha of well pad and access road permanent land was returned. Borrow Pits which can be returned for farming constitute another source of land (92 ha). Likewise the 71 ha needed for electric lines is useable land.
- Direct land return to nonviable HH will raise 2 HH from Marginal to Viable and only 1 HH from Non-Viable to Marginal.

Land acquired and returned since January 2005 in Bero village



Physical Resettlement

No one in Bero has chosen to be resettled in another village because of lack of land, preferring other options to resettlement. Otherwise a number of HH have moved their homesteads within their village of residence because their homes lay within or close to the footprint of Project construction. Such a move had not economic impact on their farmlands but provided new and permanent housing.

It is obvious, however, that the population of Bero has exercised the traditional tactic of adjusting population size to overall resource availability by splitting off into Bero xxx. For another indication there is a sample of 247 Bero HH for which we know the current residence of the HH; 17% have homes and fields in Bero villages but have self-resettled elsewhere:

- 15 have moved to a big city.
- 24 have moved to other farming villages for land.
- 3 have moved to business centers.

Self-resettlement is a reasonable choice because an affected HH can always use its compensation money for permanent housing when they move on their own, but cannot obtain Improved Agriculture or Off Farm Training by themselves.

Supplemental Community Compensation

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.

In the case of Bero, the original Community Compensation was provided to the two existing villages, Bero 1 and 2. For the Supplemental Compensation Bero 2 and 3, which have continued to give more land than has been returned, both received Supplemental Compensation.

Bero started the Participatory Rural Appraisal (PRA) process with the Non Governmental Organization (NGO) BELACD-Doba in 2Q 2008. Bero 3 has set its development priorities and chose rice farming; current negotiations are underway on how to include this choice in the Generate New Ricelands Project. Bero 2 selected a community hall.

Bero's Current Needs and Resources

- The amount of land needed by those compensated families at risk to become economically viable is 132 ha.
- The amount of land needed by the other non-viable families untouched by the project to be economically viable is 108 ha.
- The total land shortage for needy HH in Bero is 240 ha.
- Bero's arable land = 5024 ha; they also have 614 ha of farmland in other villages.
- 52% of HH are holding more than 10 cordes of land apiece
- And 37% have more than 2.5 cordes per HHM.
- Like Dildo, Ngalaba and Begada a relatively small percentage of Bero's land in cultivation or in fallow is farmed by people from outside Bero – 11% of Bero's land.
- At present Bero has enough land within its boundaries to leave a field in fallow for 11 years; if the land Bero's inhabitants still farm outside their village is included, the length of fallow increases slightly to 13 years.
- 3-4 years is the current norm for fallow to recover in the OFDA
- Bero village has enough arable land to provide all its inhabitants more than 2/3 c per HHM.
- Bero village has enough land to maintain the desired rotation of 4 years of cultivation, 3 years of fallow.

Infill Drilling in Bero Fault Block

Approximately 84 In Fill wells are planned for Bero village farmland/fallow through 2012. With the Village Survey complete it will be possible to identify all vulnerable HH with fields overlying the fault blocks that will be drilled and to monitor the impact of land acquisition there.

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 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 Basic 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 Bero as per the CRCP, LMM procedures and Management of Change to the LMM currently in place:

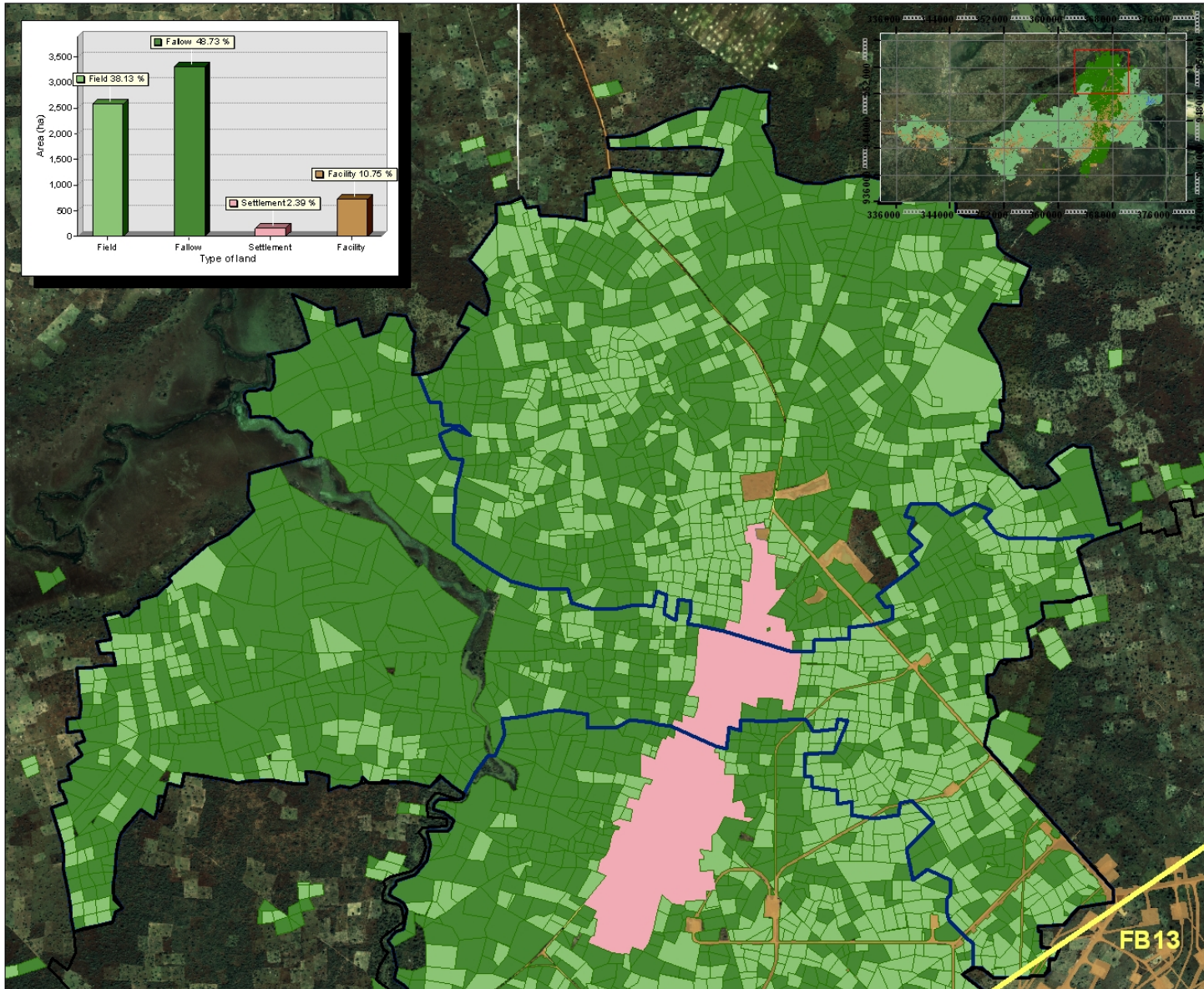
Site Specific Actions for Bero

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	Borrow Pits can be an important source of now arable land when returned
Physical Relocation Individuals	Physically move at risk household to new location outside of current village	No	The pattern to date has been for HH to ask for their replacement house to be built in Bero while they also use a farm hamlet
Third Party Compensation	Land User with surplus land may donate to at risk household and receive normal land compensation payment	Yes	This option is possible but since Bero is near potential Riceland, this is a better option
Off Farm Training	Provide training to earn income in non-agricultural work	No	Market saturated
	Reinforce training to increase income earned to viable level	Yes	Training done in 2009.
Improved Agriculture	Provide training to generate more production of subsistence crops and produce cash crops	Yes	Can upgrade rice training as Riceland project succeeds
	Reinforce training to generate more production of subsistence/ cash crops	Yes	Training done in 2009.
Rainy Season Resettlement	Provide field clearing, rainy season hut, well, bicycle, and hand cart for use in distant farm field	Yes	Allows farmers to exploit all canton land
Physical Relocation of Village	Physically relocate entire village to new location in cooperation and in concert with government	No	Not necessary
Supplemental Community Compensation	Phase 1: Rapid Participatory Assessment of Needs & Resources	Yes	Done 2008
	Phase 2: Oversee implementation; Create management committee	Yes	1 not yet constructed; 1 has not yet made decision on type of compensation

Site Specific Plan Implementation Timeline

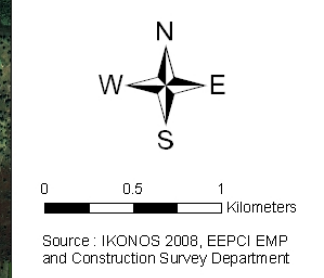
Grey = Completed; Blue = Underway; White = To implement

Action (grey indicates completed, blue underway)	<u>Timeline</u>
Land and social surveys completed	Aug 2009-Dec 2009
Bero choice of Supplemental Community Compensation	2009 to present
Construction Bero Supplemental Community Compensation	TBD
EEPCI works with Africa Rice Center and GOT to develop and then transfer land to At-Risk individuals choosing this options	Sep 2009 to present
EEPCI offers Reinforcement Training and equipment	2009
EEPCI offers Basic Business Training and Improved Agriculture Training	2009-10



Bero Survey

Zoom on Bero I - III

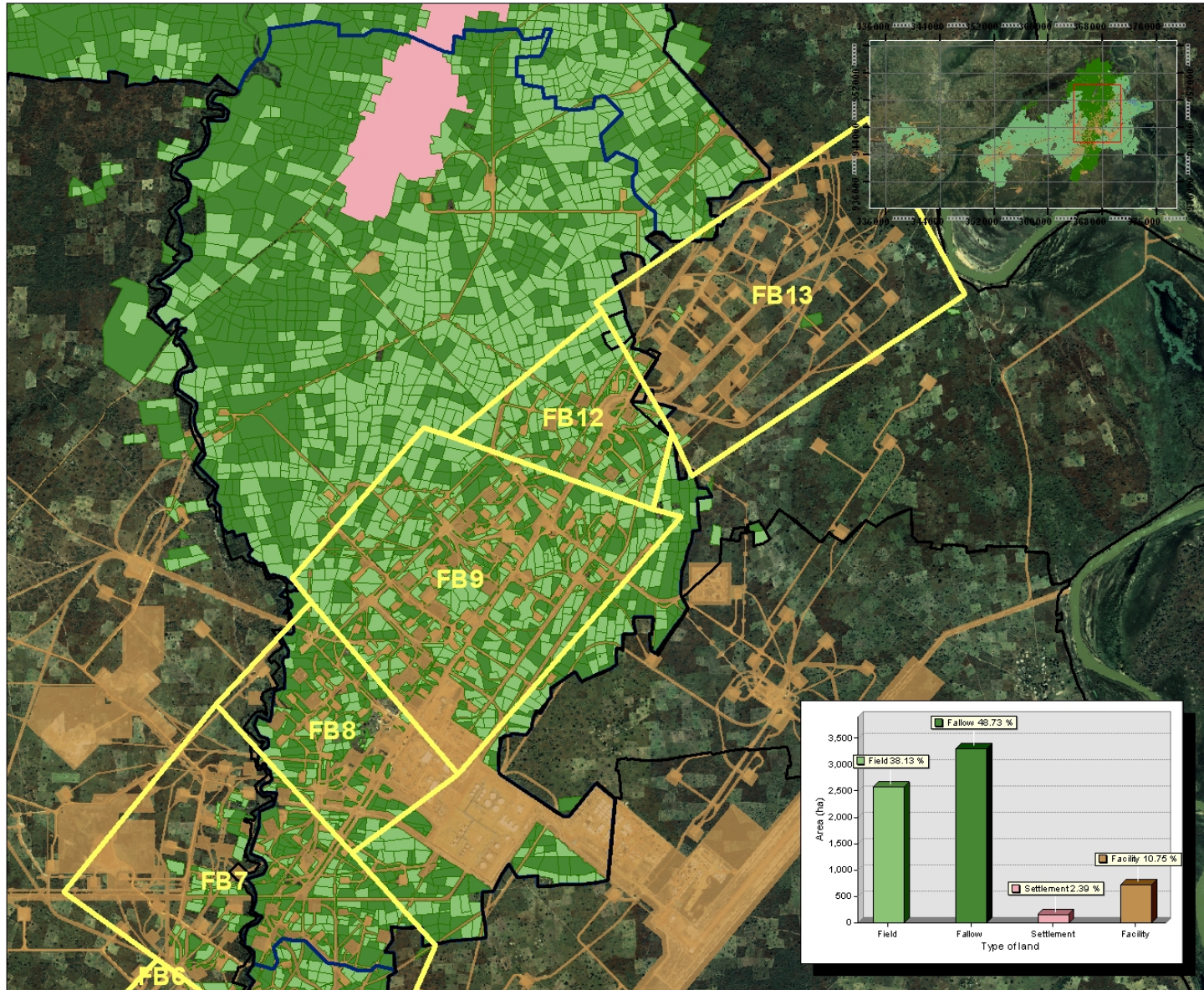


- #### Legend
- Farmland**
 - Field
 - Fallow
 - Non-tillable land**
 - Flooded zone
 - Settlement and protected area
 - Facility
 - Fault Block
 - Bero district
 - Village limit

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EMP, Environmental Management Plan

Date : 2010-03-10 Author : EMP-IS Document : Bero SSP.doc Map 2
Map : Bero_Survey.mxd



Bero Survey Zoom on Bero II



0 0.5 1 Kilometers

Source : IKONOS 2008, EEP/CI EMP and Construction Survey Department

Legend

Farmland

- Field
- Fallow

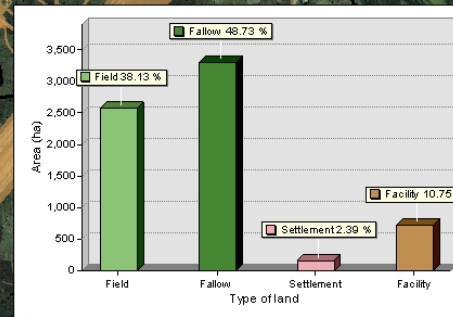
Non-tillable land

- Flooded zone
- Settlement and protected area
- Facility

Fault Block

Bero district

Village limit



Date : 2010-03-10

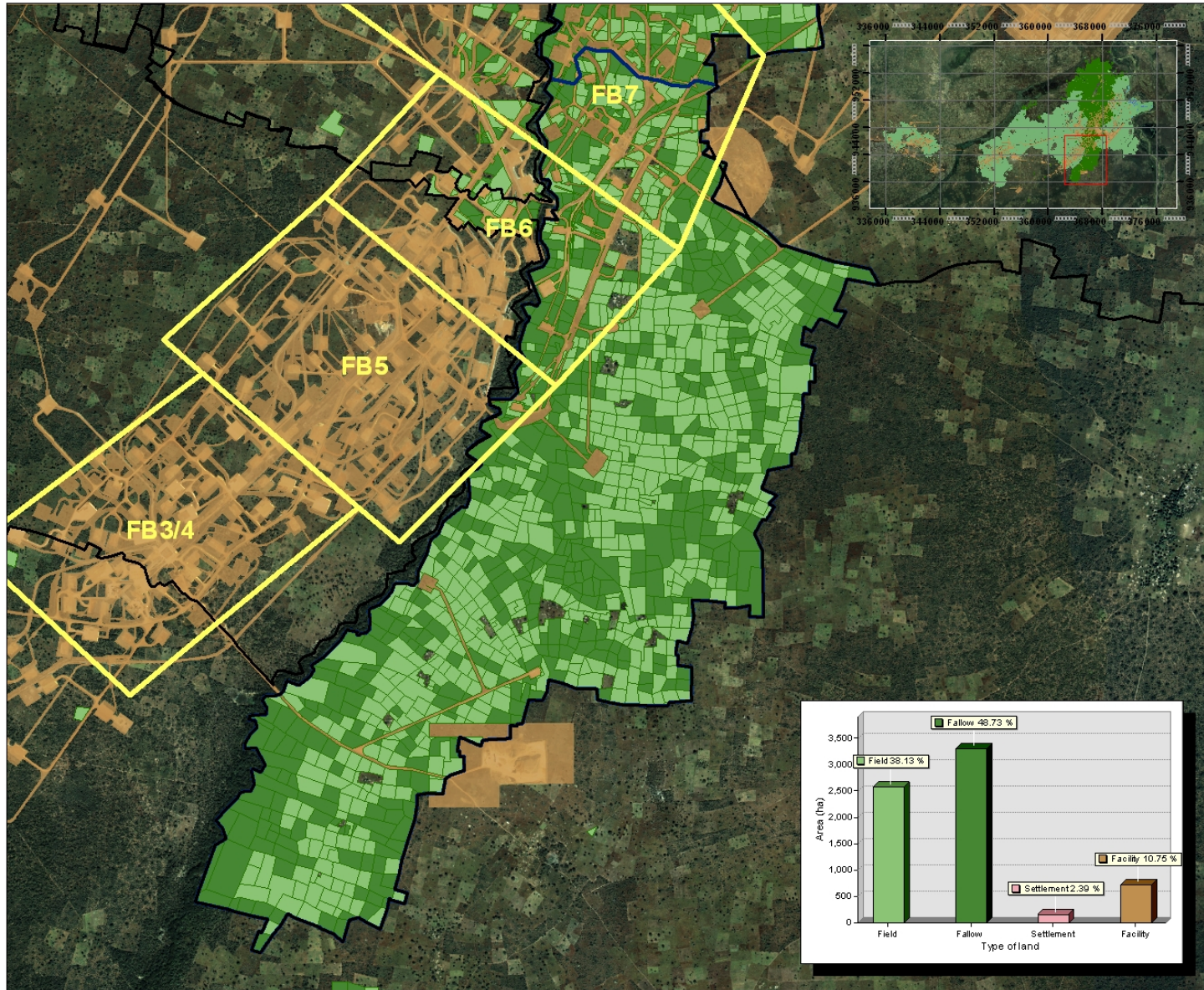
Author : EMP-IS

Document : Bero SSP.doc Map 2
Map : Bero_Survey.mxd



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Bero Survey
Zoom on Bero IV



Source : IKONOS 2008, EEP/CI EMP and Construction Survey Department

Legend

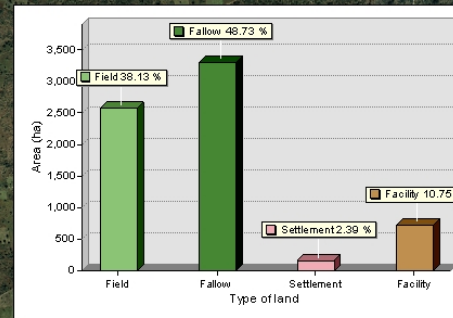
Farmland

- Field
- Fallow

Non-tillable land

- Flooded zone
- Settlement and protected area
- Facility

- Fault Block
- Bero district
- Village limit



Date : 2010-03-10

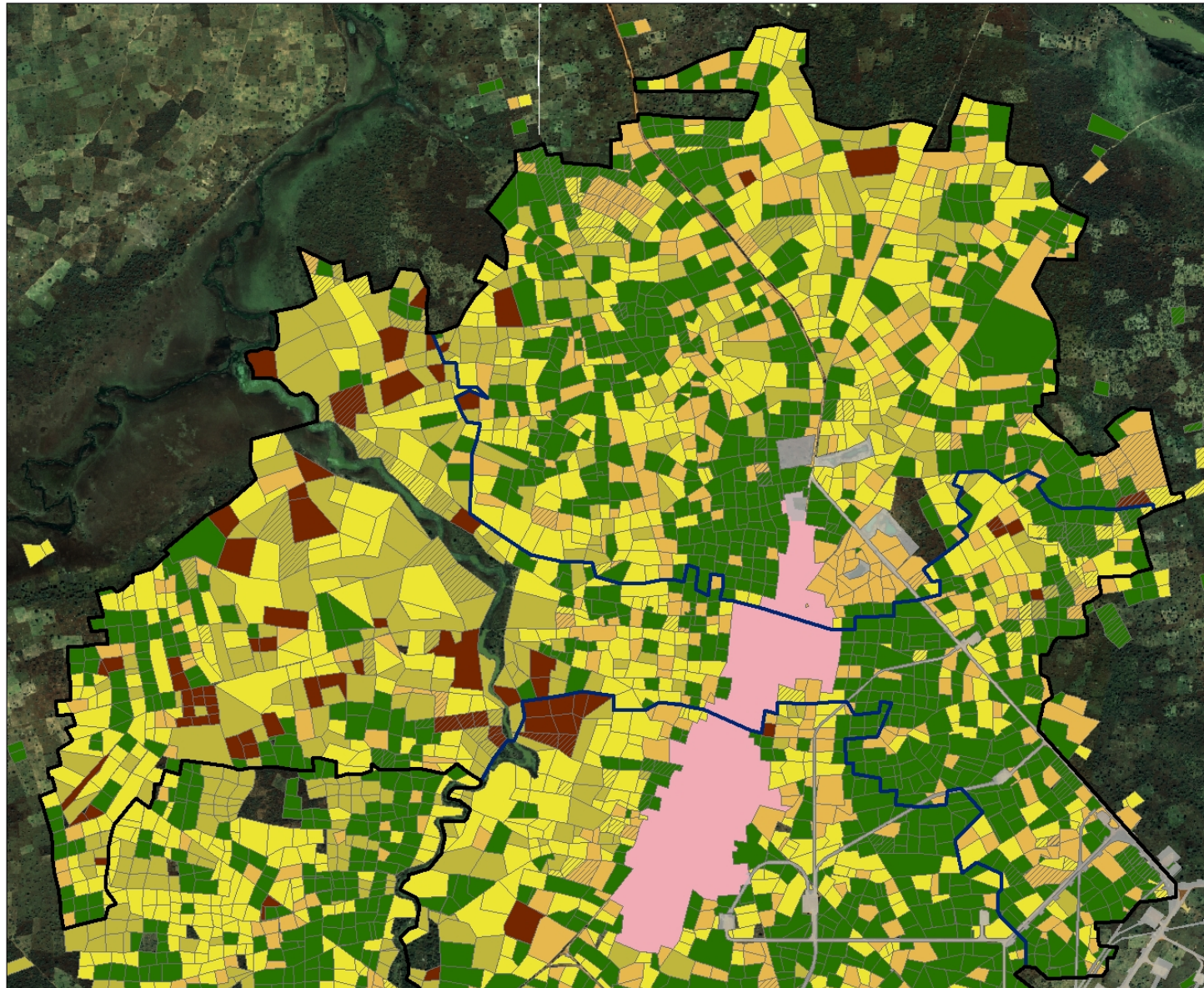
Author : EMP-IS

Document : Bero SSP.doc Map 2
Map : Bero_Survey.mxd



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Bero survey and arable land

Zoom on Bero I - III



Source : IKONOS 2008, EEPCI EMP and Construction Survey Department

Legend

Fallow Duration

- 2 years
- 3 - 5 years
- 6 - 10 years
- 11 years +

- Field
- Bero quarters
- Village limit
- Land cultivated (field) or owned (fallow) by outsiders
- Permanent and not returned facilities
- Flooded zone
- Settlement and protected area



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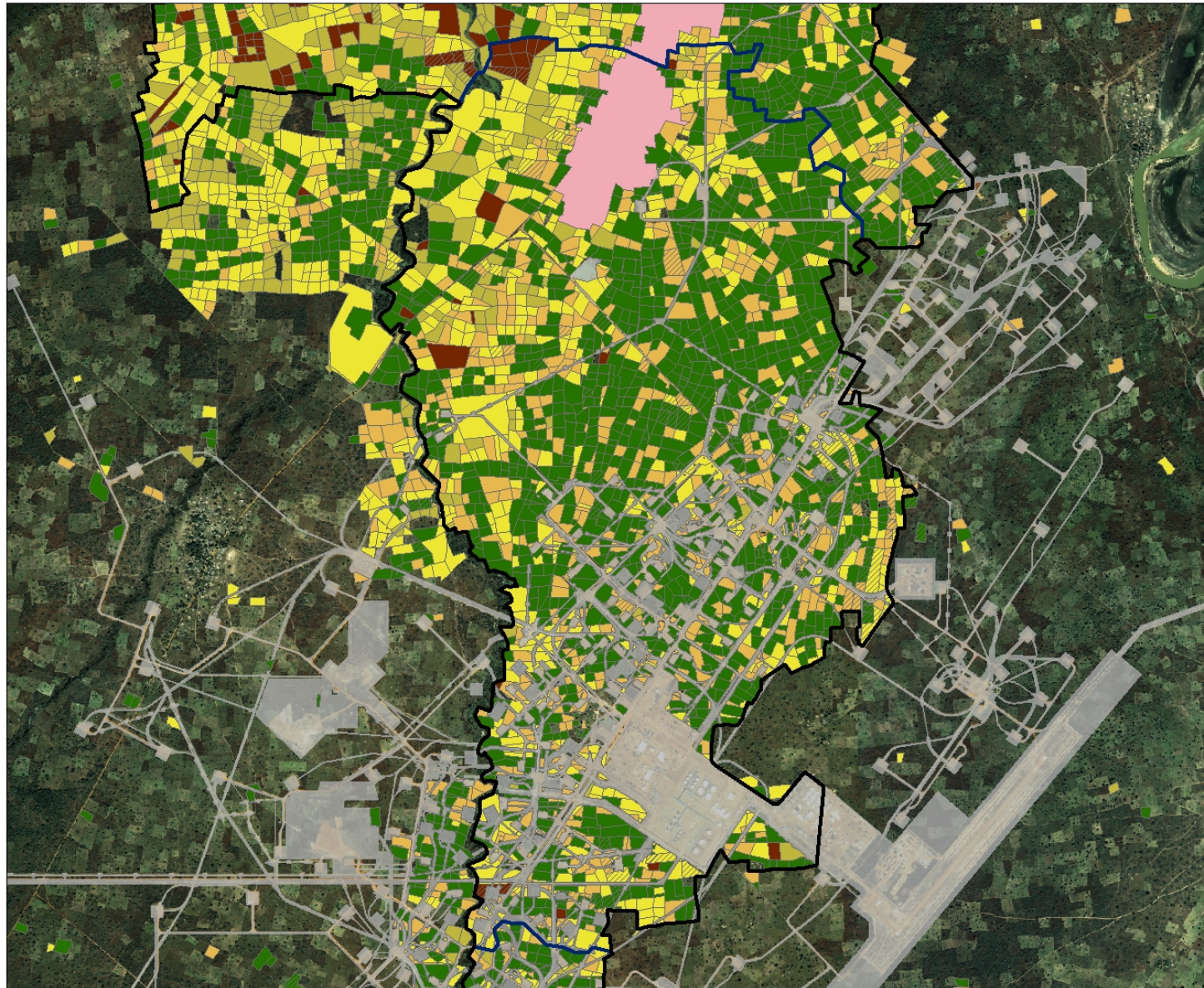
EEPCI - Esso Exploration & Production Chad Inc.
EMP, Environmental Management Plan

Date : 2010-03-07

Author : EMP- IS Team

Document : Bero SSP.doc Map 7
Map : Bero_ArableLand.mxd

P: F: Bero site specific plan - 17 march 2010.doc



Bero survey and arable land

Zoom on Bero II



0 0.5 1 Kilometers

Source : IKONOS 2008, EEPCI EMP and Construction Survey Department

Legend

Fallow Duration

- 2 years
- 3 - 5 years
- 6 - 10 years
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- Field
- Bero quartiers
- Village limit
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- Flooded zone
- Settlement and protected area



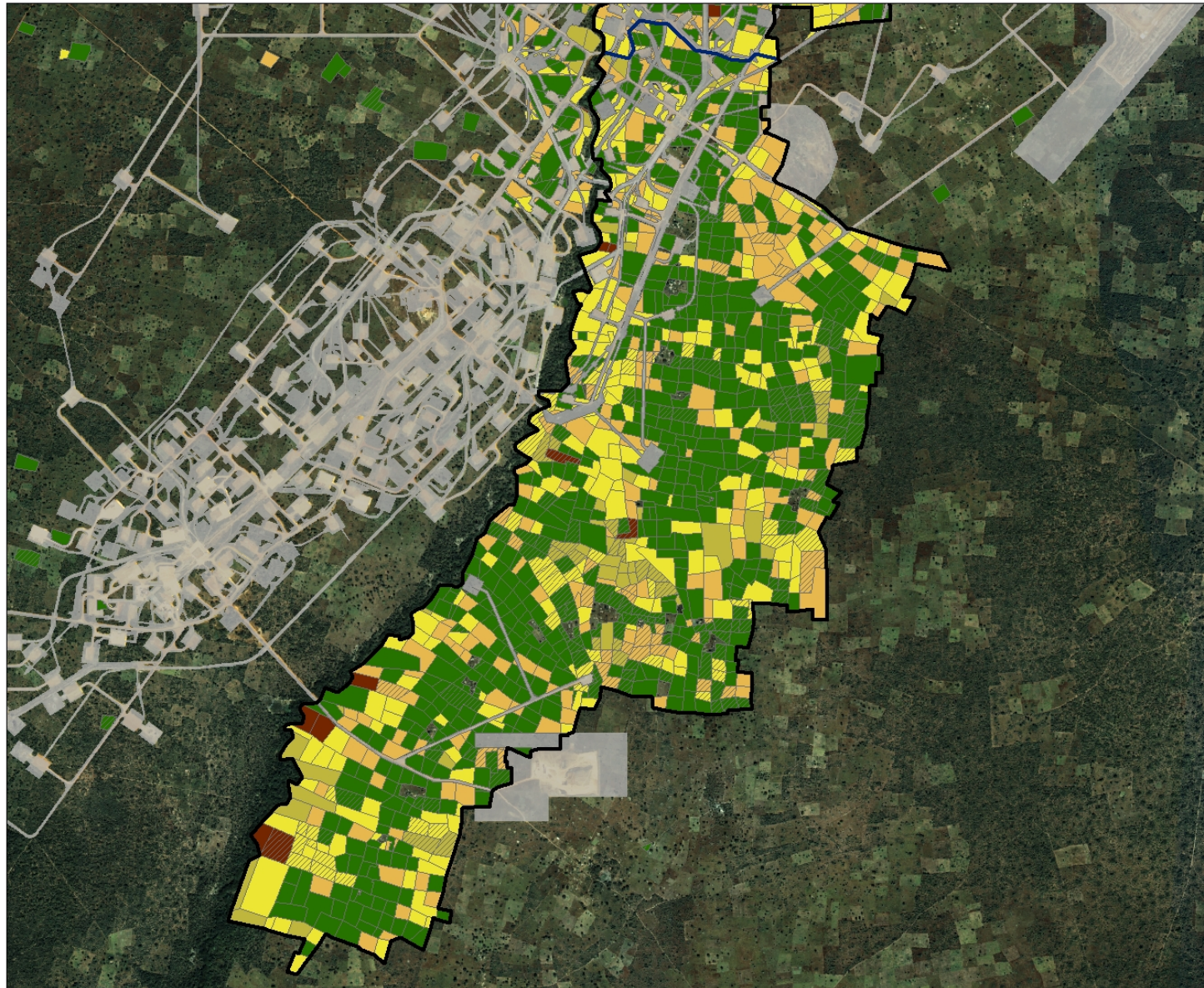
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Date : 2010-02-04

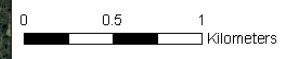
Author : EMP- IS Team

Document : Bero SSP.doc Map 7
Map : Bero_ArableLand.mxd



**Bero survey
and
arable land**

Zoom on Bero IV



Source : IKONOS 2008, EEPCI EMP and Construction Survey Department

Legend

Fallow Duration

- 2 years
- 3 - 5 years
- 6 - 10 years
- 11 years +

- Field
- Bero quarters
- Village limit
- Land cultivated (field) or owned (fallow) by outsiders
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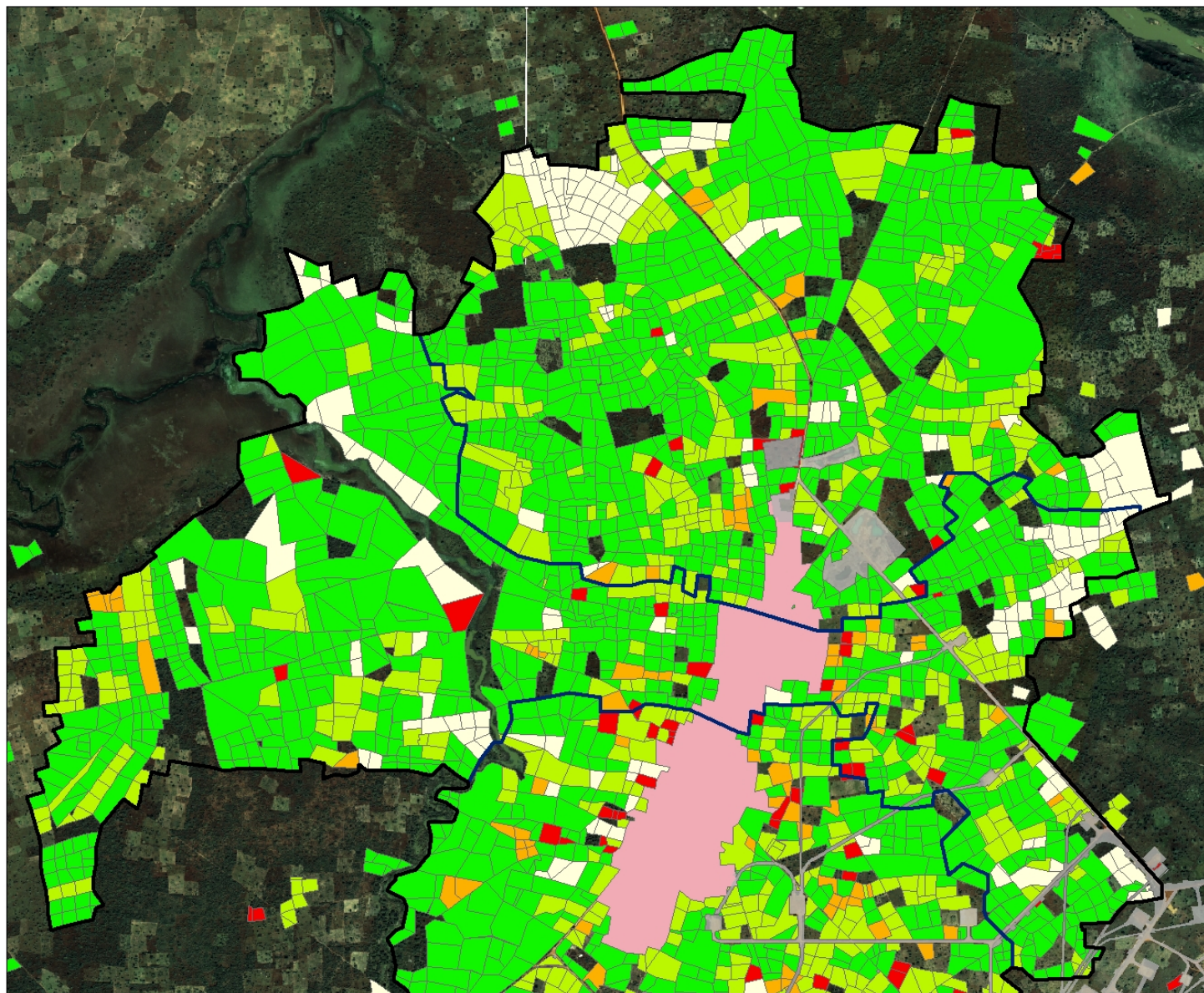
EEPCI - Esso Exploration & Production Chad Inc.
EMP, Environmental Management Plan

Date : 2010-03-07

Author : EMP- IS Team

Document : Bero SSP.doc Map 7
Map : Bero_ArableLand.mxd

P: F:\Bero Site Specific Plan - 17 march 2010.doc



At Risk Households in Bero village

Zoom on Bero I - III



0 0.5 1 Kilometers

Source : IKONOS 2008, EEPCI EMP
and Construction Survey Department

Legend

Resettlement eligibility
factor (corde/dependant)

- <= 0.67
- 0.68 - 1.00
- 1.01 - 2.50
- > 2.50

- Land cultivated or
owned by outsiders
- Flooded zone

- Settlement and
protected area
- Permanent and
not returned facilities
- VillageLimit



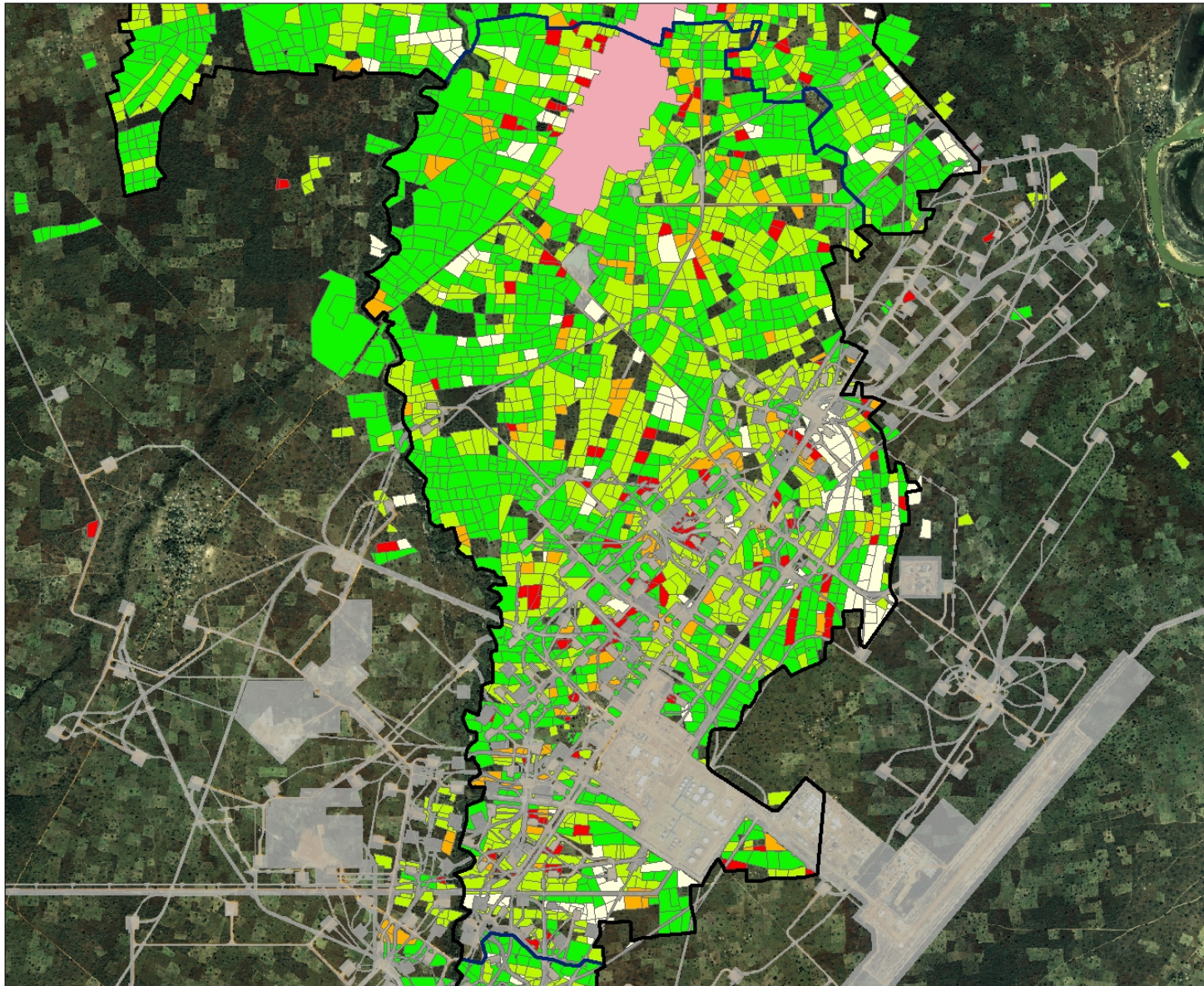
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Date : 2010-03-07

Author : EMP- IS Team

Document : Bero SSP.doc Map 3
Map : Bero_AtRisk_Households.mxd



At Risk Households in Bero village

Zoom on Bero II



0 0.5 1
Kilometers

Source : IKONOS 2008, EEP CI EMP
and Construction Survey Department

Legend

Resettlement eligibility
factor (corde/dependant)

- <= 0.67
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- Flooded zone
- Settlement and
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- VillageLimit



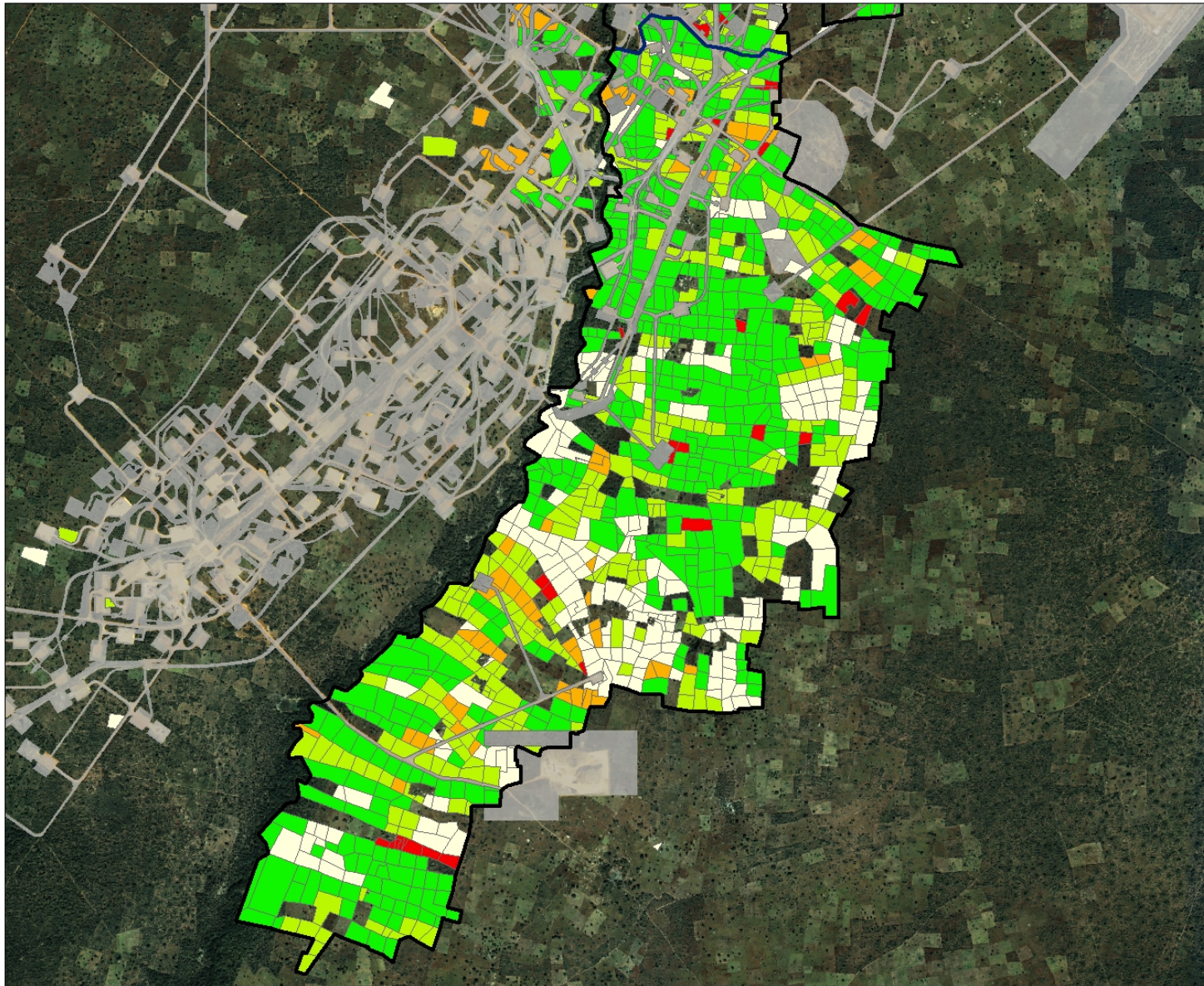
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Date : 2010-03-07

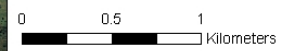
Author : EMP- IS Team

Document : Bero SSP.doc Map 3
Map : Bero_AtRisk_Households.mxd



At Risk Households in Bero village

Zoom on Bero IV



Source : IKONOS 2008, EEP CI EMP and Construction Survey Department

Legend

Resettlement eligibility factor (corde/dependant)

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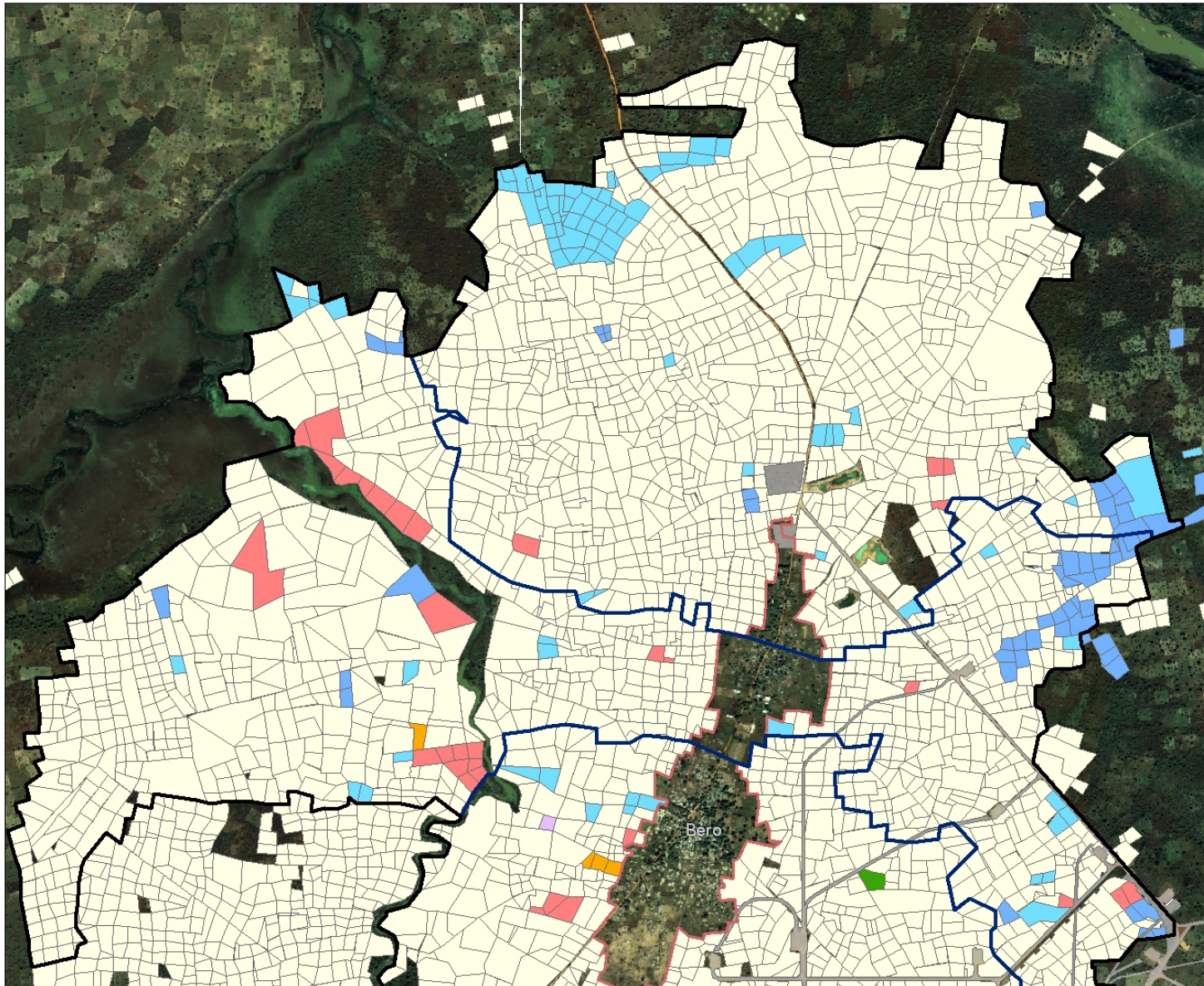
Date : 2010-03-07

Author : EMP- IS Team

Document : Bero SSP.doc Map 3
Map : Bero_AtRisk_Households.mxd

Farmer's Residence in Bero

Zoom on Bero I - III



Source : IKONOS 2008, EEP CI EMP and Construction Survey Department

Legend

- Residency village of farmers**
- Bero (5176 ha - 87.7%)
758 ha outside the village)
 - Madjo (185 ha - 3.1%)
 - Missimadji (130 ha - 2.2%)
 - Kagroue (87 ha - 1.5%)
 - Bayande (27 ha - 0.5%)
 - Doba (61 ha - 1%)
 - Dildo-Dokaidilti (13 ha - 0.2%)
 - Other villages (222 ha - 3.8%)
- Settlement
 - Bero quarters
 - Village limit
 - Flooded zone
 - Permanent and not returned facilities



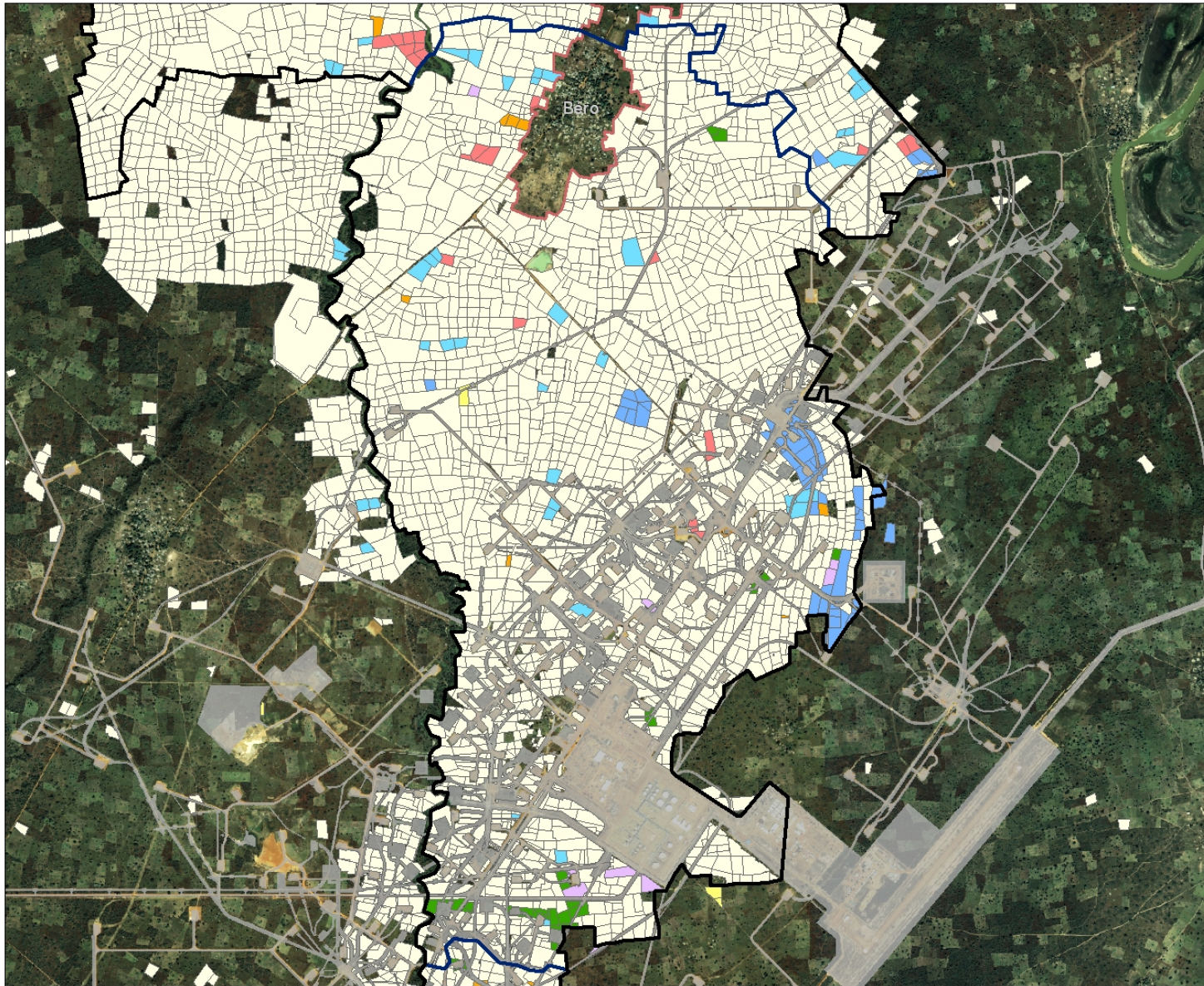
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Date : 2010-03-09

Author : EMP-IS

Document : Bero SSP.doc Map 4
Map : Bero_FarmerResidence.mxd



Farmer's Residence in Bero

Zoom on Bero II



0 0.5 1
Kilometers

Source : IKONOS 2008, EEP/CI EMP
and Construction Survey Department

Legend

- Residency village of farmers**
- Bero (5176 ha - 87.7%)
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- Settlement
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 - Village limit
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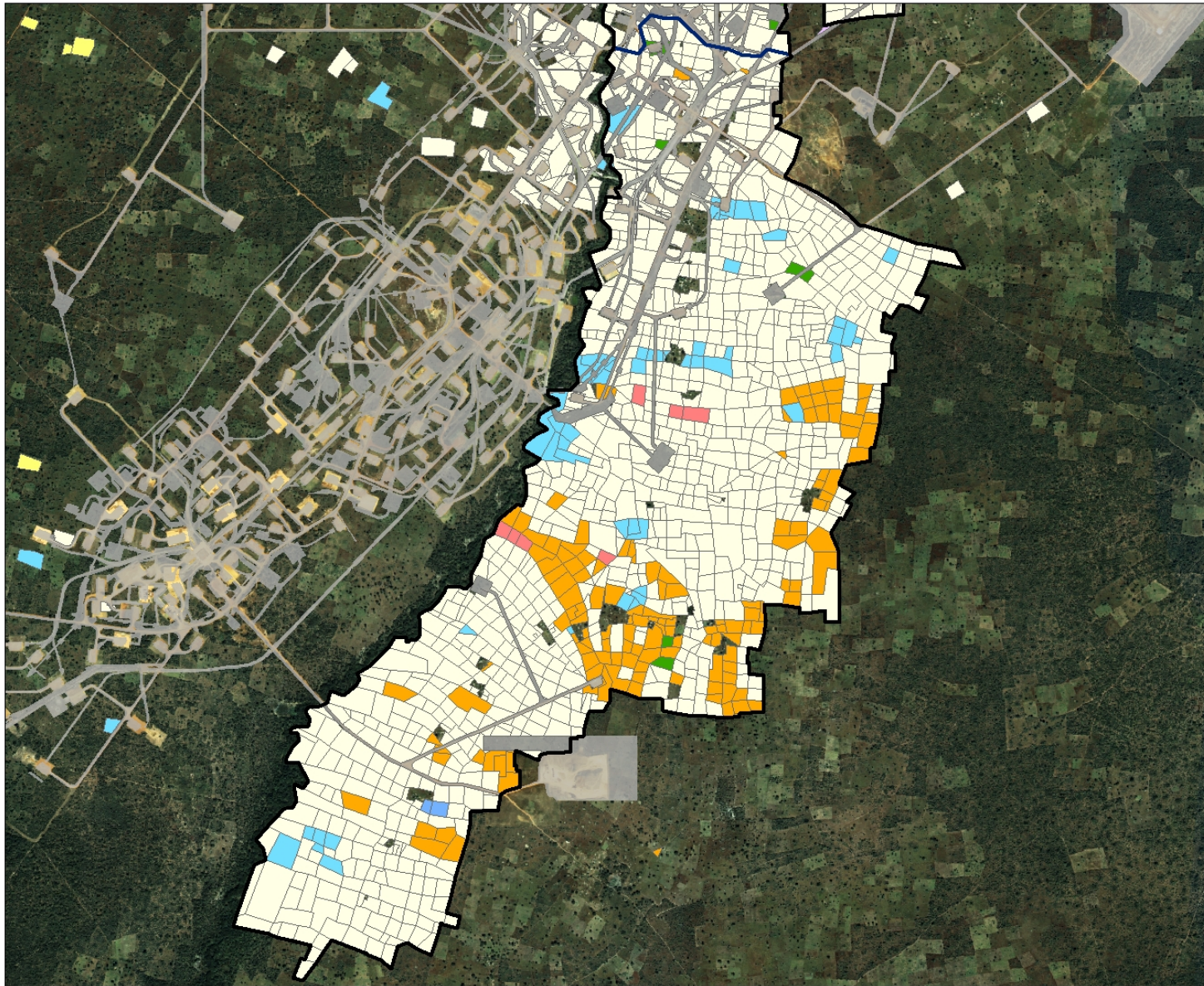
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Date : 2010-03-09

Author : EMP-IS

Document : Bero SSP.doc Map 4
Map : Bero_FarmerResidence.mxd



Farmer's Residence in Bero

Zoom on Bero IV



Source : IKONOS 2008, EEP/CI EMP and Construction Survey Department

Legend

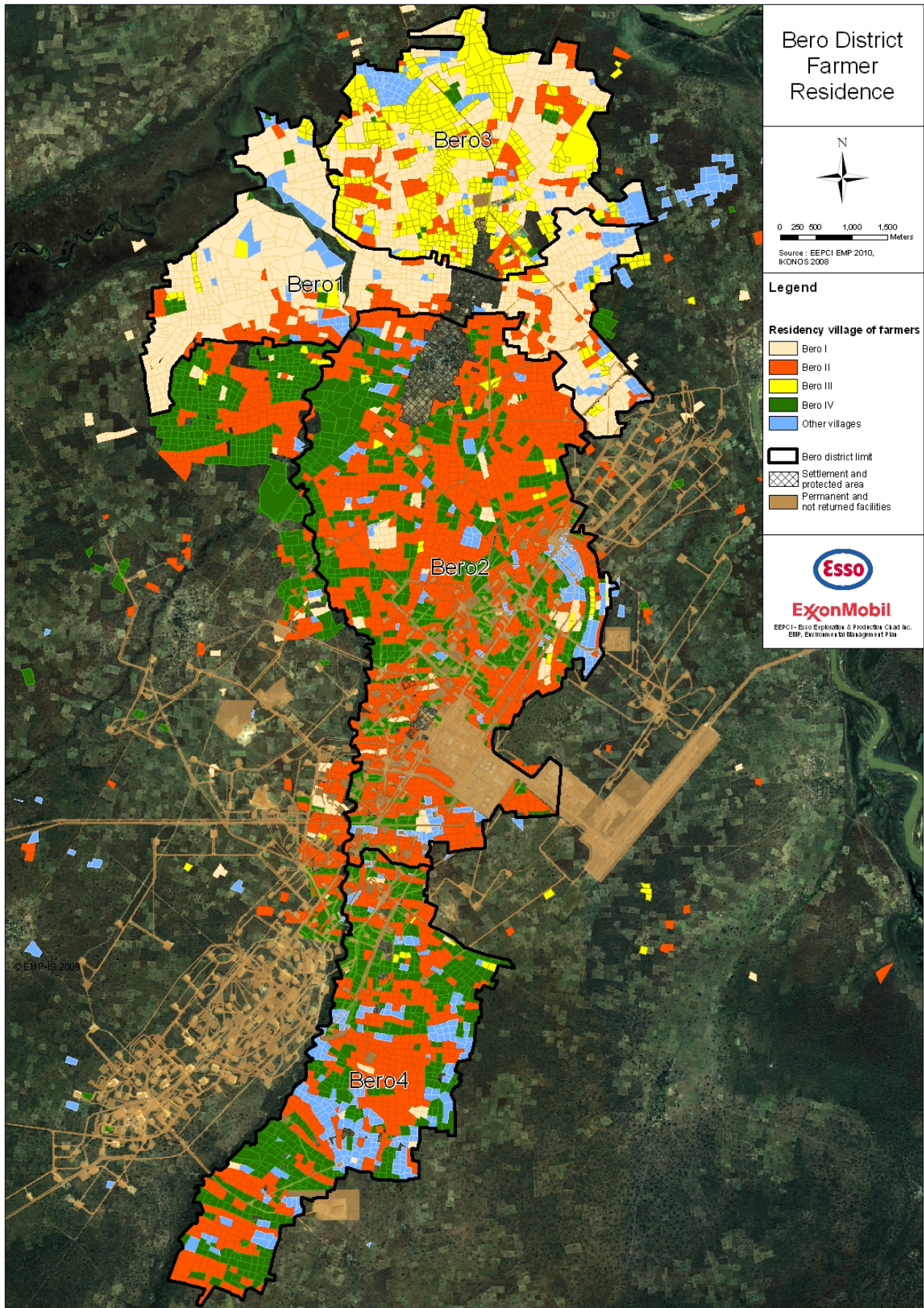
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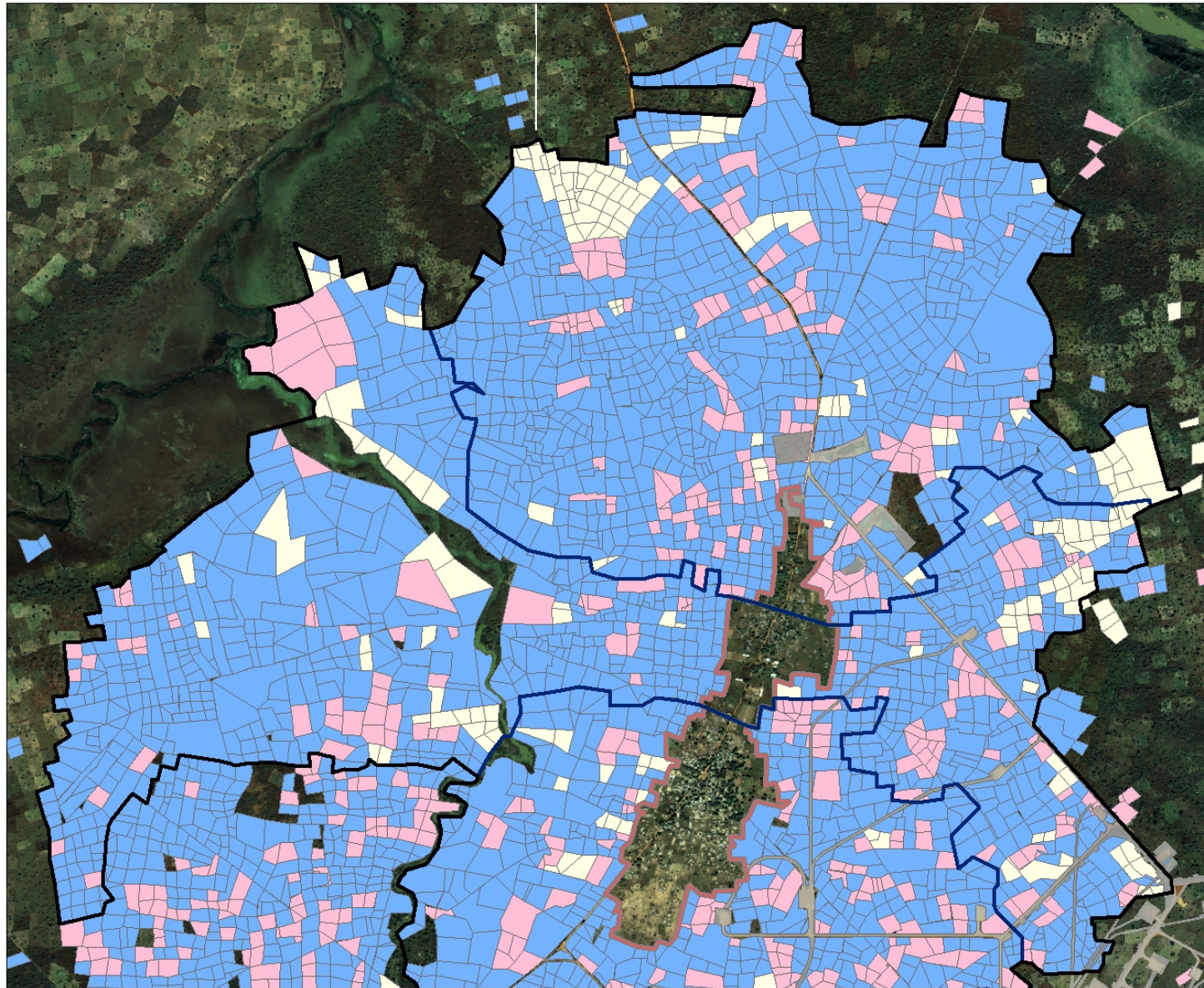


Date : 2010-03-09

Author : EMP-IS

Document : Bero SSP.doc Map 4
Map : Bero_FarmerResidence.mxd





Owner's Gender
in Bero

Zoom on Bero I - III

N
W —+— E
S

0 0.5 1
Kilometers

Source : IKONOS 2008, EEPIC EMP
and Construction Survey Department

- Legend**
- Gender of cultivator**
- Man (4769 ha - 81%)
 - Woman (1133 ha - 19%)
 - Land cultivated or owned by outsiders
- Flooded zone
- Permanent and not returned facilities
- Settlement and protected area
- Bero quarters
- Village limit



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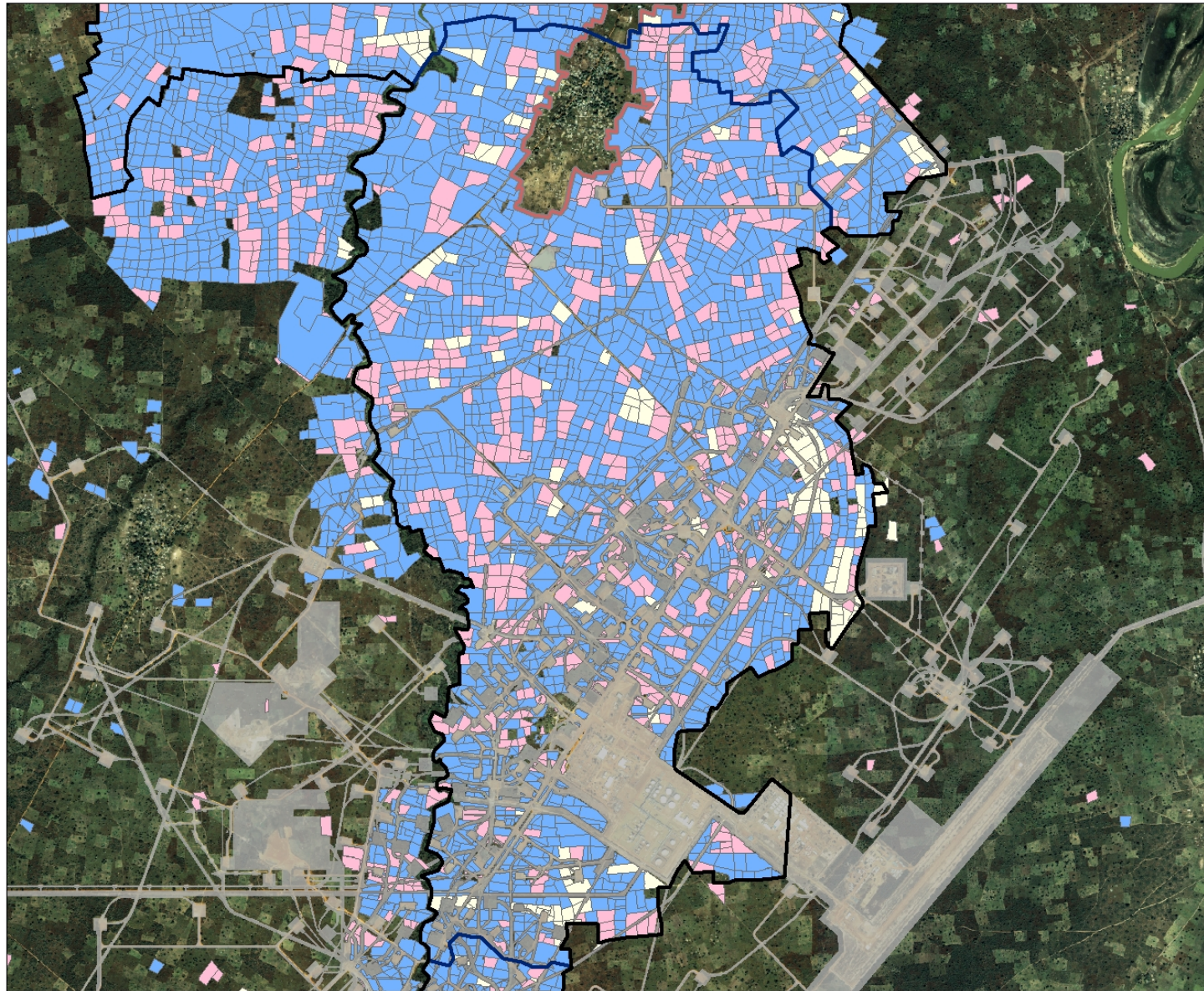
EEPIC - Esso Exploration & Production Chad Inc.
EMP, Environmental Management Plan

Date : 2010-03-07

Author : EMP-IS

Document : Bero SSP.doc Map 6
Map : Bero_OwnerGender.mxd

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F:\Bero Site Specific Plan - 17 march 2010.doc



Owner's Gender in Bero

Zoom on Bero II



0 0.5 1 Kilometers

Source : IKONOS 2008, EEPCI EMP and Construction Survey Department

Legend

Gender of cultivator

- Man (4769 ha - 81%)
- Woman (1133 ha - 19%)
- Land cultivated or owned by outsiders

- Flooded zone
- Permanent and not returned facilities

- Settlement and protected area
- Bero quarters
- Village limit



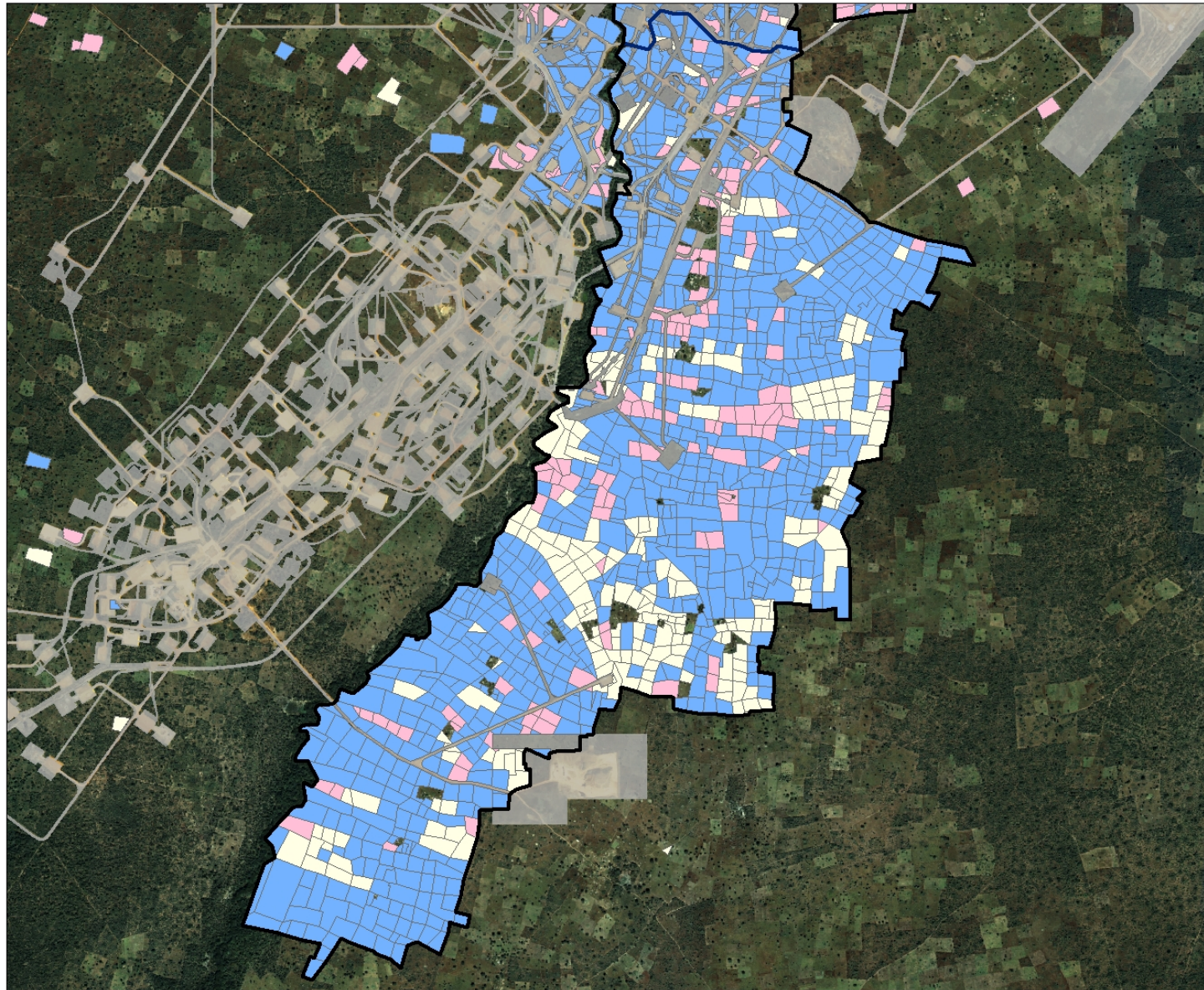
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Date : 2010-03-07

Author : EMP-IS

Document : Bero SSP.doc Map 6
Map : Bero_OwnerGender.mxd



Owner's Gender in Bero

Zoom on Bero IV



Source : IKONOS 2008, EEP/CI EMP and Construction Survey Department

Legend

Gender of cultivator

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- Village limit



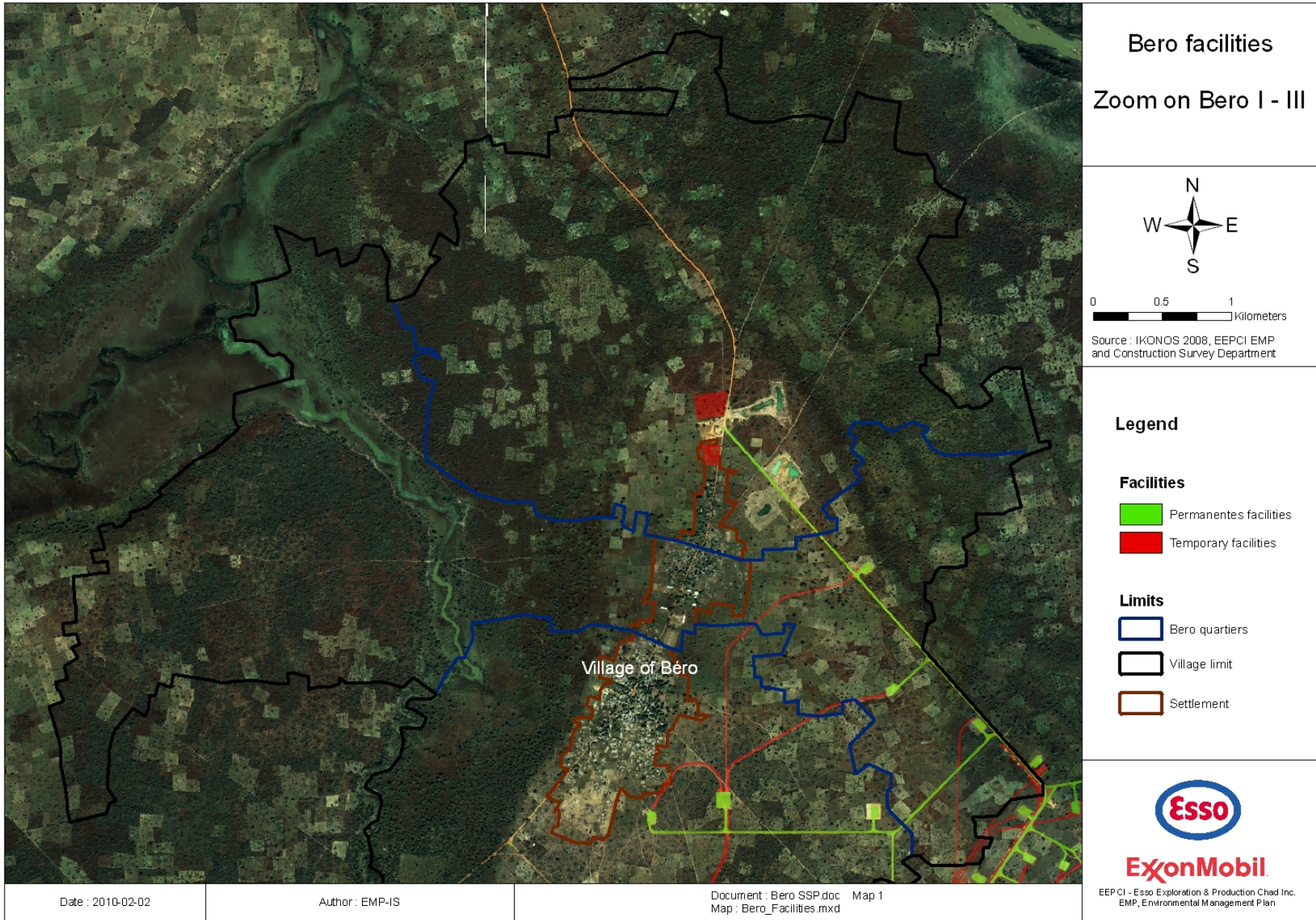
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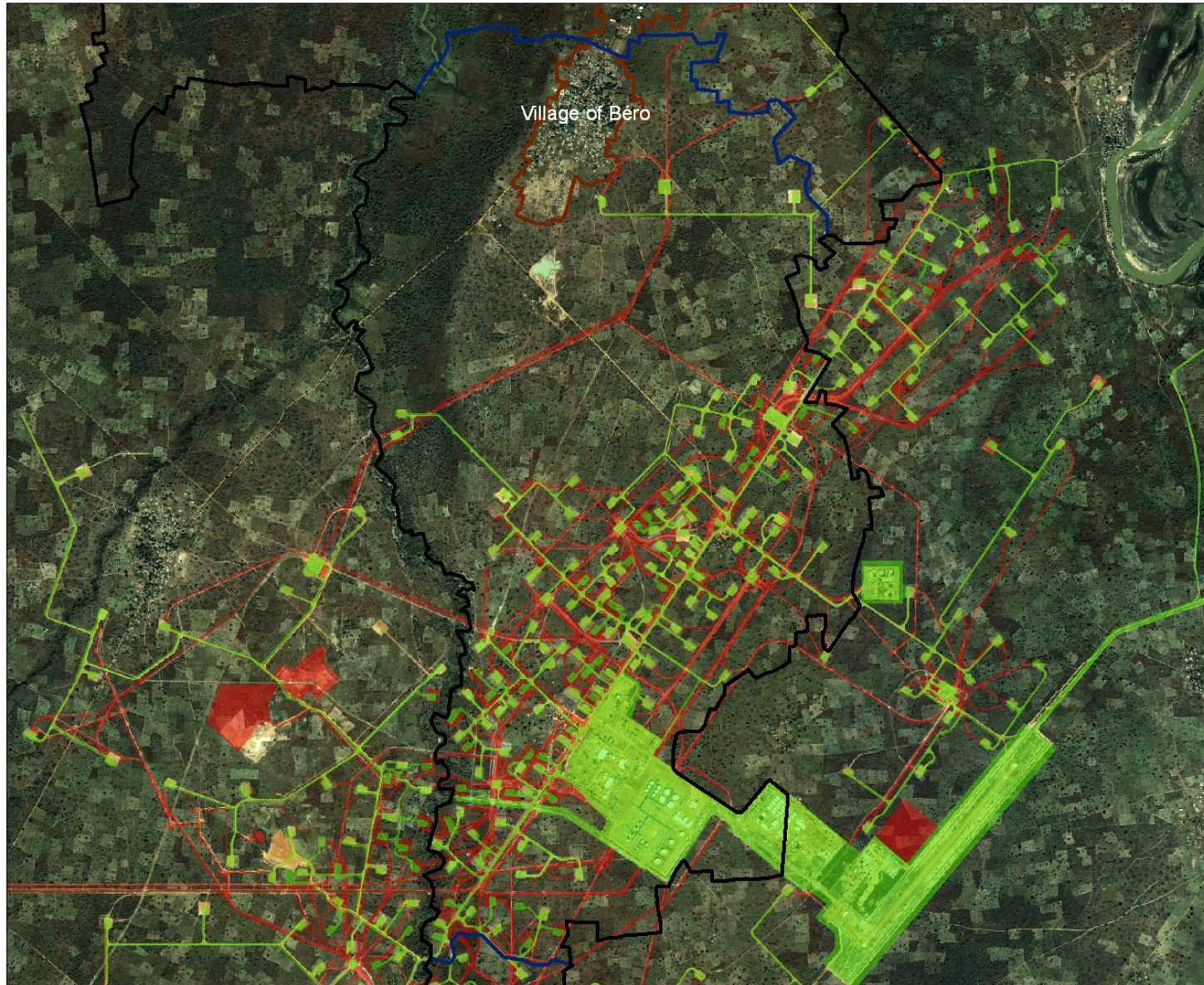
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Date : 2010-03-07

Author : EMP-IS

Document : Bero SSP.doc Map 6
Map : Bero_OwnerGender.mxd





Village of Bero

Bero facilities
Zoom on Bero II



0 0.5 1 Kilometers

Source : IKONOS 2008, EEP CI EMP and Construction Survey Department

Legend

Facilities

- Permanentes facilities
- Temporary facilities

Limits

- Bero quarters
- Village limit
- Settlement



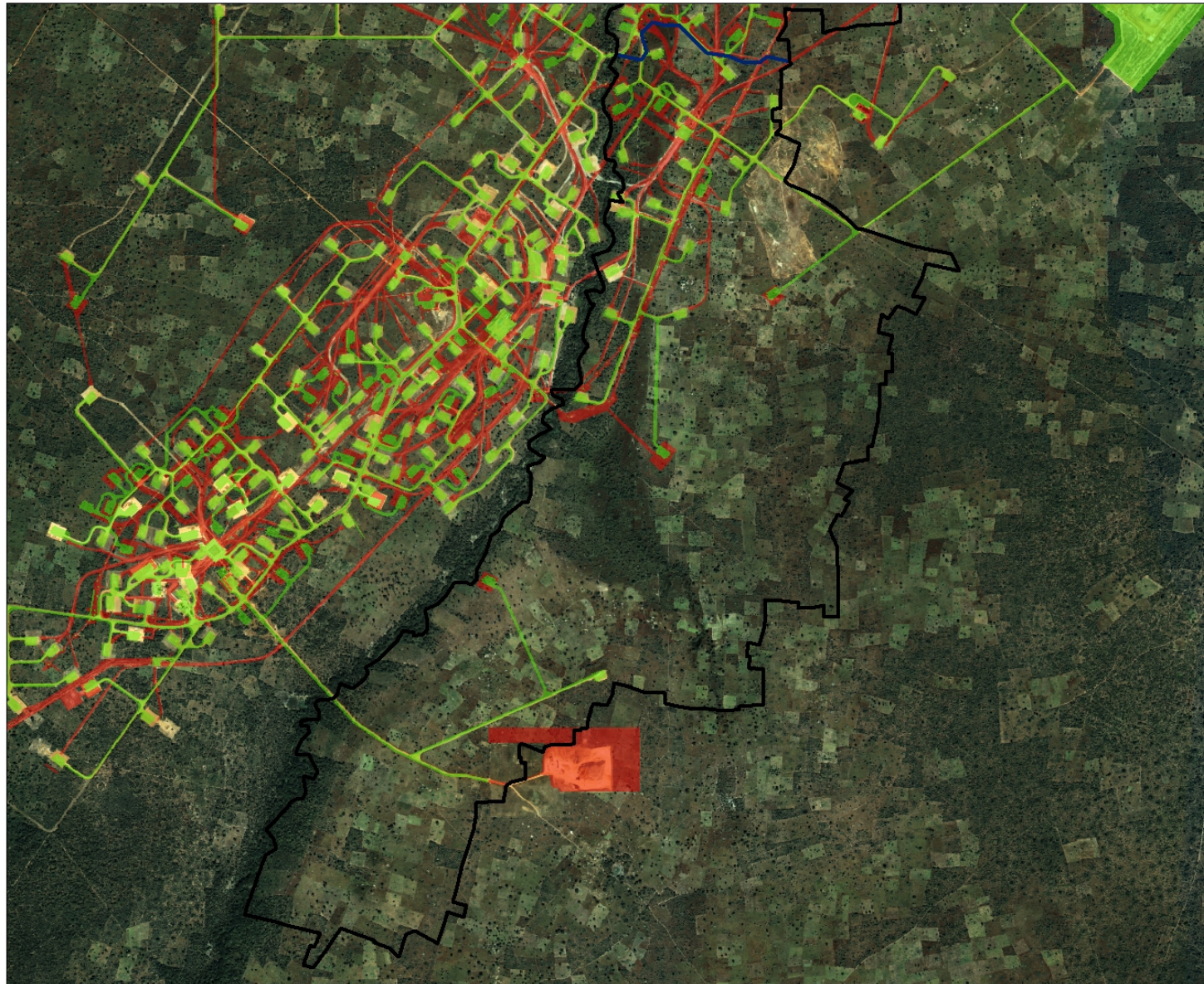
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 EMP, Environmental Management Plan

Date : 2010-03-09

Author : EMP-IS

Document : Bero SSP.doc Map 1
 Map : Bero_Facilities.mxd



Bero facilities
Zoom on Bero IV



Source : IKONOS 2008, EEP CI EMP and Construction Survey Department

Legend

Facilities

- Permanentes facilities
- Temporary facilities

Limits

- Bero quarters
- Village limit
- Settlement



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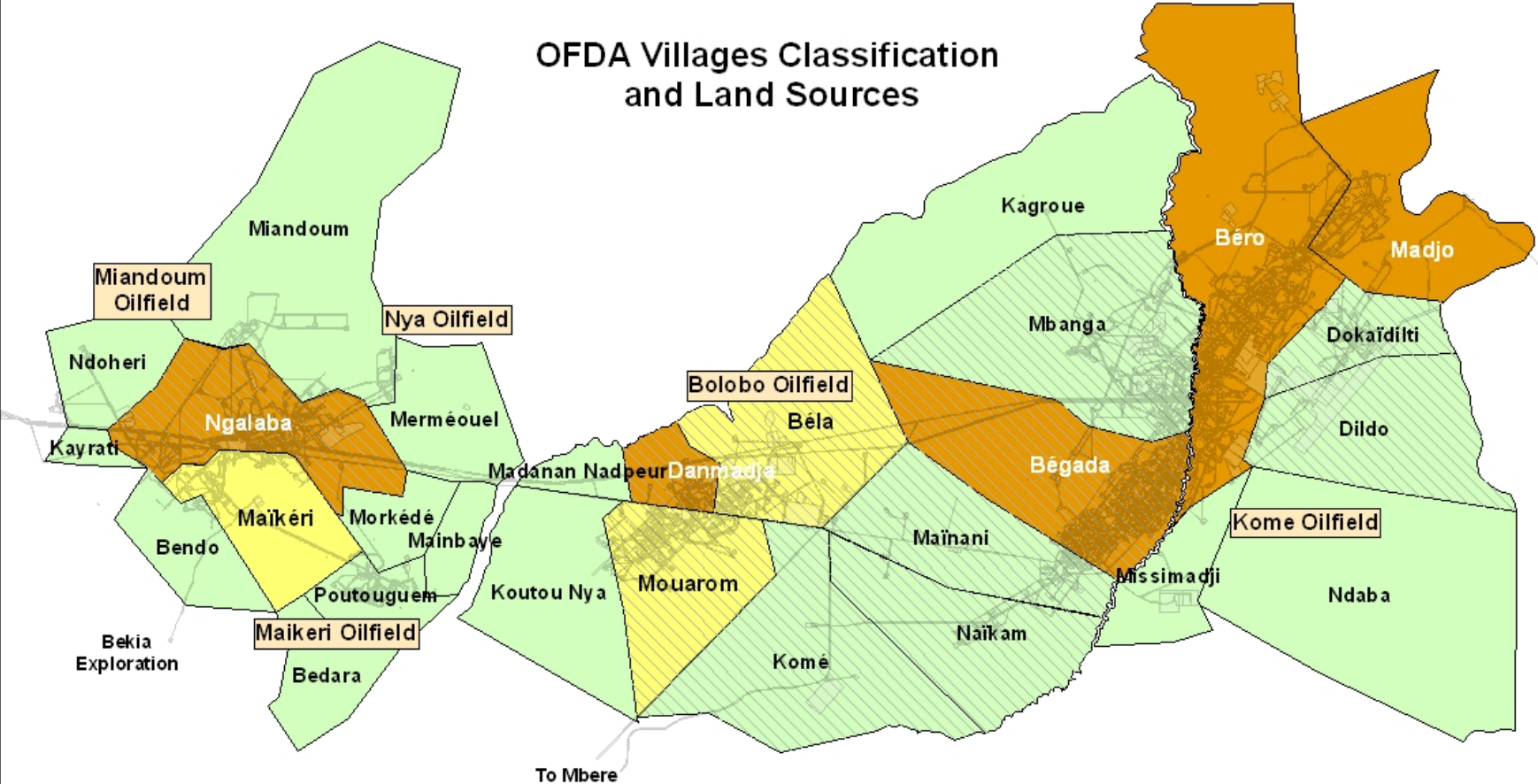
EEP CI - Esso Exploration & Production Chad Inc.
 EMP, Environmental Management Plan

Date : 2010-02-02

Author : EMP-IS

Document : Bero SSP.doc Map 1
 Map : Bero_Facilities.mxd

OFDA Villages Classification and Land Sources



- High Category
- Approching High Category
- Other Villages
- Village Survey Methodology

Source : EEP CI EMP 2010



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