Esso Exploration & Production Chad Inc.

Village Impact Quarterly Report

Land Use Mitigation Action Plan

First Quarter 2009

Prepared by the EMP Department

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List of Acronyms & terms used in this report

Hh	Household.
CdM	Household Chief (Chef de Ménage)
HhM	Household Member. Include the CdM and all it dependents, regardless their age.
LT	Land Take.
Eligible	Generic term to designate an individual that may be eligible to the EMP Resettlement Program.
Potential Eligible	Individual that may be eligible to the EMP Resettlement Program. Analysis must be completed.
True Eligible	Individual eligible to the EMP Resettlement Program.
EMP-IS	EMP Information System: manages Land Acquisition, Socioeconomic and Land return data.
Land Survey	Formally called Cadastre survey. Refer to the measurement of every field, fallow & house of households.
Project Footprint	Total area occupied by the project at a given time (e.g. Compensated but not returned land)

Executive Summary

The Quarterly Village Report provides information to Esso Exploration & Production Chad Inc (EEPCI) management and to the International Finance Corporation (IFC) on the progress made in calculating, analyzing and reducing the EEPCI Oil Project (Project) land use impact on villages and households.

Tracking and analysis of the land use impact is the purpose of Village Impact Classification and the "Watch List". The classification follows the movement of a village from one category to another in order to judge the effectiveness of Land Use Mitigation Action Plan (LUMAP) mitigation measures or to signal when the effect of ongoing project land take requires the Project to review the situation and adjust plans as per the Environmental Management Plan (EMP) principles.

The village impact classification (high, approaching high, medium and low) is also used to:

- Improve the targeting of EMP mitigation activities in the OFDA
- Determine and/or validate eligibility (actual versus estimated) for Supplemental Community Compensation
- Alert EMP Team on the need for Site Specific Plans and Land Survey needs

First Quarter 2009 (1Q09) Village Impact Assessments status:

- 6 high impact villages
- 3 approaching high villages
- 3 moderate impact villages
- 12 low impact villages

LUMAP maintains a "Watch List" (approaching high) that tracks village land take and return. As of March, 2009 three (3) of the moderate impact villages are approaching the high category because of continuing land acquisition and number of people eligible:

- Bela
- Maikeri
- Mouarom

The primary accomplishments of this quarter are:

- near completion of the Danmadjia village field work
- near completion of the Mouarom village field work
- start of work in Bela village
- Kome Bolobo oil fields in-fill drilling program progressing on a fault block by fault block basis. The Village Land Use Surveys are aligned with the fault block in-fill drilling schedule. An explanation of the fault block in-fill drilling program and the village land use survey process is described in section 5.5.
- The manner in which the fault block in-fill drill program interfaces and aligns with the goals of the LUMAP to rapidly identify At Risk households and ensure appropriate Resettlement options is also described in section 5.5.

The village land use survey work plan for 2nd quarter of 2009 includes:

- Integration of the field work data from Mouarom and Danmadjia in April-May
- Integration of the field work in Begada into the EMP-IS in April-May
- Multiple team approach to Bela, Mbanga and Madjo with expected completion in second quarter
- Development of Site Specific Plans for Mouarom, Danmadjia and Begada.

Village classification

1.1. Summary

The Village classification is calculated using a land use (area covered by temporary and permanent take) and a socioeconomic criteria (less than 2/3 Corde (c) per Hh Member (HhM) before project and currently). Each criterion classifies a village into one of four categories: High, Approaching High, and Moderate & Low. **The final categorization** of a village is done **according to its worst placement** by the land use or socio-economic criteria. The socio-economic criterion made possible by the investigation of the village, using the new Village Land Survey methodology, is the number of non-viable individuals among the total population of the village. For villages where the survey is not completed, we have to rely on declared data collected during compensation, therefore the criteria becomes individuals made non-viable by Project compared to the population of the village.

Once the Village Land Use Survey is complete in a given village, a Site Specific Plan is developed to address heavy impacts. After the site specific plan is executed, the modification in impact is shown on the table below, which represents the **current Quarter's situation** and any residual impact on Site Specific completed villages.

Table 1 : Village Classification Quarter Just Ended

Categories	Village
High	• Ngalaba • Bégada • Béro • Mbanga • Madjo • Danmadja
Approaching High (Watch List)	• Mouarom • Maikeri • Béla
Moderate	• Madana Nadpeur • Maïnani • Missimadji
	• Dokaidilti • Dildo • Kaïrati

Low	• Bendo • Ndoheuri • Komé • Miandoum • Naïkam • Merméouel • Morkété • Koutou Nya • Maïmbaye

- What has changed? – Nothing has changed from the last quarter of 2008. Once the household and land holding information gathered in the village land surveys of Danmadja and Mouarom, and perhaps Begada, have been integrated into the EMP-IS, their analysis during the 2Q 2009 may change these villages' categorizations.

Table 2: Site Specific Plan Development

Village	Site Specific Plan Developed?	Site Specific Plan Implemented?	Residual Impact
Dokaidilti	Yes	Yes	Low
Dildo	Yes	In Progress	TBD
Ngalaba	Yes	In Progress	TBD
Mouarom	In Progress	In Progress	TBD
Danmadja	In Progress	In Progress	TBD
Begada	In Progress	In Progress	TBD

TBD: To Be Determined

1.2. Land Use Criteria

This section covers the project land use part of the classification. The criterion is the **% of Permanent + Temporary Not Returned** area of the village. The thresholds for the different categories are shown in section 6.1. Villages are sorted by the % of this criterion, from the highest to the lowest value. Note that some villages can pass from High to Moderate or Moderate to Low as temporary land is returned.

Table 3: Land Use by Village in OFDA.

Village	Total Village Area (ha)	Permanent + Temporary Not Returned		
		Past Quarter (% of Village Area)	Current Quarter (% of Village Area)	Delta (Hectares)
Dokaïdilti	812.4	**16.5**	**16.5**	**none**
Ngalaba	1879.4	**12.4**	**12.8**	**+ 11.5**

Bégada	2478.6	**13.3**	**12.3**	**- 6.5**
Béro	4239.7	**12.3**	**12.2**	**+ 3.6**
Danmadja	449.4	**10.9**	**11.1**	**+ 0.7**
Mouarom	1585.4	**10.3**	**9.6**	**- 2.6**
Dildo	1961.3	**9.0**	**9.0**	**none**
Maïkéri *	1208.1	**8.2**	**8.5**	**+ 7.9**
Béla	2315.1	**9.6**	**8.1**	**- 23.9**
Mbanga	3050.4	**6.9**	**6.5**	**+ 13.2**
Madjo**	1921.3	**5.2**	**5.5**	**+ 5.9**
Madanan N.	323.1	**5.2**	**5.2**	**none**
Maïnani	1696.2	**4.6**	**4.6**	**- 4.7**
Missimadji	840.6	**3.7**	**3.7**	**none**
Kaïrati	179.9	**2.2**	**2.2**	**none**
Ndoheuri	830.2	**2.1**	**2.1**	**none**
Merméouel	1121.2	**1.8**	**1.8**	**none**
Miandoum	4133	**1.6**	**1.6**	**none**
Bendo	809.0	**1.4**	**1.4**	**none**
Komé	2569.3	**1.5**	**0.9**	**none**
Naïkam	1773	**1.3**	**1.1**	**- 1.5**
Morkété	524.2	**0.9**	**0.7**	**none**
Koutou Nya	1819.6	**0.7**	**0.6**	**none**

- What has driven major changes in land acquisition?

It is important to understand that when land acquisition for infill wells, ones that will maximize the production of already existing wells, occurs, the new facilities are now overlapping old facilities in their proximity. The simple addition or subtraction of the land acquired or returned (delta column) can no longer be applied to understand the percentage of village land used for the actual quarter since that would compute the same acquired area twice.

- What has driven major changes in land return?

In Bero the percentage of village land used has decreased this quarter even if there have been 3.6 ha of land take. This is explained by a quitus that was signed during last Quarter (4Q08) and was not entered in the EMP-IS until after the last quarterly report was produced. In the previous report, we had 1.4 ha of land officially returned; the exact value of land physically available was 3.3 ha.

Similarly, the recent introduction of land acquisition for the new Timbre concession revealed that Quitus for the export pipeline had not ever been entered into the EMP-IS, which had not been developed at the time of its return. The land return now entered from this quitus only affects Kome village, which is already a low impacted village.

The following charts detail land use in the high and approaching high villages listed in Table 2

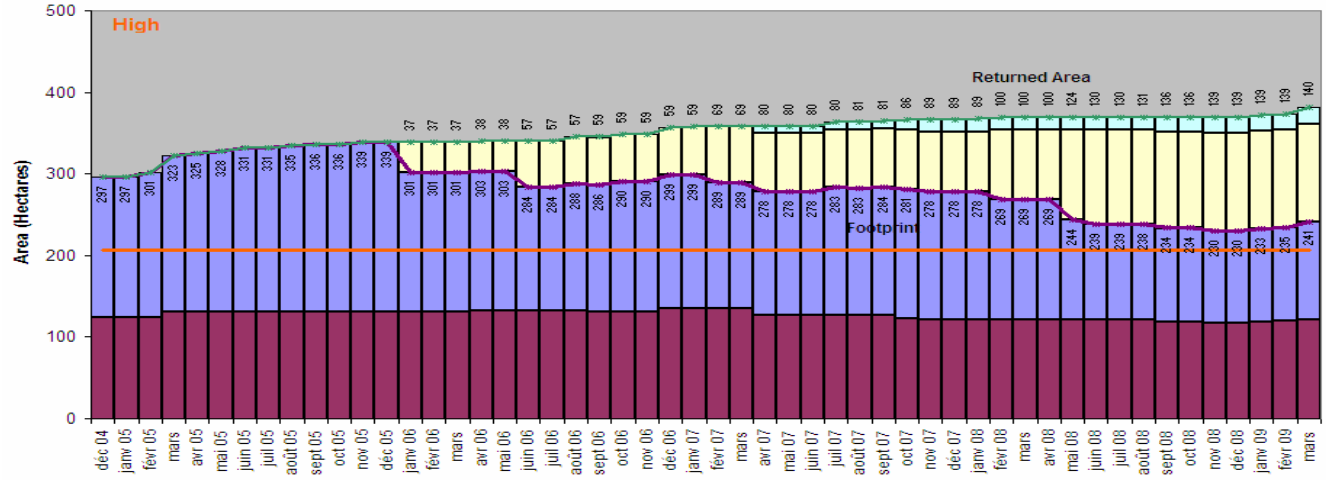


Chart 1: Land Acquired and Returned in Ngalaba

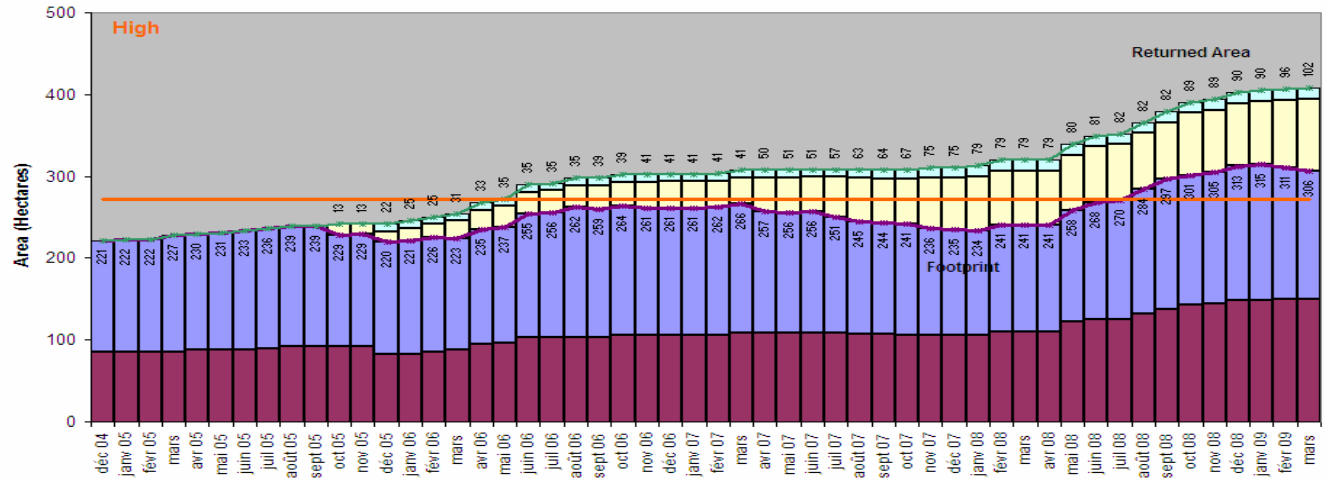


Chart 2: Land Acquired and Returned in Begada

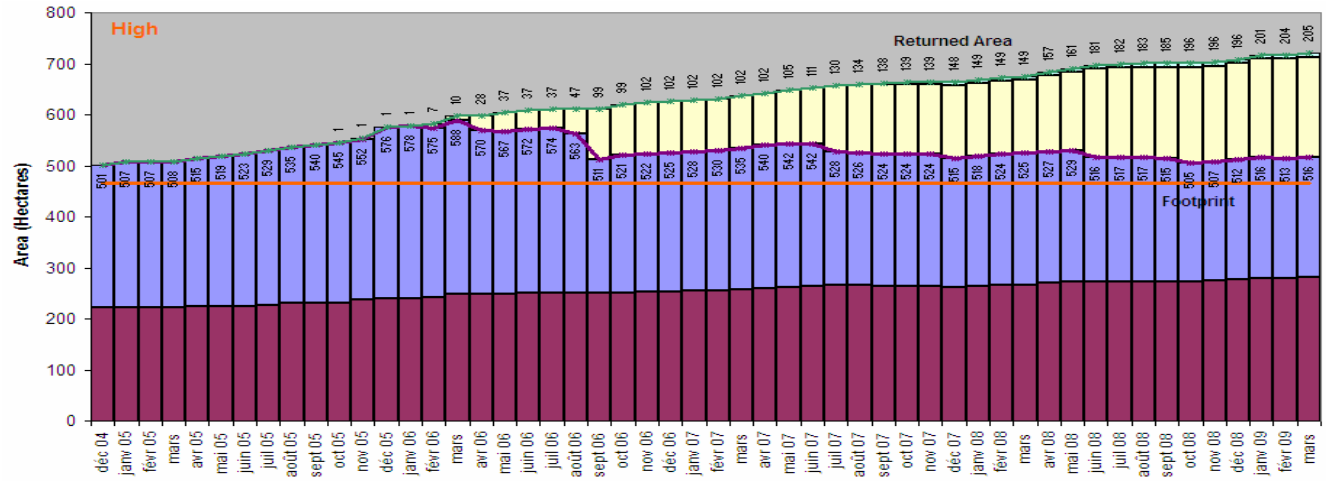
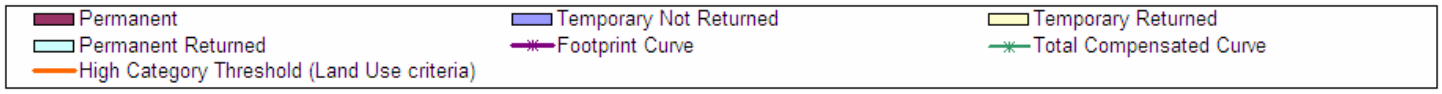


Chart 3: Land Acquired and Returned in Bero



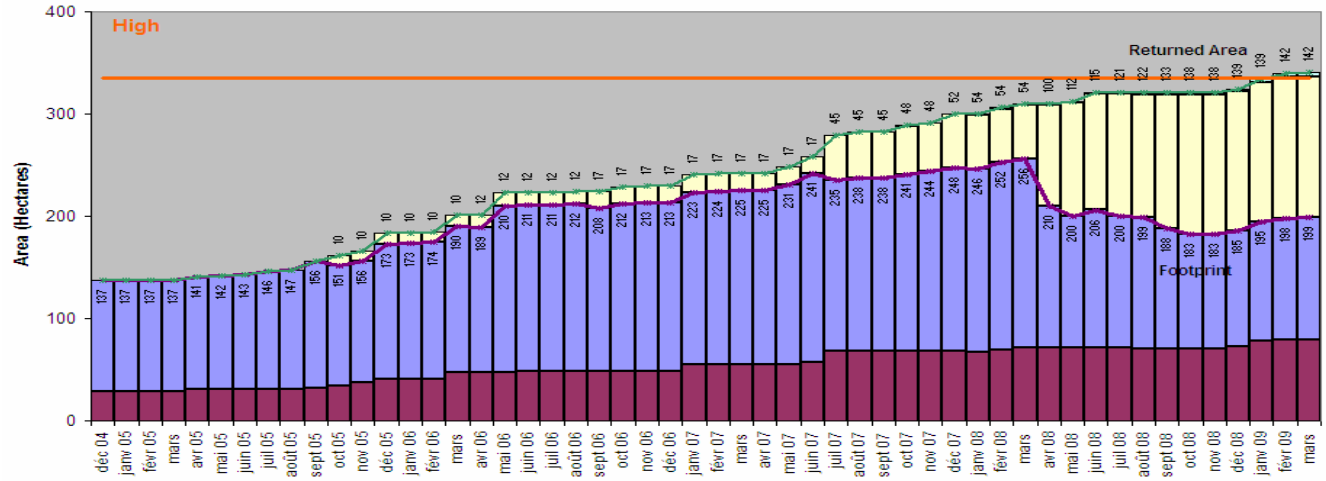


Chart 4: Land Acquired and Returned in Mbanga

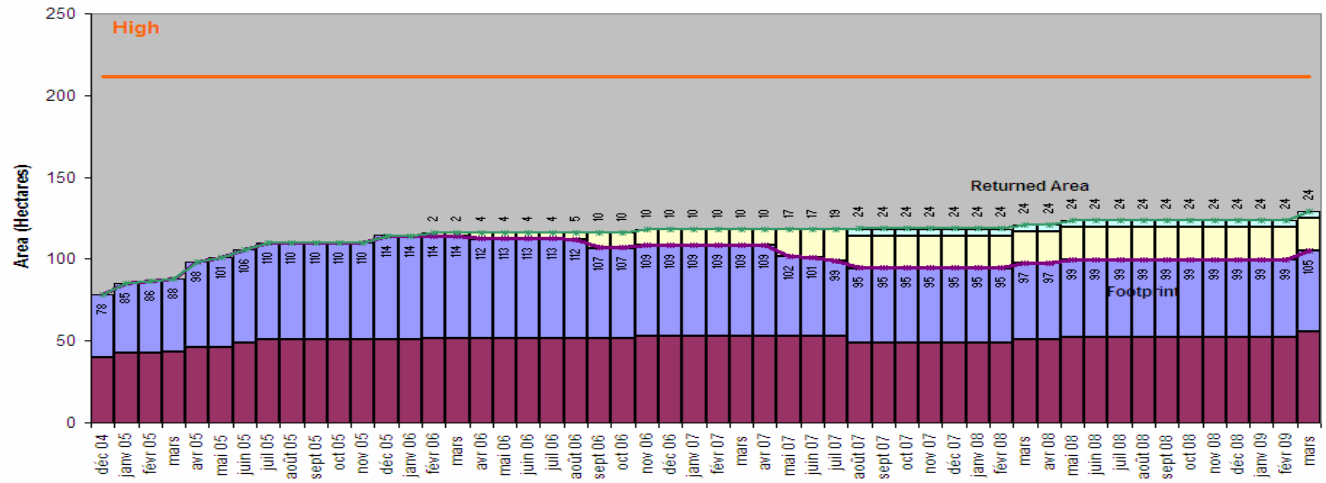


Chart 5: Land Acquired and Returned in Madjo

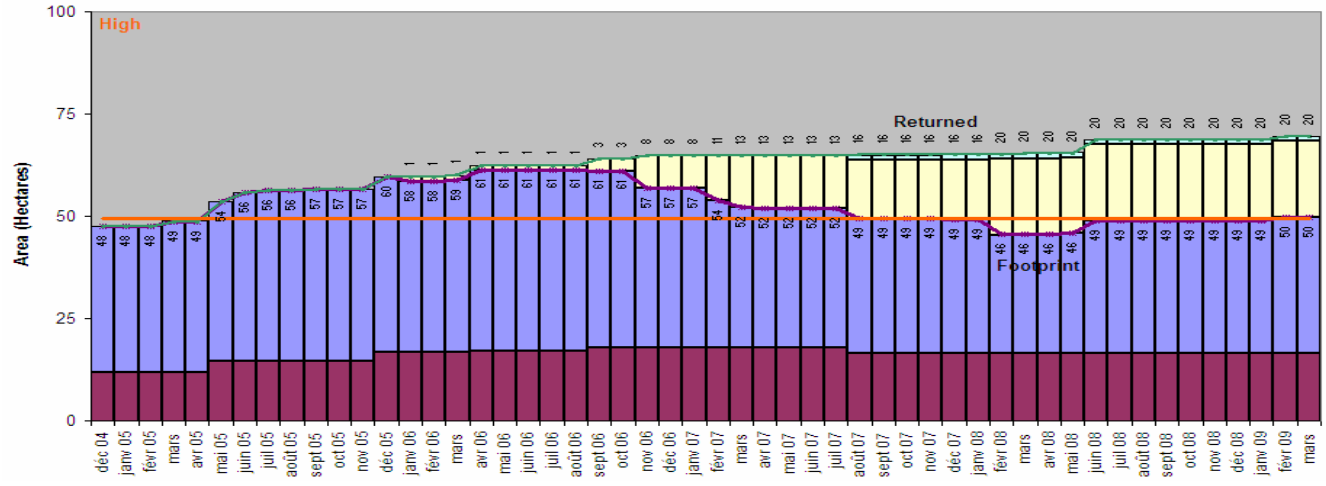


Chart 6: Land Acquired and Returned in Danmadjia

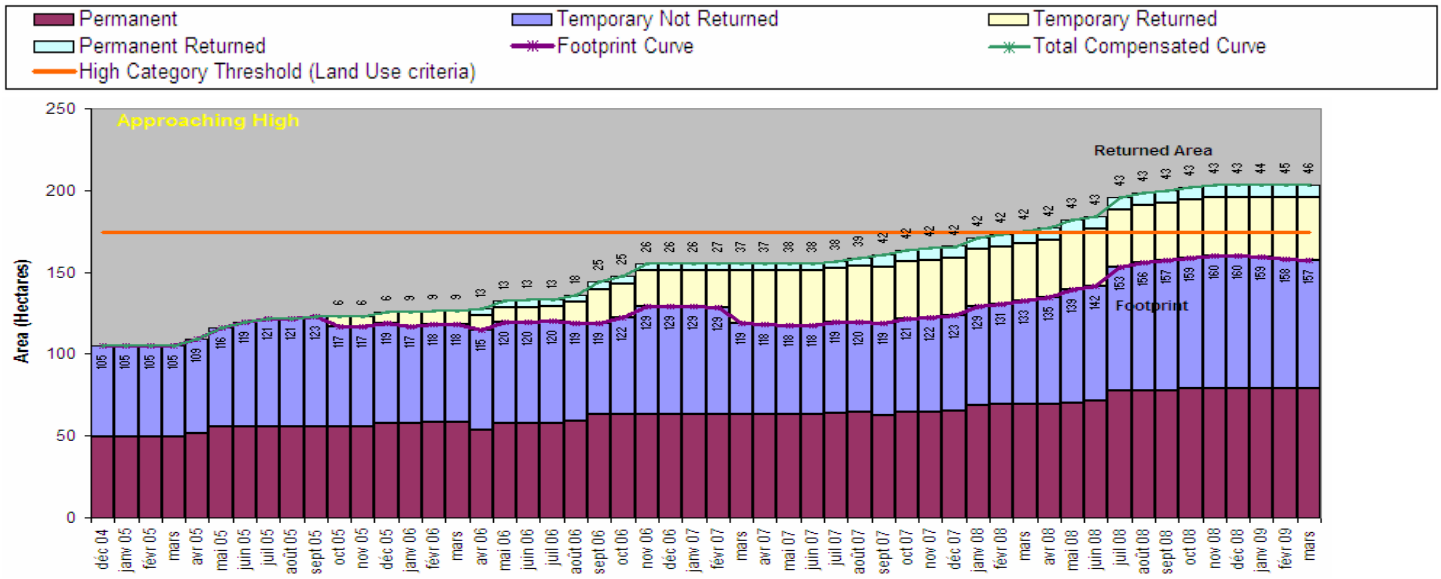


Chart 7: Land Acquired and Returned in Mouarom

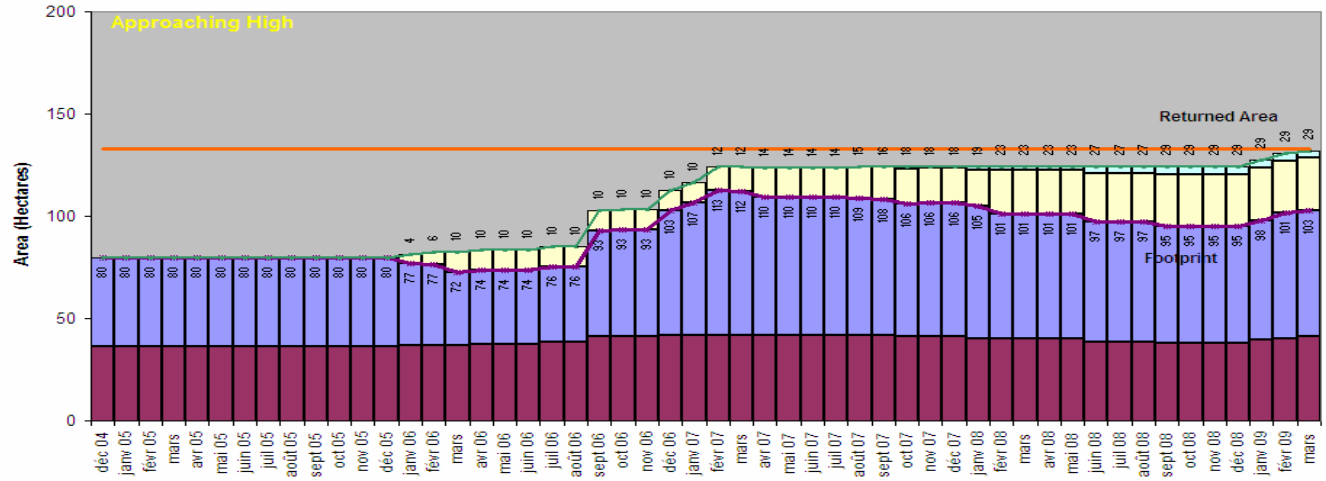


Chart 8: Land Acquired and Returned in Maikeri

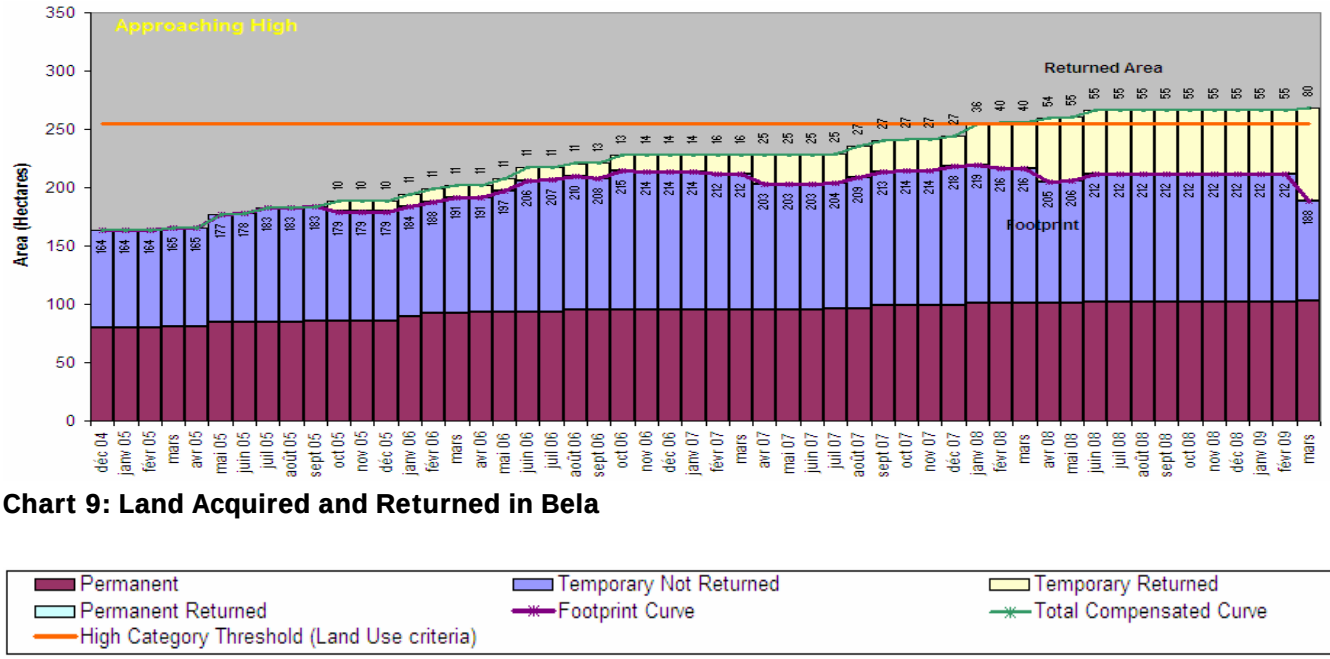


Chart 9: Land Acquired and Returned in Bela

1.3 Socioeconomic Criteria

Two socioeconomic criteria were used to calculate the Project's social impact indicated in the next table (Table 4). The data are derived from the compensation database:

1. Individuals already non-viable before they surrendered land to the project ,and
2. Individuals made non-viable by project land-take

(See the annex for more details)

Table 4: Percentage of individual made non-viable by project land take according to compensation database

Total non-viable individuals today	Value Now	Since Last Quarter	Made non-viable by project	Value Now	Since Last Quarter
Madjo	78 %	↑ 2 %	Madjo	20 %	↓ 1 %
Mbanga	71%	↑ 1 %	Mbanga	19 %	↓ 1 %
Béro	46 %	↑ 1 %	Bégada	18 %	
Bégada	35 %	↓ 1 %	Béro	18 %	↑ 1 %
Béla	29 %	↑ 1 %	Missimadji	13 %	↑ 4 %
Missimadji	29 %	↑ 1 %	Béla	14 %	↑ 2 %
Maïnani	15 %	↓ 1 %	Maïnani	11 %	↑ 1 %
Bendo	15 %		NDoheuri	2 %	
Madana N.	13 %		Morkété	2 %	
NDoheuri	8 %		Madanan Nad.	2 %	
Miandoum	5 %		Miandoum	1 %	
Komé	4 %		Kaïrati	1 %	
Merméouel	4 %		Merméouel	1 %	
Morkété	4 %		Komé	1 %	
Kaïrati	2 %		Naïkam	1 %	
Naïkam	1 %		Bendo	0 %	

As highlighted by the table, villages with a slight percentage change are the ones impacted by the infill operations. The villages have stayed in the same category as last quarter, based on declarative data on vulnerability.

The number of non-viable households below 2/3 c. of land per HHM is much more reliable in villages with complete Village Survey data. Using this data when available to calculate the number of people in non-viable households gives the following results:

Table 5: Non-Viable Project Affected Individuals Out of Entire Resident Population

Reclassification with Measured Criterion from Village Survey.

Village	Measured Non-viable Project-affected Individuals*	Declared Non-viable Project-affected Individuals
Danmadjia	9.0 %	18%
Dildo	2.9 %	7 %
Dokaidilti	11.0 %	15%
Mouarom	0.5 %	14%
Ngalaba	6.5 %	16%

*This number excludes all non-viable households with a resettlement option

Completed during the first months of 2009, Mouarom has been switched from declarative data to this list. Section 3 presents the first results for this village.

- Data presented indicate that none of these five villages is in the high impact category based on the socioeconomic impact criterion of number of vulnerable individuals
- This table uses, as the original calculation also did, only the amount of land accessible by the HH and the number of HHM, without any other alleviating income data
- The column with Declarative information (right) is computed for this measured data by using data (Area cultivated, Number of dependents) gathered in the compensation database plus the population registered during the Village survey. This combination is more accurate than the declarative data census used in the past.
- Using precisely measured land and HH surveys that exclude anyone from belonging to more than one HH in the same village yields very different and less dire results for the number of affected Individuals.

- A Resettlement Option will be offered to each of the HH remaining as non-viable Project-affected but not yet assisted HH.

2. Acquired Land Monitoring

The following is a list of all compensated facilities (called by EMP "Compensation Subjects") during the quarter. For each subject a Land Take occurred.

Table 6: Summary of all compensated Subjects in Quarter

	Land take (ha)		Nbr
Village	Permanent	Temporary	Individual
Bégada	1.0	4.5	37
Béla	0.7	0.7	6
Bendo	0	0	1
Bengonelara	0	0	1
Béro	5.6	7.5	101
Danmadja	0	0.9	8
Dildo	0	0	1
Dokaïdilti	0	0	1
Kagroue II	0	0	1
Komé	0	0	34
Madjo	3.3	2.5	34
Maïkéri	3.1	4.8	30
Maïnani	0	0	43
Mbanga	8.9	7.4	43
Miandoum	0	0	2
Missimadji	0	0	1
Moundouli	0	0.4	2
Naïkam	0	0	25
Ndokoyo	0	0	1
Ngalaba	4.8	7.1	59
Total	27.4	35.8	431

Note that the "Nbr Individual" column refers to the farmer's village of residence, which is not necessarily the same village as the village area where the compensated land is located. An individual from one village can be compensated for land he/she owns/uses in another village. Note also that the "Total individuals compensated" line at the bottom of the chart does not match the actual sum of the number of individuals listed in "Nbr Individual" column because some individuals have been compensated more that once and have declared different villages of residency.

3. Socioeconomic monitoring

3.1. Village Land Survey

Table 7: Total number of HH Survey by village.

Village	Survey completed		Total HH expected	Status	Theoretical % completed
	1st Quarter	Total			
Dokaïdilti	-	**85**		**Completed**	100%
Dildo	-	**275**		**Completed**	100%
Ngalaba	-	**249**		**Completed**	100%
Danmadja	-	**102**		**Completed**	100%
Mouaroum	-	**85**		**Completed**	100%
Begada I	**32**	**153**	**185**	**In progress**	80%
Begada II	**31**	**104**	**135**	**In progress**	75%
Bela	**119**	**128**	**150**	**In progress**	85%
Bero *	**35**	**137**	**360**	**In progress**	40%
Madjo *	**66**	**84**	**150**	**In progress**	55%
Mbanga	**102**	**254**	**420**	**In progress**	60%
Total	**244**	**1261**	**2157**	**In progress**	58%

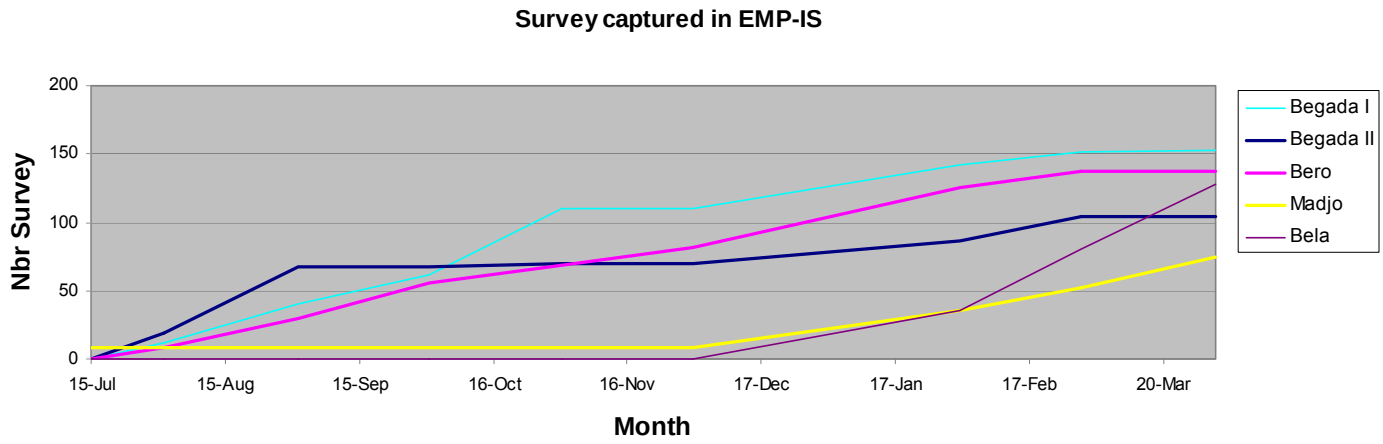
* Village surveyed with the "Impact Survey Method"

During this first quarter of 2009, the Mouarom Village Survey has been completed. As presented in the following section, 85 households and 1175 hectares were surveyed. The number of household matches the estimation done a year ago. Results are presented in section 3.3.

With the arrival of the dry season, work in Madjo has restarted and the expectation is to complete the surveys of all household that need to be surveyed before the rainy season. The following section shows the progression of each team since July 2008.

3.2. Socio economic survey integrated into the EMP Information System

The graph and table above present the progression in the first quarter of 2009.



	Nbr Survey	Begada I	Begada II	Bela	Bero	Mbanga
July	56	12	19		8	8
August	212	28	48		22	31
September	121	21	1		26	31
October	140	49	2		13	36
November	32	0	0		13	11
December	72	11	3	9	20	35
January	130	21	13	27	23	46
February	110	9	18	45	12	26
March	79	2	0	47	0	30
Total	952	153	104	128	137	254

Figure 1 : Graphical and tabular views of survey progression according to captured survey in the EMP Information System.

The team assigned to Mouarom, now completed, and has moved to Béla to speed up the survey process by working along side the team already assigned in this village. With two teams in the same

village, we expect to conclude this village before the end of the rainy season. However, we expect to have to go back for some additional data correction and verification in Bela and Mouarom.

All completed data integration presented in the following section has been done but the results are still under analysis.

3.3. Completed Villages

This section provides some analysis of the Village Land Use Survey Data for completed villages. Mouarom is the new village completed during their first quarter of 2009.

Table 8: Available Land.

	Danmadja	Mouarom	Dokaidilti	Dildo	Ngalaba
Village Area in Hectares	480	1352	686	1887	2118
Settlement area in Hectares (% village)	34 (7%)	23 (2%)	24 (3%)	46 (2%)	97 (5%)
Project Perm. Land Take + Temp. No Returned in Hectares (% village)	61 (13%)	154 (11%)	79 (12%)	185 (10%)	253 (12%)
Available Land inside the village limit in Hectares (% village)	385 (80%)	1175 (87%)	583 (85%)	1656 (88%)	1768 (83%)
Available Land Density inside the village limit (Hectares/Person)	0.68	2.63	1.09	1.23	1.34
Cultivated (Field) or Owned (Fallow) by Residents outside of village in Hectares (% of total land of the residents)	122 (23%)	217 (26%)	39 (8%)	101 (6%)	69 (4%)
Total Cultivated (Field) or Owned (Fallow) by Residents in Hectares (% of total land of the residents)	487	850	490	1561	1601
Available Land Density inside and outside the village limit (Hectares/Person)	0.85	1.90	0.92	1.16	1.21

Table 9: Use of Available Land.

	Danmadja	Mouarom	Dokaidilti	Dildo	Ngalaba
Cultivated (Field) or Owned (Fallow) by non-residents inside the village limit in Hectares (% of available land inside village limit)	17 (4 %)	531 (45%)	121 (21 %)	141 (9 %)	141 (8 %)
Cultivated Field Farmed by Resident inside the village limit in hectares (% of available land)	241 (63 %)	291 (25%)	302 (52 %)	668 (40 %)	1043 (59 %)
Fallow Owned by Resident inside the village limit in hectares (% of available land)	124 (32 %)	342 (29%)	149 (26 %)	792 (48 %)	553* (31 %)
Ratio Fallow/Field	0.51	1.18	0.49	1.19	0.53
Length of possible fallow	4	27	9	11	12

* 63 Ha of bush included in fallow

Table 10: Social summary for Completed Village Land Survey.

	Danmadja	Mouarom	Dokaidilti	Dildo	Ngalaba
Nbr of Residents	570	447	534	1346	1324
Men	284	216	243	657	668
Women	286	231	291	689	656
Avg Age in Years	19	19	19	20	20
Nbr HH	101	85	85	275	250
Avg. HH size (# HH Members)	5.7	5.3	6.3	4.9	5.3
Avg. cordes Land per HH inside and outside village	10.3	19.6	11.3	11.2	12.6
Avg. Resettlement Factor (Based on all land inside and outside village)	1.8 Corde/HhM	3.69 cordes/HhM	1.80 Corde/HhM	2.29 cordes/HHm	2.39 cordes/HhM
% Area cultivated (Field) or owned (Fallow) by women out of total area "owned" by village residents inside and outside village	22%	14%	15%	17%	29%

Due to the geographical proximity of Mouarom – Danmadja, it is informative to look at both villages together. From the tables above, we can see:

- Danmadja is slightly (22%) more populous than Mouarom.
- The population of Mouarom has access to 958 Hectares inside its own boundary, while Danmadja is using 263 ha of Mouarom's land.
- The two previous points show a major Land Density (Hectare/Person) difference between Danmadja (0.68) and Mouarom (2.63).
- The Average Resettlement Factor presents also the same difference with factor of 1.8 corde/HhM for Danmadja and 3.69 from Mouarom.
- The ratio Field/Fallow is also an indication that Land Pressure is stronger in Danamadja (0.51) than in Mouarom (1.18)

Considering these data, we can assume that Mouarom is a healthy village from a land use standpoint and the high land availability seems to be able to support infill operations without major negative socioeconomic impacts. The following table presents At-Risk household surveyed in Mouarom.

Table 11: Land Distribution

Resettlement Factor Range	Ngalaba			
	Nbr HH	Nbr Individual	% HH	% Individual
0.000 - 0.499	8	48	3.85	4.0 %
0.500 - 0.667	8	62	3.85	5.3 %
0.668 - 0.999	15	92	7.21	7.8 %
1.000 - 2.499	85	552	40.87	46.7 %
2.500 - ...	92	427	44.23	36.2 %
Total	208	1181	100	100 %

Resettlement Factor Range	Mouarom				Danmadjia			
	Nbr HH	Nbr Individual	% HH	% Individual	Nbr HH	Nbr Individual	% HH	% Individual
0.000 - 0.499	1	2	1.39	0.5 %	5	40	5.75	7.5 %
0.500 - 0.667	1	4	1.39	1 %	6	38	6.9	7.1 %
0.668 - 0.999	3	16	4.17	4 %	13	74	14.94	13.8 %
1.000 - 2.499	29	167	40.28	41.8 %	41	277	47.13	51.8 %
2.500 - ...	38	211	52.78	52.8 %	22	106	25.29	19.8 %
Total	72	400	100	100	87	535	100	100 %

Resettlement Factor Range	Dokaidilti				Dildo			
	Nbr HH	Nbr Individual	% HH	% Individual	Nbr HH	Nbr Individual	% HH	% Individual
0.000 - 0.499	5	52	6.85	10.5 %	5	33	4.85	5.5 %
0.500 - 0.667	4	33	5.48	6.6 %	6	34	5.83	5.7 %
0.668 - 0.999	12	87	16.44	17.5 %	16	119	15.53	19.9 %
1.000 - 1.499	31	247	42.47	49.7 %	45	269	43.69	44.9 %
1.500 - ...	21	78	28.77	15.79 %	31	144	30.1	24.0 %
Total	73	497	100	100 %	103	599	100	100 %

By comparing Land Distribution data, Mouarom presents the lowest number and percentage of At-Risk household found in the 5 completed Villages. 95% of the population is above a factor of 1 corde/HhM, which is the highest ratio observed so far in the 5 completed villages. The marginal category (between 0/67 and 1.000) is quite low with 3 households close to the resettlement threshold of 2/3. Considering these facts, as long as the Infill operations are limited to the existing Fault Block, such operations will not increase significantly the number of At-Risk households.

In Danmadja, 13 households are currently marginal (between 0/67 and 1.000) and another 11 are already vulnerable; if these households are cultivating land within the fault block they might be negatively affected.

4. Land Return Monitoring in 3-Fields[1]

4.1. Compensated and Returned Land by Land Use Type

This section presents the compensated and returned areas. The compensated land is divided in four Land Use Types:

1) Permanent with Public Access
2) Permanent with No Public Access

} Permanent Land Use

3) Temporary Returned Without Restriction
4) Temporary Returned With Restriction

} Temporary Land Use

The chart in Figure 4.1 shows the current portion of each Land Use Type out of the total Compensated Land. The land returned is noted only in the table and does not appear in the chart. The "Returned" column shows the number of hectares returned (on the left) and the percentage of returned area out of the total compensated area (on the right), for each land use type.

[1] 3-Fields Area includes the oil concessions of Miandoum, Bolobo and Komé

	Total areas in Hectares			4Q08		
Land Use Type	***Compensated***	***Returned***		***Compensated***	***Returned***	
1) Permanent With Public Access	589.3	29.0	5%	12.6	1.9	15%
2) Permanent With No Public Access	852.3	89.6	11%	14.9	1.6	11%
Sub Total Permanent	**1441.6**	**118.6**	**8%**	**27.5**	**3.5**	**13%**
3) Temporary Returned Without Restriction	421.7	297.7	71%	0.0	28.0	N/A
4) Temporary Returned With Restriction	1488.4	517.3	35%	35.4	27.8	79%
Sub Total Temporary	**1910.1**	**815.0**	**43%**	**35.4**	**55.8**	**158%**
TOTAL (Permanent + Temporary)	***3351.7***	***933.6***	28%	***62.9***	***59.3***	94%

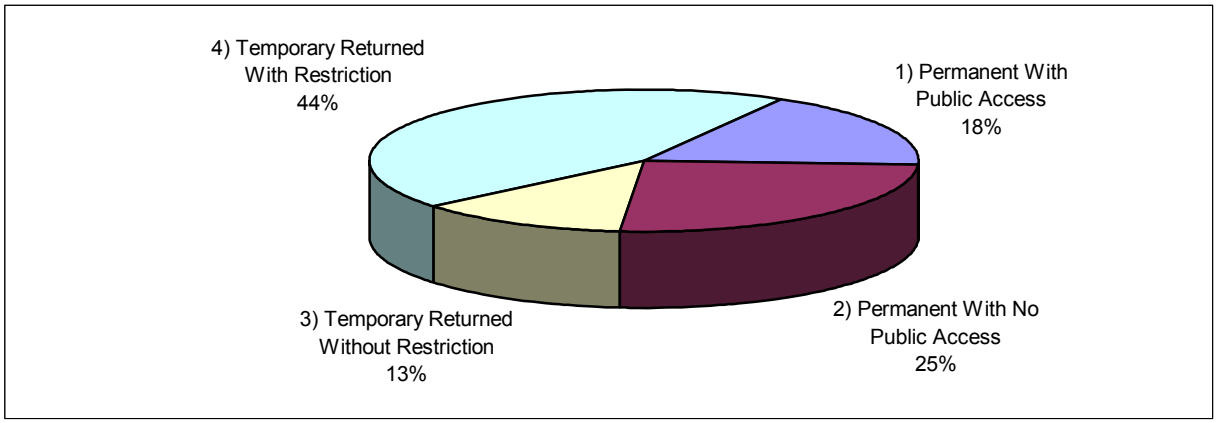


Figure 2: Total Compensated and Returned Land in OFDA

4.2. Compensated and Returned Land by Facility Type

The tables and charts on the next pages show the different types of facility in each of the four land use types, as well as their acquired or returned status. Since the infill program is adding new wells in areas already drilled, the new pads and associated facilities often fall on existing roads or flowline right of ways. Therefore the area already acquired for an initial facility type (or land use) just changes categories, without affecting the global footprint.

	Total Compensated			*4Q08*		
Facility Type	**Compensated**	**Returned**		**Compensated**	**Returned**	
Main Road	74.5	0.0	0.0%	0.1	0.0	0.0%
Access Road	514.9	29.0	5.6%	12.6	1.9	15.1%
Total	589.4	29.0	4.9%	12.7	1.9	15.0%

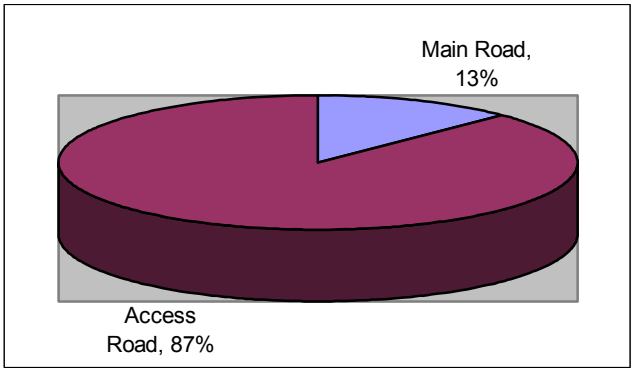
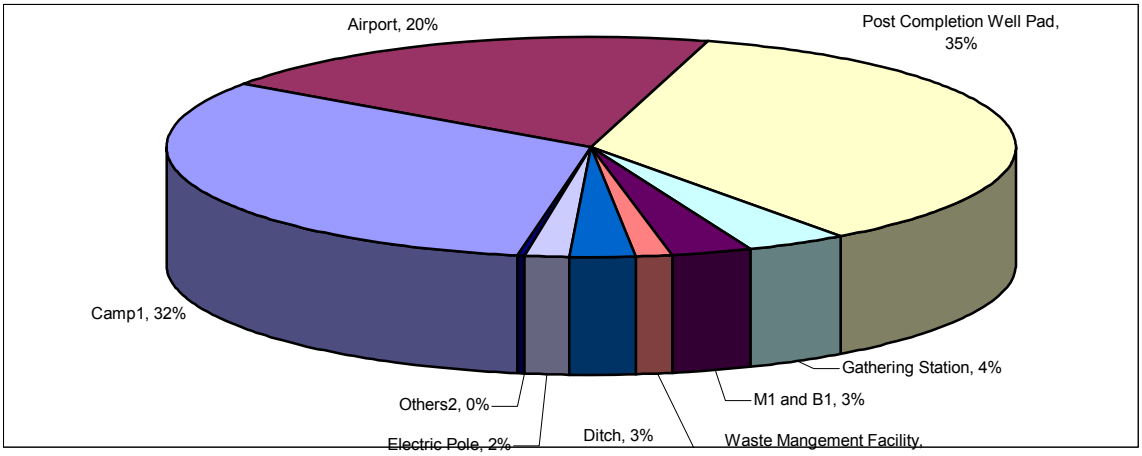


Figure 3: Land Use Type 1) Permanent with Public Access (Areas in hectares)

The main road, although it occupies a substantial area, now serves as an economic artery, second only to the national highway, for moving local production from the OFDA region, zones south of the OFDA, and bordering portions of the Central African Republic. Farmers going to their fields heavily use the project's secondary, access roads, which are frequented by the many bicycles, hand carts; oxcarts and motorcycles inhabitants have acquired with their compensation money.

	Total Compensated			4Q08		
Facility Type	**Compensated**	**Returned**		**Compensated**	**Returned**	
Camp[1]	272.0	0.0	0.0%	0.0	0.0	0.0%
Airport	167.4	67.4	40.3%	0.0	0.0	0.0%
Post Completion Well Pad	301.0	13.1	4.4%	14.6	1.6	11.0%
Gathering Station	33.1	4.6	13.9%	0.0	0.0	0.0%
M1 and B1	24.8	4.5	18.3%	0.0	0.0	0.0%
Waste Mangement Facility	12.2	0.0	0.0%	0.0	0.0	0.0%
Ditch	22.3	0.0	0.0%	0.0	0.0	0.0%
Electric Pole	13.3	0.0	0.0%	0.0	0.0	0.0%
Others[2]	2.9	0.0	0.0%	0.2	0.0	0.0%
Total	849.0	89.6	10.6%	14.8	1.6	10.8%

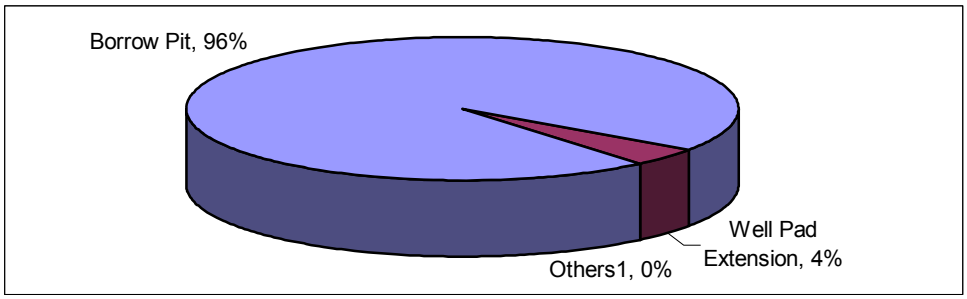


1. Kome Base, Kome 5, Lagoon, Leach Field
2. Piezometers, Service Area, Water Well

Figure 4: Land Use Type 2) Permanent with No Public Access (Areas in hectares)

Even if the original land use of category 2 is labeled "Permanent with no public access", when a piece of permanent land is not needed by the project, the area is returned to population. 10% of the area compensated as "permanent with no public access" has therefore been returned.

	Total Compensated			4Q08		
Facility Type	**Compensated**	**Returned**		**Compensated**	**Returned**	
Borrow Pit	404.4	289.9	71.7%	0.0	25.0	N/A
Well Pad Extension	17.1	7.8	45.6%	0.0	3.0	N/A
Others[1]	0.3	0.0	0.0%	0.0	0.0	0.0%
TOTAL	421.8	297.7	70.6%	0.0	28.0	N/A

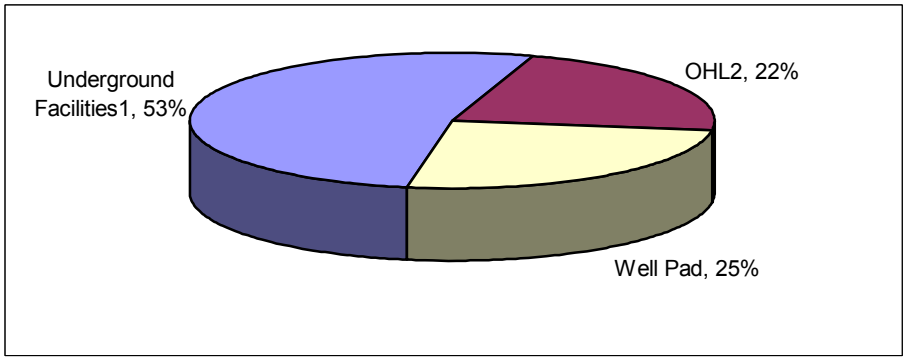


1. Water Line Access & Soil Boring

Figure 5: Land Use Type 3) Temporary Returned Without Restriction (Areas in hectares)

Current borrow pit reclamation work is returning quality arable land to the villagers even though the arable quality of these land areas prior to laterite mining by the Project was very low.

	Total Compensated			4Q08		
Facility Type	**Compensated**	**Returned**		**Compensated**	**Returned**	
Underground Facilities[1]	776.4	148.9	19.2%	15.6	6.0	38.5%
OHL[2]	330.9	64.3	19.4%	0.0	0.0	0.0%
Well Pad	377.4	304.1	80.6%	19.8	21.8	110.1%
TOTAL	1484.7	517.3	34.8%	35.4	27.8	78.5%



1. Flowline, Gathering Line, Water Injection Line, Trunkline, Pipeline, Underground cable
2. 33 Kv, 66 Kv, 132 Kv

Figure 6: Land Use Type 4) Temporary Returned With Restriction (Areas in hectares)

The export pipeline right of way in the OFDA is 47.2 ha (30 m * 15.8 km). Half of the total right of way (23.6 ha) has been returned without restriction[2]; only 7.5 m on each side of the center line has been returned with restrictions. The restrictions on using land covering underground facilities are not

[2] As noted above, this land return has just been entered on the EMP-IS books.

onerous. No planting of trees, digging of holes, or construction of buildings, all of which might damage the lines or prevent easy access when needed. Otherwise any cultivation is allowed. Acquisition of a special work-over rig for well maintenance has further reduced the well pad area from the 1 Ha. used for drilling and no restrictions apply to the restored and returned portion . The areas under the 66Kv and 33Kv and other electrical lines present more of a challenge. The greatest problem is accessing the power poles for repairs – frequent enough in this lightning-prone area. How access is achieved is constrained by hazards related to safety: the growth of high grasses or normal crops during the rainy season impedes visibility for repair crews and security patrols, who risk colliding with people, cars, animals, bicycles, etc. making their way along the obscured footpaths. The risk is increased at night. Secondly, crops or grasses will be burned off intentionally or by bush fires at the end of the agricultural season, depositing carbon on the lines and increasing the probability of short circuits. EEPCI plans to resolve this seeming dilemma by planting the OHL ROW in low growing crops that can be used by the village.

4.3. Project Footprint

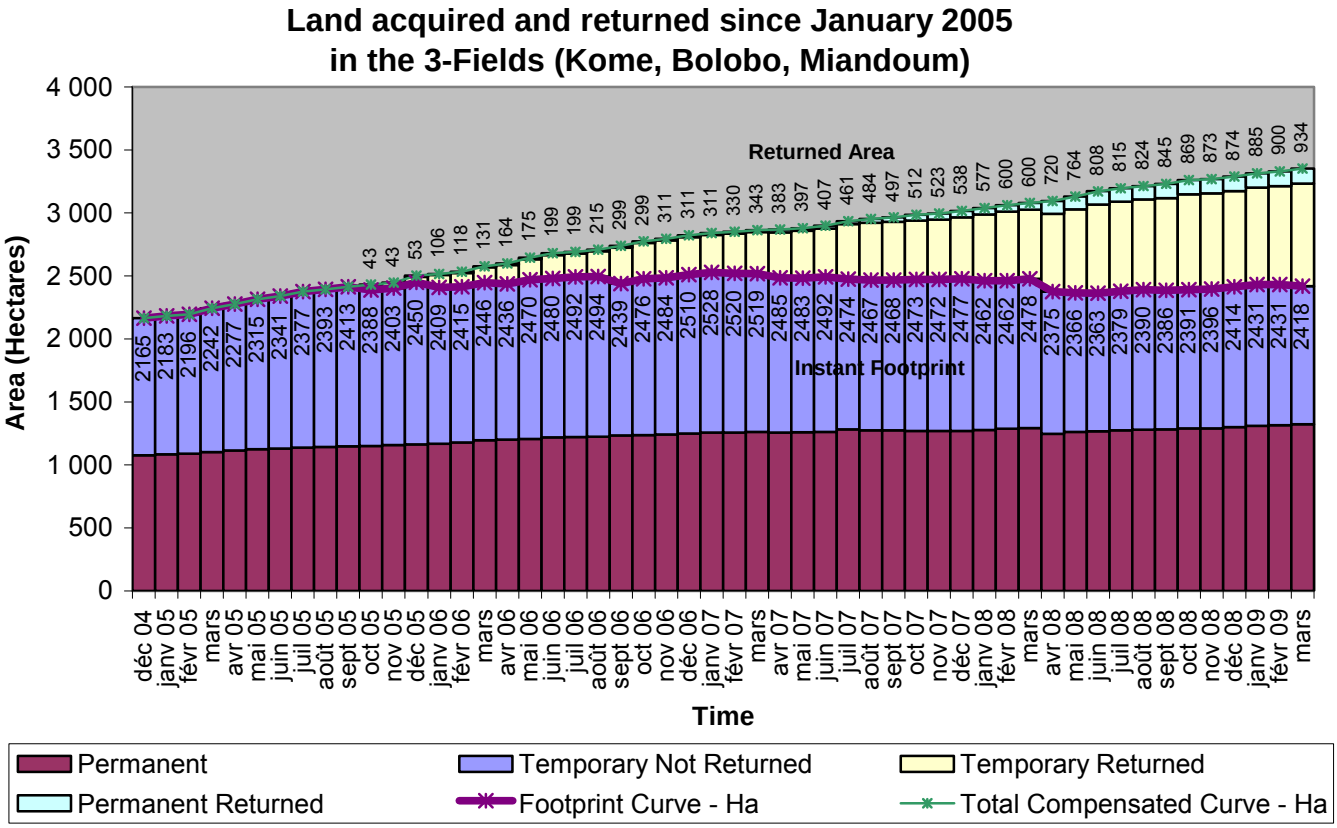


Chart 10: Footprint Chart

- Infill impact has been counterbalanced

The footprint continues to remain stable because the land returned is about the same as the land acquired. The land returned is not the only factor that counterbalances the infill land take. The second factor is the fact that the infill wells fall in already drilled areas. The area already compensated for an initial facility type is just transferred to a new use category without actually removing more land from village use. The reuse of already acquired land also means that it is prudent to schedule Land Reclamation in the fault blocks for after drilling completion; otherwise we waste top soil by re-acquiring and reopening newly reclaimed land.

5. Annex

5.1. Land Use Criteria

The criteria concerning Land Use impact represents the percentage of village area used by the project within each village. The boundaries of the village used to set the village area are not official and are computed based on a global survey of the village limits. The thresholds between levels of impact represent "natural breaks" or large numerical gaps in between villages.

Calculation of Land Use Impact

The final percentage used to classify the village's level of impact is computed by adding the "temporary" land not yet returned land to the land permanently used by the project

$$\frac{\sum \text{Permanent Not Returned} + \text{Temporary Not Returned}}{\sum \text{Village Area}}$$

Thresholds	
High	≥11%
Approaching High	7% - 10.9%
Moderate	3% - 6.9%
Low	0% - 2.9%

5.2. Socioeconomic Criteria

Village level impact of project land take depends both on absolute amounts of land taken or returned and the way in which land resources are divided within the village. In some villages people depend mainly on farming for their livelihood. In others a portion of the inhabitants depend on fishing as well as farming; fishing families in these villages often have (and need) less farmland than in inland villages and may already be below the general threshold of agricultural viability (2/3 corde per HHM). Attributing all household non-viability to Project land acquisition in these villages would overstate the Project impact.

To reflect the difference in project impact in these two types of villages, the social criteria were set according to 1) the number of people **already non-viable** before they were compensated for land and 2) those who were **made non-viable** when they lost land to the project.

An important learning from the completed village land surveys is that the declarative data used to calculate non-viability often overstated the number of people dependent on the household's land and understated the amount of land available. Therefore using the number of non-viable households found during a village survey presents a more accurate picture of project impact in the village. But such data was not available when the Land Use Impact list was first calculated. For each village, as such data has become available, the pre-project criterion has been dropped and only the current but accurate criterion of currently non-viable HH (compensated and not compensated) has been used when a village is open to **reclassification.**

Changes in a village's position within the land use impact table therefore reflect both the measured return / continued acquisition of land and the measured number of households currently non-viable because of limited land access. Although this picture does not allow a **retrospective** view of a household's situation the first time it seceded land to the project, the accuracy of the data on the non-viability of households overrides the interest in distinguishing impact in fishing/farming and simple farming villages.

5.2.1 Initial Classification with Compensation Data

Criterion 1: % all non-viable individuals / all individuals in the village

Description: Percentage of all project-affected individuals in the village currently below the resettlement factor of 2/3.

Rule:

$$\sum \text{(All individuals below 2/3 corde after land take)}$$

Village Population

Threshold:

Threshold Criteria 2		
	Min	Max
High	50.1%	100%
Approaching High	30.1%	50%
Moderate	20.1%	30%
Low	0%	20%

This criterion includes people who were already non-viable before the Project.

Criterion 2: % individuals in the village made non-viable by project land take / all individuals in village

Description: Percentage of the number of individuals that were economically viable before surrendering land/feeling any project impact (the resettlement factor > 2/3) but who became agriculturally non-viable upon surrendering land/ after project impact (the resettlement factor < 2/3).

Rule:

$$\frac{\sum \text{(All individuals that were not eligible } \textbf{before} \text{ land take \& are eligible } \textbf{after} \text{ Land take)}}{\text{Village Population}}$$

Threshold:

Threshold Criteria 3		
High	20.1%	100.00%
Approaching High	15.1%	20.00%
Moderate	9.1%	15.00%
Low	0%	9%

This criterion cannot be calculated with village land survey results and is no longer applied when a change in village impact classification is calculated.

5.2.2 Reclassification with Village Survey data

Description: When a village reclassification is calculated and village survey data is available, a single criterion is used. This criterion represents all the members of the non-viable compensated households compared to the population of the village

Rule:

$$\frac{\Sigma \text{ All members of non-viable compensated Households}}{\text{Village Population}}$$

*This statistic excludes non-viable households with resettlement options

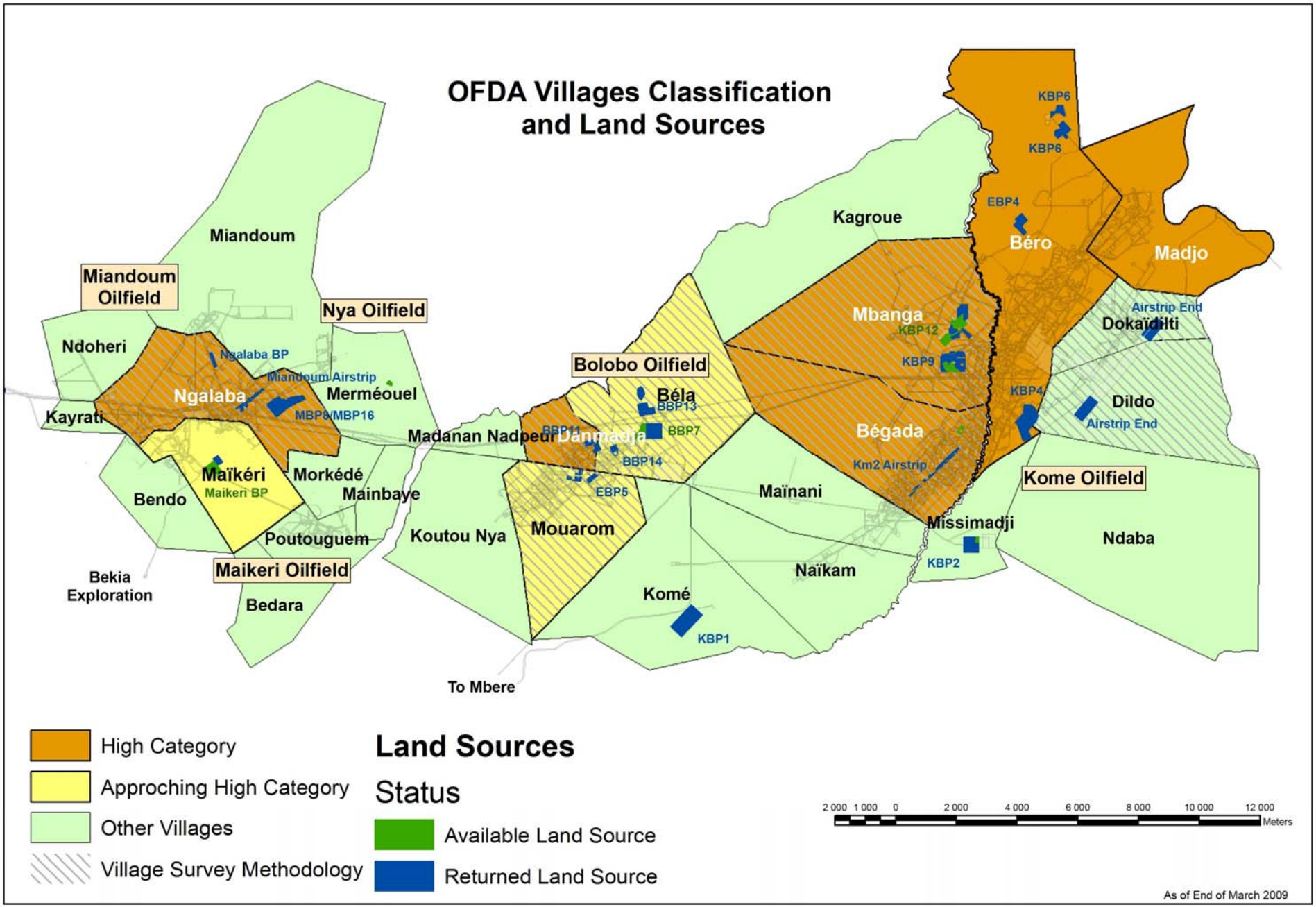
Threshold:

Threshold Criteria 3		
High	**15.1%**	**100.00%**
Approaching High	**10.1%**	**15.0%**
Moderate	**5.1%**	**10.0%**
Low	**0%**	**5.0%**

5.3. List of Severely impacted Household in Dildo, Ngalaba, Danmadjia and Mouarom

Village	Quarter	Household	CdM	ID	Age	Nbr Comp	Area Comp	Training	On F.	Off F.	Last Survey	Survey	Nbr Field	Area Now	HhM	Fo
Dildo	Dildo	HH000197	Mme.	ID030048	39	2	0.358				11/3/2007	ES003163	0	0	5	
Dildo	Dildo	HH000239	M.	ID020144	34	3	3.395				12/16/2007	ES003210	2	4.36	7	
Dildo	Dildo	HH000242	M.	ID033717	24	1	0.565				12/27/2007	ES003213	1	3.185	5	
Dildo	Dildo	HH000515	M.	ID021425	29	4	1.649	1		2004	5/28/2008	ES003925	2	4.27	8	
Dildo	Dildo	HH000580	M.	ID021745	27	1	1.873				3/23/2008	ES003592	1	1.572	4	
Dildo	Bayande	HH000615	M.	ID029953	28	1	0.109				2/20/2008	ES003629	2	4.606	10	
Dildo	Bayande	HH000634	Mme.	ID036168	44	3	1.929	1		2006	2/17/2008	ES003648	4	4.047	7	
Dildo	Bayande	HH000640	M.	ID020146	39	4	5.197				1/23/2008	ES003654	2	1.04	10	
Dildo	Bayande	HH000674	M.	ID000029	50	1	7.78				3/2/2008	ES003688	1	2.25	4	
Dildo	Bayande	HH000731	M.	ID022581	40	2	0.096				1/27/2008	ES003745	1	1.477	4	
Dildo	Dildo	HH000846	Mme.	ID022590	33	2	0.246	1		2006	1/14/2008	ES003867	1	1.575	3	
Ngalaba	Ngalaba	HH000125	M.	ID032743	26	1	0.004				9/29/2007	ES003077	1	1.977	3	
Ngalaba	Ngalaba	HH000131	M.	ID020240	28	3	0.633				9/29/2007	ES003083	1	1.175	3	
Ngalaba	Ngalaba	HH000149	M.	ID021002	29	3	1.3				10/31/2007	ES003114	1	1.259	5	
Ngalaba	Ngalaba	HH000178	M.	ID023626	38	3	0.375				11/23/2007	ES003144	2	3.62	7	
Ngalaba	Ngalaba	HH000179	Mme.	ID020974	34	6	1.111				11/23/2007	ES003145	2	4.368	7	
Ngalaba	Ngalaba	HH000475	Mme.	ID029275	44	1	0.078				11/24/2007	ES003466	2	3.762	6	
Ngalaba	Ngalaba	HH000523	M.	ID021504	32	3	1.268	1		2004	12/16/2007	ES004005	4	6.116	10	
Ngalaba	Ngalaba	HH000526	M.	ID020231	32	6	1.196	1		2004	12/9/2007	ES004002	4	7.948	14	
Ngalaba	Ngalaba	HH000700	Mme.	ID021096	40	3	0.574				1/11/2008	ES003714	3	2.404	7	
Ngalaba	Ngalaba	HH000709	M.	ID028655	21	4	0.5				12/11/2007	ES003723	1	2.913	7	
Ngalaba	Ngalaba	HH000716	M.	ID013639	33	6	1.104				12/14/2007	ES003730	2	4.917	10	
Ngalaba	Ngalaba	HH000724	Mme.	ID029270	50	1	0.81				12/16/2007	ES003738	3	3.322	5	
Ngalaba	Ngalaba	HH000737	M.	ID021396	23	5	1.778				12/15/2007	ES003751	4	5.428	10	
Ngalaba	Ngalaba	HH000837	M.	ID023896	31	3	0.728				3/11/2008	ES003858	3	4.716	8	
Ngalaba	Ngalaba	HH000924	M.	ID021206	22	7	1.678				5/9/2008	ES003950	1	3.715	7	
Ngalaba	Ngalaba	HH001061	M.	ID023895	23	1	0.219				6/6/2008	ES004088	1	1.156	3	
Maïnani	Maïnani	HH000297	M.	ID021802	38	4	0.525				12/18/2007	ES003278	3	4.523	14	
Maïnani	Maïnani	HH000300	M.	ID021323	37	3	1.951				12/18/2007	ES003281	4	5.489	18	
Maïnani	Maïnani	HH000305	M.	ID022252	37	3	1.315				12/18/2007	ES003287	3	3.153	8	
Maïnani	Maïnani	HH000994	M.	ID022253	60	2	0.776				6/21/2008	ES004034	3	2.619	7	
Maïnani	Maïnani	HH001000	M.	ID021800	26	18	5.409	1		2007	6/13/2008	ES004040	4	5.123	8	
Mouarom	Mouarom	HH001253	M.	ID022991	26	4	2.156	1	2008		8/29/2008	ES004287	4	2.25	4	
Mouarom	Mouarom	HH001288	M.	ID039978	29	2	0.238				9/7/2008	ES004329	4	0.713	2	

5.4. OFDA Village Map



5.5. Fault Block Concept

Definition of a Fault Block

The infill drilling program is to be implemented in sections called “Fault Blocks”. A Fault Block is a geologic feature of an oilfield. A discrete section of the field, called a Fault Block, shares the same oil-bearing formation and characteristics. The formation and characteristics are first defined through seismic exploration but more thoroughly defined and understood through the behavior of oil wells as they continue to produce. Thus the comprehension of the extent and nature of fault blocks increases with experience in the oilfield.

With this developing understanding Reservoir Engineers attempt to optimize production of increasingly clearly defined portions of the oil field. They develop strategies for dealing with the characteristics of each particular Fault Block. Working on these small, defined geological areas they are able to exploit the good producing areas while making decisions not to disturb other, less productive areas.

How working with Fault Blocks reduces impact

The Reservoir Engineers have also grown sensitive to minimizing land take. Fault block by fault block, Reservoir is giving the EMP team the location of all the wells which need to be drilled within the footprint of the Fault Block while in the past, locations of wells were known only one request at a time. The fault block process allows the minimization of land required for access roads, flowlines and electrical lines. Because land in a fault block has already been used for well pads, roads and facilities, these can be reused or reconfigured to minimize land take. Reservoir is working with the Environmental Management Plan group and with Construction to use over again or to modify existing construction – access roads to well pads, electric and flow lines. Much of the land to be used in a fault block is land already in use as pads, roads, electrical lines etc. From the construction standpoint it also becomes possible to recycle the laterite construction material already laid down from less productive areas of the fault block. This reuse means new areas of land do not need to be disturbed by mining. This is a bonus as finding nearby sources of laterite is difficult and moving it long distances is expensive.

Working by fault block allows most construction, drilling and initial reclamation work to be done within a shorter and limited period of time.

- Reuse takes less time than new construction.
- Moving laterite from abandoned area to new construction; moving topsoil from new construction to reclaim abandoned area, recycles already acquired land, reduces EEPCI costs and speeds up reclamation.
- Reduces BP surface area.
- Allows efficient and effective one time reclamation and return rather than continuous reopening of same trenches where land has been restored, returned and then reacquired and reused.
- Reduces loss of topsoil from reclaimed land that is then reopened
- Less disruption to community and to farming as work occurs within limited time
- More efficient use of construction equipment/labour is good for EEPCI

- Reduces number of quitus whose signature process has begun but not finished before the land is requested again. I.e. fault blocks costs the farmer nothing & reduces EMP paperwork/legwork.

By working block-by-block, the project will be able to optimize the pattern of access roads, flowlines and electrical lines, regulate the amount of land required, and reduce the period of construction needed to continue development of Chad's oil

How to assess social impact using fault blocks

A fault block defines the maximum degree, or "worst case scenario" of impact on land and people. Only land within the fault block will be used and only those using this land will be affected. Fault blocks define where to look for people who will be impacted. With satellite photography and the EMP-IS database and maps the EMP team can identify who is farming in the fault block area, their houses, shelters, etc. Any area within a fault block for which such EMP-IS information has not yet been collected can be (and has been) immediately targeted for inclusion in the EMP-IS.

Working by fault blocks reduces the need for additional land, as discussed above. It also facilitates the identification of social impacts. On the surface the subsurface layout of productively producing areas circumscribes the area of land that will be targeted for more intensive exploitation. From the social standpoint this means that fewer people will be impacted because construction has already removed some land from agricultural use. It means, in fact, that the same people already impacted are most likely those who will be impacted again. The number of HH impacted will not increase by much, but the same HHs will be impacted again.

Fault Blocks outline who may be impacted but not the degree of impact

Initial understanding of who could be impacted in a fault block can be rapid but approximate even without full village mapping. If EMP-IS identifies people already compensated for land in the fault block and already knows their resettlement status (based on earlier compensation data and resettlement choices), then it is likely these people could lose additional land, so EMP knows it must ensure that non-viable HH are still able to pursue effectively their chosen resettlement option, or else offer other options.

But determining the degree of impact on a household using land in a fault block depends on mapping all a household's fields. Individuals classically pursue a strategy of cultivating land in several areas in order to minimize crop risks; if pests get one field, or the river floods another, there will still be other fields elsewhere that escape. Taking land within the fault block does not, therefore, necessarily deprive a farmer of all his land (though it can).

The reason for which EMP Impact Teams were created is to measure all the fields of a person/household just identified for compensation and enter the up-to-date information into the EMP-IS. The new land acquisition is subtracted from the holdings and viability calculated. If non-viable the social team advises on resettlement options.

The Impact Team's information is a step in defining the impacted household's status. But for a clear picture of each household's land holdings LUMAP experience with mapping for the Village Site Specific Plans shows that mapping all the fields within a village area is needed for an accurate

picture. As the mapping covers more and more of the area, the landholders of those fields that have not been claimed are identified and their total land holdings are known with accuracy. Hidden fields are uncovered that belong to seemingly "non-viable" households.

Predicting who will be impacted and by what degree

Given the agricultural system used in the OFDA, the use of a piece of land shifts frequently between field and fallow, the contours change depending on the crop being planted and the energy of the planter. The planters change as well between different members of the family, neighbors, and relatives from other villages, etc. Who is cultivating what exactly where cannot be known until the compensation identification team hits the ground and makes an identification.

What complete village mapping does do is offer a tool for predicting impact. When a village is surveyed everyone's approximate status is known:

1. Already non-viable
2. Near threshold (between just over 2/3 corde/HHM to 2.5 c./HHM)
3. Land rich (2.5 cordes/ HHM)
4. Non-agricultural income sources

The maps reveal the land holdings of everyone within the fault block at the time of the mapping. Most of the people identified will be the people that will be affected by the new land requests. The impact of the request on their situation can also be evaluated. The EMP-IS can list:

1. The number of, and identity of, non-viable HH within the fault block
2. Same for HH near the threshold of becoming non-viable
3. The number of land-rich HH who are most unlikely to be greatly affected
4. HH with additional non-agricultural income sources to offset land take

The EMP-IS indicates the households that need to be monitored – categories 1 and 2. The EMP-IS can also indicate the large landholders with land OUTSIDE any fault block, to whom non-viable individuals can be oriented for 3rd party land.

Once the compensation team has brought up to date the people farming in the impacted area, then for recently mapped areas the EMP-IS can define the actual impact, subtracting the new compensated area from the amount available to the household. For areas not yet mapped, the Impact Team sets to work, but unless all the fields in the village have been identified it is less able to accurately define impact and more likely to overestimate a household's non-viability. But in either case any resettlement actions can be undertaken immediately.

For example, Fault Block 3-4, involving the village of Begada, shows how the possible impact can be predicted.

Potential Impact of Begada Infill		
HH status	# HH in Fault Block	%
# HH already < 2/3	6	5
# viable HH	22	20
# land-rich HH	34	31
# potentially at risk	22	20
# houses/structures in FB	0	0

Definitions:

- HH already < 2/3 c. Any additional land take will worsen their already non-viable status. Are the resettlement measures already taken still sufficient?
- Viable HH: HH with between 2/3c and 2.5 c of land per HHM. Depending on their current holdings and the amount of land to be surrendered they may become non-viable
- Land-rich HH: HH with more than 2.5 c per HHM. Only a massive land take would make a HH non-viable.

In fact all the construction requests for Fault-Block 3-4 have been received and the actual impact has been defined. Because the land take is occurring within the confined area of a fault block and where a number of people have already been compensated, then:

Actual Impact of Begada Infill		
HH status	# HH in Fault Block	%
# HH already < 2/3	6	5
# viable HH	22	20
# land-rich HH	34	31
# new non-viable HH	0	0
# houses/structures touched	0	0

Land take in the Begada Fault Block for Infill Drilling did not put any marginal HH below the viability threshold. Therefore the only resettlement action needed is to check with the HH already involved in resettlement about the continued tenability of their choice of option.

Conclusion:

- Working by fault block is the natural outcome of a learning process aimed at maximizing production and minimizing investment in drilling and construction.
- Construction is, additionally, minimized through the reuse and modification of existing project infrastructure above the fault block areas being maximized.
- Intensifying the use of an area means that the people already compensated for land in that area are most likely the people who will be affected again.
- The EMP-IS allows EMP to predict in advance the people who will probably be impacted and the probably outcome of that impact.

- For HH already non-viable their situation can be monitored and resettlement options readjusted – in any case this happens automatically with resettlement monitoring.
- For HH near the threshold, once compensation identification has been done then their resettlement status can be calculated and resettlement initiatives started.
- For large land holders their situation will be recalculated to check that they remain viable.