Esso Exploration & Production Chad Inc.

Site Specific Plan
Missimadji Village

Land Use Mitigation Action Plan

Prepared by the EMP Department
February 2012

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List of Acronyms & Terms Used in this Report

BBS	Basic Business Skills Training
CRCP	Chad Resettlement and Compensation Plan
CdM	Household Chief (Chef de Ménage)
EEPCI	Esso Exploration & Production Chad Inc (the Project)
Eligible	Generic term to designate an individual that may be eligible to the EMP Resettlement Program.
EMP	Environmental Management Plan
EMP-IS	EMP Information System: manages Land Acquisition, Socioeconomic and Land return data.
ECMG	External Compliance Monitoring Group
HH	Household
HHH	Head of Household
HHM	Household Member. Include the CdM and all it dependents, regardless their age.
IFC	International Finance Corporation
LCC	Local Community Contact
MARP	Participatory Rural Assessment process
NGO	Non Governmental Organization
Potential Eligible	Individual that may be eligible to the EMP Resettlement Program. Analysis must be completed.
Project Footprint	Total area occupied by the Project at a given time (e.g. Compensated but not returned land)
True Eligible	Individual eligible to the EMP Resettlement Program. Individual whose eligibility established initially through the declarative process was confirmed using the VLUS.
VLUS	Village Land Use Survey previously called Cadastral survey. Refer to the measurement of every field, fallow & house of households.
WBG	World Bank Group
WHHH	Women head of household

1. Introduction

While the Village Land Use Survey (VLUS) data has allowed us to gain a very good understanding of the processes taking place in the field, incorporating data from the Synergy Team, the impact surveys and the land return surveys allows us to gain a real time perspective of the effects the Project is having on communities and individuals.

Previously developed tools, such as the Site Specific Plan (SSP), gave us a fairly detailed view of the communities which are impacted by the Project. We now find that such tools are difficult to update and review in view of the masses of information they contain. Often the SSP incorporated too much information and much of this information was not necessarily relevant to the ultimate objective. The purpose of a Site Specific Plan (SSP) is to clearly define the village's situation and identify a set of measures that mitigate the specific issues the village's population is encountering within their own village area. After having identified the issues which are specific to a village the plan will consolidate all applicable livelihood restoration tactics into a strategy that will lead the restoration of its livelihood.

Created in 1986, Missimadji (Bero canton) is the latest of 16 OFDA villages to be surveyed using the Village Land Use Survey technique. It is the smallest of the 16 villages surveyed up to this point, both in terms of area and population. The village has been impacted by the mining of lateritic clay from Kome Borrow Pit 2.

Although the absolute foot print of the Project (Permanent Land Take and Temporary Land Take Not Returned) has been reduced by a fair extent since the construction of the original Borrow pit in the early 2000's, it still occupied 11.4% of the village's total area as of September 31st 2011. As the area occupied by the project exceeds the 10% threshold Missimadji is considered to be a highly impacted village. These impacts could include:

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

It should be noted that this community received a community compensation package, in the form of a two room school in 2006. As such the purpose of Missimadji's SSP is to establish whether the village as a whole has been able to offset its land losses to the Project in view of the compensation received by individual land users (in the form of compensation and resettlement training) and the community as a whole (a two room school). The SSP additionally evaluates the land-holding situation of all the households (HH) in the village to judge whether the village as a whole is at risk and, if so, what actions would be efficacious.

The proposed mitigations measures must be feasible, using resources that are available to the project and within the community, emphasizing the enhancement of the knowledge and capabilities of its residents. The plan will consolidate all applicable livelihood restoration tactics into a strategy that will lead to livelihood restoration in this impacted village.

We must note that the very small population of this village limits our ability to interpret some of the information as one special case can affect the overall perspective. As such the reader must take great care in jumping to conclusions in regards to some of the information presented in this document.

2. Missimadji's population at a glance

Created in 1986, Missimadji (Bero canton) is the latest of 16 OFDA villages to be surveyed using the Village Land Use Survey technique. It is the smallest of the villages surveyed up to this point, both in terms of area, only 181 Ha, and population, 24 households with only 132 residents. The village has been impacted by the mining of laterite from Kome Borrow Pit #2.

Table 1: Distribution of Households and Individuals by Eligibility Factor

Range	Nbr HH	Nbr Individual
0.000 – 0.667	4 (17%)	24 (18 %)
0.668 – 0.999	2 (8 %)	11 (8 %)
1.000 – 2.499	13 (54 %)	80 (61 %)
2.5000 - ….....	5 (21 %)	17 (13 %)
Total	24 (100 %)	132 (100 %)

With an average household size of 5.7 persons and an average population age of 18, it is in general fairly representative of the villages of the OFDA (OFDA average is 5.6 persons per HH (see annex 3)). Some notable facts can nonetheless be outlined:

- 29% of households are headed by women. This is particularly notable if we consider that this is almost double the average number of women headed households in small villages (less than 150 households) averages 12.8 %. Notwitstanding this fact the population is fairly well distributed from a gender perspective with 52 % of the population being women and 48% being men.
- 98 individuals or 74% of the population have received a form of compensation at one time or another. This is fairly representative of the situation in the OFDA where about 70% individuals have received a form of compensation
- With 12.1 % of its population made up of non-viable project affected individuals, this village is now at the top of Approaching High category for the socio-economic criteria.

As expected moving from far less accurate declarative data to the VLUS resulted in a significant reduction in the percentage of households (going from 42.2 % to 17.0 %) that are deemed to be non-viable (below 0,67 cordes per household member). The reduction was not as dramatic if one considers the effect of the new data on the percent of non-viable households that have been affected by the Project. Being in the Approaching High category in terms of the social criteria and in the High category in terms of the land take we felt it necessary to raise its overall position in the village classification from approaching high to high. From table 1 we can, nonetheless, note that 83% of Missimadji's households are viable, in fact the non-viable category his made-up of only 4 households..

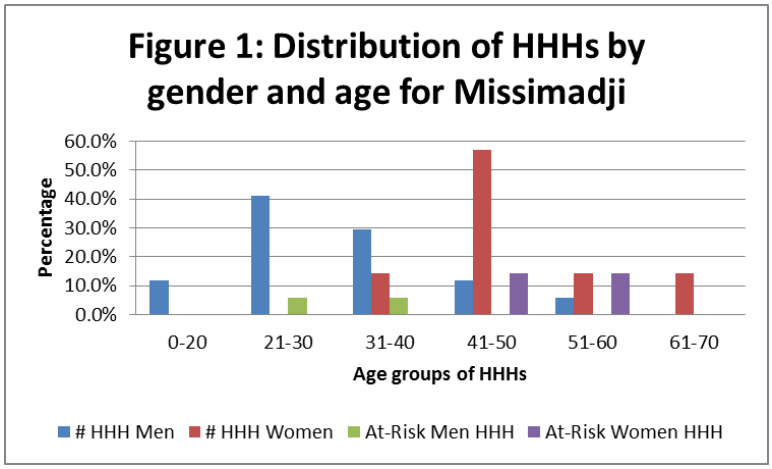
Table: 2 Number of Non-viable households as per declarative vs VLUS data

	Total non-viable	Non-viable project affected
Declarative data	42.2%	14.7%
VLUS data	17.0%	12.1%

In order to ascertain whether any vulnerable groups (youngsters, elderly villagers and women) are put at any particular risk/disadvantage by the Project in fill drilling program we must:

- Identify the most vulnerable groups (Elderly villagers, youngsters and women).
- Evaluate whether any of the groups are facing an inappropriate portion of the burden.

While most households are headed by men (71% of cases), women are far more present as household heads when they are older (starting in their forties) (Figure 1). Women are the household head in 67% of cases where the HHH is more than 40 years old. This would appear to result from the fact that some widows retain control of a sufficient asset base to support their family following the death of the spouse or that some women accumulated sufficient wealth/resources to have gained their autonomy and have separated from their spouse.



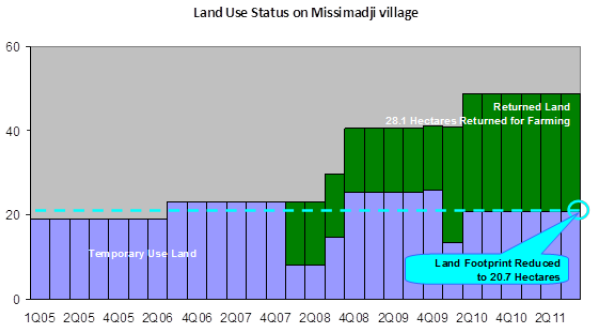
While we normally find that the proportion of at risk household tends to correspond to the gender distribution, in Missimadji WHHH Women Head of Household) represent 50% of at risk HHs while representing only 29% of households. Overall, 12% of men headed households are at risk (7/24) while this climbs slightly to 29% for households headed by women (2/7). Furthermore in most communities we find that non-viable or at-risk

households are mainly headed by young adults this is not the case in Missimadji where the distribution is fairly even amongst the various age groups.

The data would tend to suggest that there exists a bias against women headed households who would appear to be more at risk than they should. Whatever solution is proposed will have to consider this fact.

3. The Project's Footprint at the Village Level

Figure 2:



While the original land take was fairly significant in view of the size of the village, (48.8 ha representing 27 % of the village's area) 28.1 ha have since been returned or 57% of the original land-take. At present the Project's land take stands at 20.7 ha or 11 % of the village area. It should also be noted that the land take is essentially attributable to Kome Borrow Pit 2. It must be noted that the initial community compensation (two room school built in 2006) was a compensation for the original land take, two additional land takes have taken place since then. The above figure nonetheless indicates that a significant amount of land has been returned during the the first quarter of 2010. From this illustration we can conclude that while the Project's net footprint has not changed dramatically over the last few years the project has had a significant recurring and potentially destabilizing effect on this community.

As explained by M. Ngarnaissem Ngarndolé Prosper, chief of the village of Missimadji the land which has been reclaimed and returned has been put in production and is being actively farmed by members of his community and farmers from neighboring villages. This land has brought an important contribution to the ability of his community to feed itself and sustain the local economy.

From table 3 (page 8), we further learn that all the land taken by the project and returned since then, was returned without any restriction as to the use to which it can be put. This indicates that when land has been and will be returned very limited residual effects should remain.

Table 3: Compensated and Returned Land by Land Use and Facility Type

	Total area (hectares)		
Land us type	Compensated	Returned	
Permanent with public access	0	0	-
Permanent with no Public access	0	0	-
Sub-Total Permanent	**0**	**0**	**-**
Temporary returned without restriction	48.8	28.1	57 %
Temporary returned with restriction	0	0	-
Sub-Total Temporary	**48.8**	**28.1**	**57 %**
Grand Total	**48.8**	**28.1**	**57 %**

- The column “total areas in hectares: compensated” shows the total area compensated since the project started up to the end of the quarter covered in this report.
- Total areas in hectares: returned” shows the total area returned since the project started up to the end of the quarter covered in this report.

4. The Project and the Environment of Missimadji.

Groundwater Quality Monitoring Data

Over the years EEPCI has established a network of community level groundwater quality monitoring.

This network is comprised of:

- EEPCI owned and operated groundwater wells (piezometer) built specifically for the purpose of sampling ground water quality and collecting data on the level of the aquifers.
- Community owned surface or drilled wells. Communities allow EEPCI to monitor the quality of the water.

For the village of Missimadji the data is collected from a traditional well. While this data indicates the water quality has not been affected by the activities of the Project (see table 6 page 9). In fact the results indicate that the presence of potential contaminants is often times much smaller than the actual applicable norms. Notwithstanding these result there is a concern in regards to the potability of this water from a point of view of fecal coliforms. While this type of contamination cannot be associated with the project's activities it may be associated to the presence of livestock or an inappropriate septic system in the proximity of this surface well.

Table 6: Water quality monitoring data for the village of Missimadji

Results	Cl	SO4 2-	NO3-N	NO2-N	NH4-N	Fe	Mn	Fecal coliforma
Q1-2011	1.2	0	0.5	0.058	NT	NT	0.1	TNTC
Q2-2011	0.5	0	1.1	0.002	NT	0.243	0.1	TNTC
Standard	**250**	**250**	**50**	**3**	**1.5**	**0.3**	**0.5**	**OMPN/ 100ml**

NT: Not Tested N/D: Not detected TNTC: Too numerous to count

Air Quality Monitoring Data

In accordance with schedule 17 of the Credit Coordination Agreement, continuous monitoring of ambient air concentrations of nitrogen oxides (NO_2) in addition to supplemental monitoring of sulfure dioxides (SO_2) and Particulate matters (PM_{10}) on a quarterly basis.

First we must note that the hamlet of Missimadji is located at 8 km of the closest potential source of emission, being the Central Treatment Facility (CTF) located at Kome V.

From the published results for the three first quarters of 2011 we can note that:

- Average monthly levels of emission at the stack for NO_2 fluctuated between a low of 0.38 and a high of 4 micro gram per cubic meter of air (ug/m^3), or at worst 25 times less than the maximum allowable of 100 ug/m^3.
- Average monthly levels of emission at the stack for SO_2 fluctuated between a low of 0.24 and a high of 1.7 micro gram per cubic meter of air (ug/m^3), or at worst 47 times less than the maximum allowable of 100 ug/m^3.
- Levels of particulate emission fluctuated between a low of 2.1 and a high of 27 micro gram per cubic meter of air (ug/m^3), or at worst about half of the maximum allowable of 50 ug/m^3.

  From this information we can conclude that the project has no significant if any impact on both the air and water quality of the village of Missimadji.

5. Mitigation of the effect of the Project on Impacted Individuals

As discussed in the previous section the sensitivity of HHs and their heads to a land take depends to a large extent on other changes which may be taking place within their households. Each household will change over time through the addition or removal of HH members, through traditional land sharing practices which result in either the reduction or expansion of the land base available to the household and finally because of the impacts of the Project through either the land take or land return processes.

However, we must also understand that with the advent of the in fill drilling program, a small number of HHs may have a large number of interactions with the Project. At this level it must be noted that interactions do not necessarily mean land loss to the Project. In fact the majority of interactions that have taken place in the last years take the form of land return for the benefit of these households and of the community. Some specific process improvements are in progress to address the needs of currently at risk or marginal HHs that had frequent interactions with the Project.

In order to ensure that households can withstand the impact of the land takes while awaiting an eventual land return a number of programs have been establish as per the EMP.

The first of these programs is the cash or in kind compensation. In this case the land user or declared user is compensated for his land effort. This first level of compensation is based on the area lost to the project and takes the form of a monetary compensation.

Table 3: Compensated Individuals and Amounts

Year	Compensation payments (FCFA) (Cash and in kind)	# of compensated individuals
1999	0	0
2001	0	0
2002	15 250 000	19
2003	0	0
2004	0	0
2005	0	0
2006	3 196 500	8
2007	2 673 500	11
2008	21 046 750	34
2009	5 219 750	12
2010	17 755 250	39
2011	0	0
Total	65 141 750	98

Since the Project was started 98 individuals were compensated receiving more than 65 million CFA. The distribution of over 17 million CFA in 2010 arose following the last expansion phase of Missimadji's borrow pit.

Table 4: Number of trained individuals by option and year

Year	Improved Agriculture	OFF Farm	Total
2001	0	0	0
2002	0	0	0
2003	1	0	1
2004	0	0	0
2005	1	0	1
2006	0	0	0
2007	0	1	1
2008	2	0	2
2009	0	0	0
2010	0	0	0
2011	4	0	4
2012	1	0	1
Total	9	1	10

A second means of supporting impacted individuals or household is through the Resettlement Program.

As individuals are impacted and real land users are identified through the Synergy Process, a number of them, those that are facing a more difficult situation, are been declared eligible for resettlement through on or off-farm training.

It is interesting to note that since the advent of the infill drilling program in 2008 5 HHs were made resettlement eligible through Project land take. As discussed previously these households were affected by the last expansion phase of the borrow pit.

Since the first impacted individual was trained in 2003, 10 impacted individuals opted for one of the training options of the resettlement program. This would indicate that 42% of Missimadji's HHH has received training over the years. (See table 4)

A comparison of tables 4 and 5 clearly demonstrates that the number of compensated individuals is much larger than the number of individuals receiving resettlement packages. This situation arises from the fact that:

- Following intervention of synergy team it is often noted that compensated individuals are not necessarily thru land users who could benefit from the resettlement program.
- Most compensated individuals have an eligibility factor of more than 0.67 and are thus not eligible for resettlement.
- Some potential eligibles have previously received or are presently in the process of receiving resettlement benefits. If their situation so warrants they may receive some form of reinforcement.

6. Mitigation of the effect of the Project on the Community

Community Compensation is an in-kind infrastructure or development project for a village as a whole that compensated the community's loss of land and bush assets. It also offsets construction nuisances, increased demand on community assets from incoming resettlement, or loss of taxpayers to communities losing people due to resettlement. Villages are eligible for community compensation when they have surrendered land for Project use.

In compensation for the original land take the community opted for a two room school. The two class school room, which was obtained and established at the time, is still actively being used to educate the children of the village.

The head master of the school, M. Nguirengar Roger, explained that prior to the construction of their school, in November 2003, only the three first years of the primary cycle (CP1, CP2 and CE1) were offered at the village's traditional school. In addition to the lack of comfort present in the old straw building they were not able to respect the school calendar as recommended by the Department of Education. In fact, school rarely started before November (waiting for the dry season to gather the required construction materials) and often ended at the end of the month of April with the advent of the rainy season. In short, children did not get the basic education required to continue their learning in neighboring villages. The greatest impact of the new school is the fact that children now complete the program required to move on to the sixth grade and high-school. While a small number abandon school because of the pressure from the family to contribute to field chores and herding, many now complete their primary school education. While fees remain very reasonable at 2 000 FCFA per year a reduced rate of 1 500 FCFA was introduced in order to incite parents to send their girls to school.

Of the last graduating class, 5 students managed to successfully write the admission exam for the 6th grade at Bero's School. For this head master, this is clearly a huge improvement which will contribute to the long term development of his community of adoption.

As the school attracts many pupils from neighbouring communities it is getting cramped and expansion would be a welcomed contribution.

7. Relations with the community and Major Topics of concerns

Public Consultation

As of November 30th 2011, 3 public consultation sessions were held in 2011. In total 85 participants were present at these various sessions. The major concerns raised by the community during these sessions dealt with:

- Local employment
- Insecurity (relationship with the gendarme force)
- Donation
- Quality of land reclamation

Claims process

With the establishment of a new claims management program/process in early 2011 all of the old claims have been settled. **1** new claim was received in 2011 and **0** pending as of November 30th. The vast majority of claims are for trees outside of the compensated land parcel that are severely damaged or destroyed by construction activities. The owners of these trees seek compensation for the loss of the productive tree.

This new process brought a number of advantages:

- Claims are settled rapidly
- Because of the very short period between claims receipt and the investigation there is sufficient evidence on the site to make a decision based on evidence. Decisions are thus based on the evidence at hand.
- At present claims are settled in real time with a turn around of about four weeks..

Local Job creation

- During 2011, No residents of Missimadji were hired to perform jobs requiring limited skills (non-qualified jobs). This is due to the fact that no work was undertaken in the limits of the village.

- **Donations**

2011: **3** Loads of waste wood donated to local community groups

8. Missimadji's Current Needs and Resources

- The amount of land needed by those compensated non-viable families to become economically viable is 2.83 ha.
- Missimadji's arable land = 152 ha; they also have 18 ha of farmland in other villages.
- 38% of HH are holding more than 9 cordes of land a piece and 46% have between 2.5 cordes and 10 cordes per HHM.
- 5 HH have graduated resettlement training programs
- 1 At Risk household is entering into resettlement in 2012 promotion while 4 entered into resettlement in 2011. Note that some of these households are no longer non-viable following receipt of returned land. As they had been integrated into the training program before recovering the required land they will complete their training program as committed.

9. 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).

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

- 5 project-affected HH are non-viable; 4 have completed the BBS training program and the rainy season portion of the IAT and 1 was offered resettlement options in the class of 2012. First he will participate in Literacy, Numeracy and Business Skills training in 1Q 2012 and then implement their option (IAT).
- Following a monitoring process completed in 2011, 1 previously trained eligible will possibly be enrolled in the reinforcement program planned for 2012.
- If these options do not succeed during the 2 years of monitoring, then the HH will be offered physical resettlement options or if qualified reinforcement training and/or grant equipment and livestock.

The following table describes each option and its relevance to the At Risk Households in Missimadji as per the CRCP, LMM procedures:

As described in the following table the best avenue of supporting this community and assisting it in facing the issues arising from the new land take which took place in the early part of 2010 is to offer them a Supplemental Community Compensation opportunity. While the wish of the community must and will be respected in the selection process (MARP) it is clear that three options offer the best potential for addressing the issues raised earlier. They are:

- A one room school to increase the capacity of the existing 2 room school. Making it possible to either welcome more pupils or to improve the learning environment.
- A flour mill, greatly reducing the work load of women who either have to walk great distances to reach the nearest mill or expend a great amount of energy to pound their grain. Noting that women may have been disproportionally affected by the land take which took place.
- A water well in view of issues in regards to the quality of the water in the village's existing shallow well. Furthermore as it is often women who need to go and fetch water from the river (the second closest source of water) this would also reduce their burden.

As explained earlier and while we can use our influence to give the relevant information so that the villagers make a wise choice, this must not be construed as an attempt to stifle their ability to make a choice. Ultimately the community will make the final choice that best meets its' needs and aspiration.

Site Specific Actions for Missimadji

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	Large areas of rehabilitated borrow pits have and will continu to be returned to Missimadji.
Physical Relocation Individuals	Physically move at risk household to new location outside of current village	Yes	Possible however, no one in Missimadji has chosen physical resettlement options.
Third Party Compensation	Land User with surplus land may donate to at risk household and receive normal land compensation payment	Yes	This is possible however no one in the OFDA has used this option to date.
Rainy Season Resettlement	Provide field clearing, rainy season hut, well, bicycle, and hand cart for use in distant farm field	Yes	Possible depending on Third Party Compensation occurring.
Off Farm Training	Provide training to earn income in non-agricultural work	No	The rural demand for non-agricultural skills is saturated.
Improved Agriculture	Provide training to generate more production of subsistence crops and produce cash crops	Yes	Most widely used resettlement option in the OFDA.
Physical Relocation of Village	Physically relocate entire village to new location in cooperation and in concert with government	No	The traditional mechanisms for voluntary and gradual resettlement are working well in the OFDA.
First time Community Compensation	Phase 1: Rural Participatory Assessment of Needs & Resources	Yes	Completed in 2005. Community chose a two room school.
	Phase 2: Oversee implementation; Create management committee	Yes	Construction and establishment completed in 2006
Supplemental Community Compensation	**Phase 1: MARP**	**Yes**	**Could start in Q1 2012**
	Phase 2: Oversee implementation; create management committee.	**Yes**	**Could be completed in 2012 if budget permits**

Site Specific Plan Implementation Timeline

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

Action	Timeline
EEPCI provides Reinforcement Training and equipment to qualified resettlement training program graduates. 5 completed training by 2009	March 2009
Village Land Use Survey completed	July 2010
Monitoring process of individuals who previously received resettlement.	September 2011
EEPCI offers Basic Business Skills and Improved Agriculture Training to first time resettlement eligible farmers.	May 2011 (4) May 2012 (1)
Offer reinforcement training or equipment to monitored individual who requires it.	December 2012
MARP	February 2012
Missimadji choice of Supplemental Community Compensation	Feb 2012 – March 2013
Construction Missimadji Supplemental Community Compensation Projects	June 2012 – December 2013

Annexes

Annex 1: Land available to villages

	Missimadji	Dokaidilti	Dildo	Ngalaba	Danmadjia	Mouarom	Begada	Bela	Mbanga	Madjo	Bero	Poutouguem	Maikeri
Village Area in Hectares	181	686	1887	2118	480	1352	3321	2200	3068	2148	5786	562	1250
Settlement area in Hectares (% village)	8 (5%)	24 (3%)	46 (2%)	97 (5%)	34 (7%)	23 (2%)	56 (2%)	35 (2%)	62 (2%)	27 (1%)	145 (2.5%)	28 (5%)	46 (4%)
Project Perm. Land Take + Temp. No Returned in Hectares (% village)	21 (11 %)	79 (12%)	185 (10%)	253 (12%)	61 (13%)	149 (11%)	288 (7%)	172 (8%)	189 (6%)	135 (6%)	617 (10.5%)	51 (9%)	112 (9%)
Available Land inside the village limit in Hectares (% village)	152 (84 %)	583 (85%)	1656 (88%)	1768 (83%)	385 (80%)	1180 (87%)	2977 (90%)	1993 (91%)	2817 (92%)	1986 (92%)	5024 (87%)	483 (86%)	1092 (87%)
Available Land Density inside the village limit (Hectares/Person)	1.7	1.09	1.23	1.34	0.68	2.64	2.32	2.38	1.88	2.34	1.3	1.6	1.5
Cultivated (Field) or Owned (Fallow) outside the village in Hectares (% of total land of the residents)	16 (16 %)	40 (8%)	106 (6%)	69 (4%)	122 (23%)	217 (26%)	76 (3%)	73 (4%)	70 (3%)	114 (10%)	614 (11%)	7 (3%)	28 (3%)
Total Cultivated (Field) or Owned (Fallow) of the residents in Hectares (% of total land of the residents)	104	490	1561	1601	487	850	2763	1666	2270	1110	5499	238	1001
Available Land Density inside and outside the village limit (Hectares/Person)	0.79	0.92	1.16	1.21	0.85	1.90	2.15	1.99	1.51	1.88	1.42	0.78	1.39

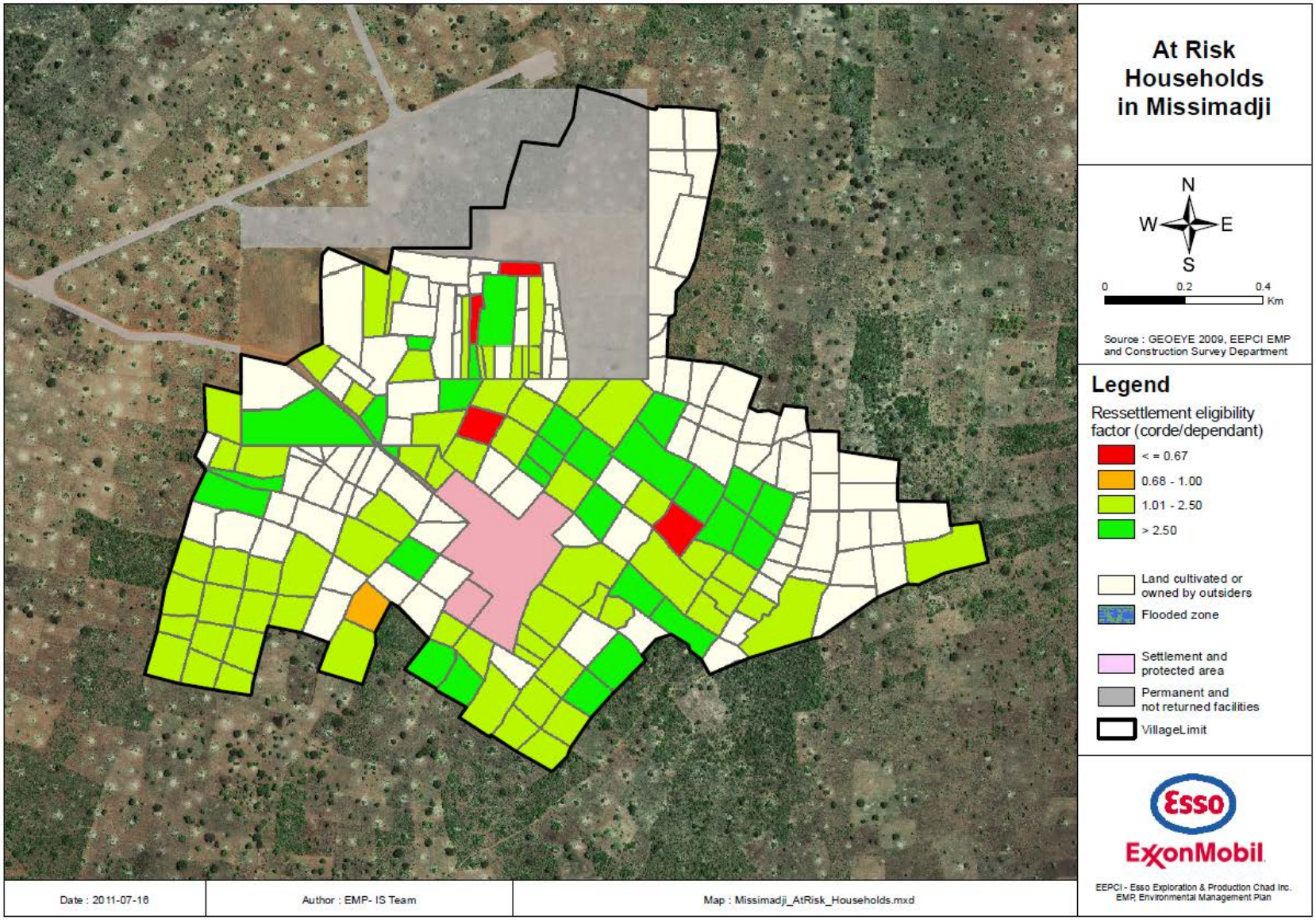
Annex 2: Use of Available Land per Village

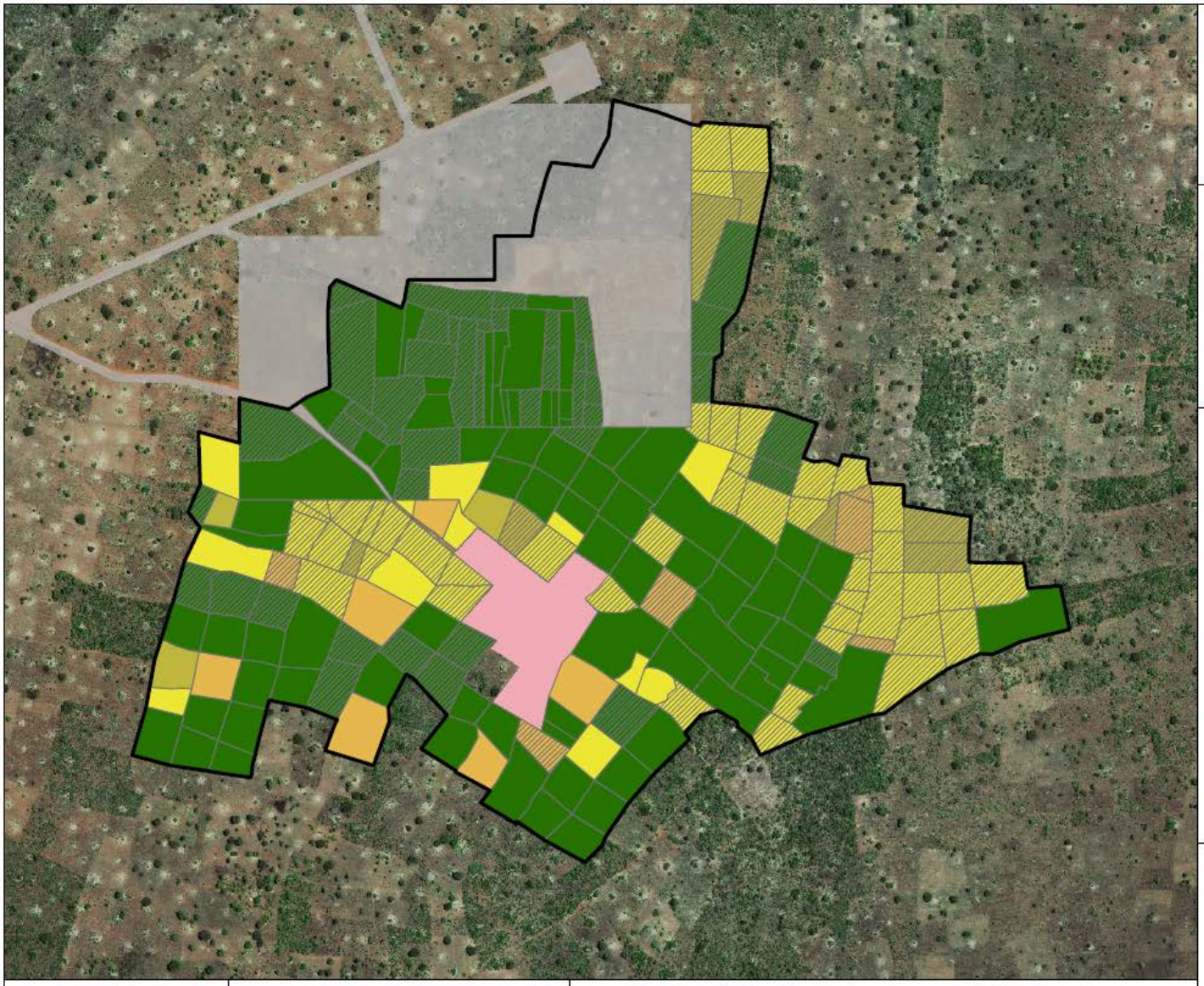
	Missimadji	Dokaidilti	Dildo	Ngalaba	Danmadjia	Mouarom	Begada	Bela	Mbanga	Madjo	Bero	Poutouguem	Maikeri
Cultivated (Field) or Owned (Fallow) by non-residents inside the village limit in Hectares (% of available land inside village limit)	64 (42 %)	121 (21%)	141 (9%)	141 (8%)	17 (4%)	531 (45%)	272 (9%)	389 (20%)	577 (20%)	504 (25%)	553 (11%)	249 (52%)	188 (17%)
Cultivated Field Farmed by Resident inside the village limit in hectares (% of available land)	70 (46 %)	302 (52%)	668 (40%)	1043 (59%)	241 (63%)	291 (25%)	1190 (40%)	755 (39%)	1122 (40%)	443 (22%)	2004 (40%)	152 (31.5)	634 (58%)
Fallow Owned by Resident inside the village limit in hectares (% of available land)	18 (12 %)	149 (26%)	792 (48%)	553* (31%)	124 (32 %)	342 (29%)	1497 (50%)	838 (42%)	1078 (38%)	553 (28%)	2414 (48%)	79 (16.5)	345 (31.5%)
Ratio Fallow/Field	0.26	0.49	1.19	0.53	0.51	1.18	1.26	1.11	0.96	1.25	1.20	0.52	0.54

Annex 3: Demography of village

	Missimadji	Dokaidilti	Dildo	Ngalaba	Danmadjia	Mouarom	Begada	Bela	Mbanga	Madjo	Bero	Poutouguem	Maikeri
Nbr of Residents	132	534	1346	1324	570	447	1285	837	1501	848	3867	306	720
Men	64	243	657	668	284	216	608	434	718	418	1923	155	382
Women	68	291	689	656	286	231	677	403	783	430	1944	151	338
Avg Age in Years	18	19	20	20	19	19	19	18	18	17	18	18.7	19.8
Nbr HH	24	85	275	250	101	85	259	144	269	133	611	61	140
Avg. HH size	5.7	6.3	4.9	5.3	5.7	5.3	5.0	5.9	5.6	6.4	6.4	5.1	5.2
Avg. cordes Land per HH inside and outside village	9.4	11.3	11.2	12.6	10.3	19.6	20.7	22.8	16.6	16.0	13.7	7.4	11.9
Avg. Resettlement Factor (Based on all land inside and outside village)	1.5	1.80	2.29	2.39	1.8	3.69	4.17	3.88	2.	2.5	2.16	1.46	2.3
% Area cultivated (Field) or owned (Fallow) by women out of total area “owned” by village residents inside and outside village	30 %	15%	17%	29%	22%	14%	30%	12%	22%	28 %	18.5%	19%	25%

Annex 4: Thematic Maps of Missimadji





Missimadji survey and arable land

N
W E
S

0 0.2 0.4
Km

Source : GEOEYE 2009, EEPCI EMP and Construction Survey Department

Legend

Fallow Duration

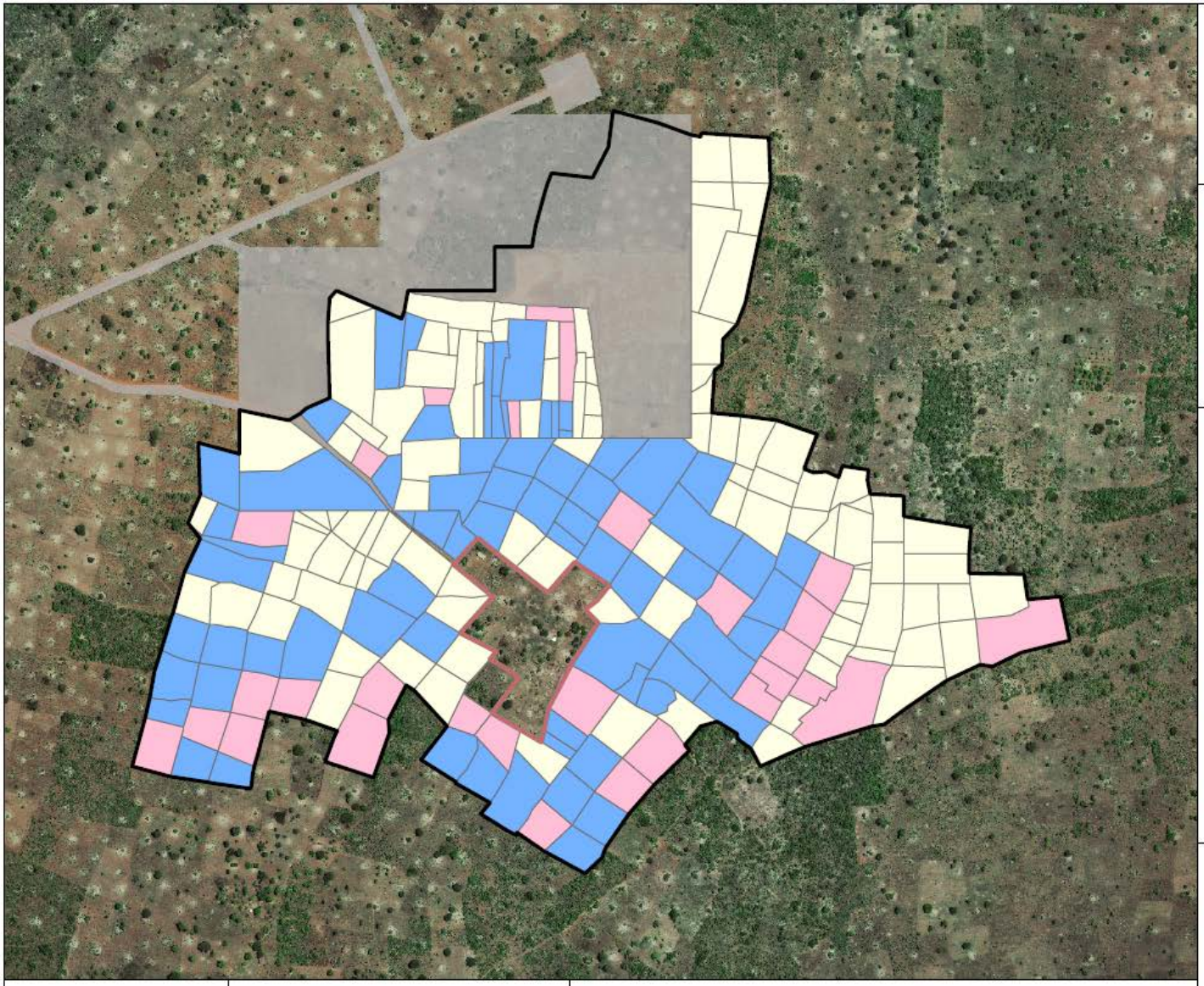
- 2 years
- 3 - 5 years
- 6 - 10 years
- 11 years +

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

Esso
ExxonMobil

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

Date : 2011-07-16	Author : EMP- IS Team	Map : Missimadji_ArableLand.mxd



Owner's Gender in Missimadji

N
W E
S

0 0.15 0.3
Km

Source : GEOEYE 2009, EEPCI EMP and Construction Survey Department

Legend

Gender of cultivator

- Man (115 ha - 76%)
- Woman (37 ha - 24%)
- Land cultivated or owned by outsiders

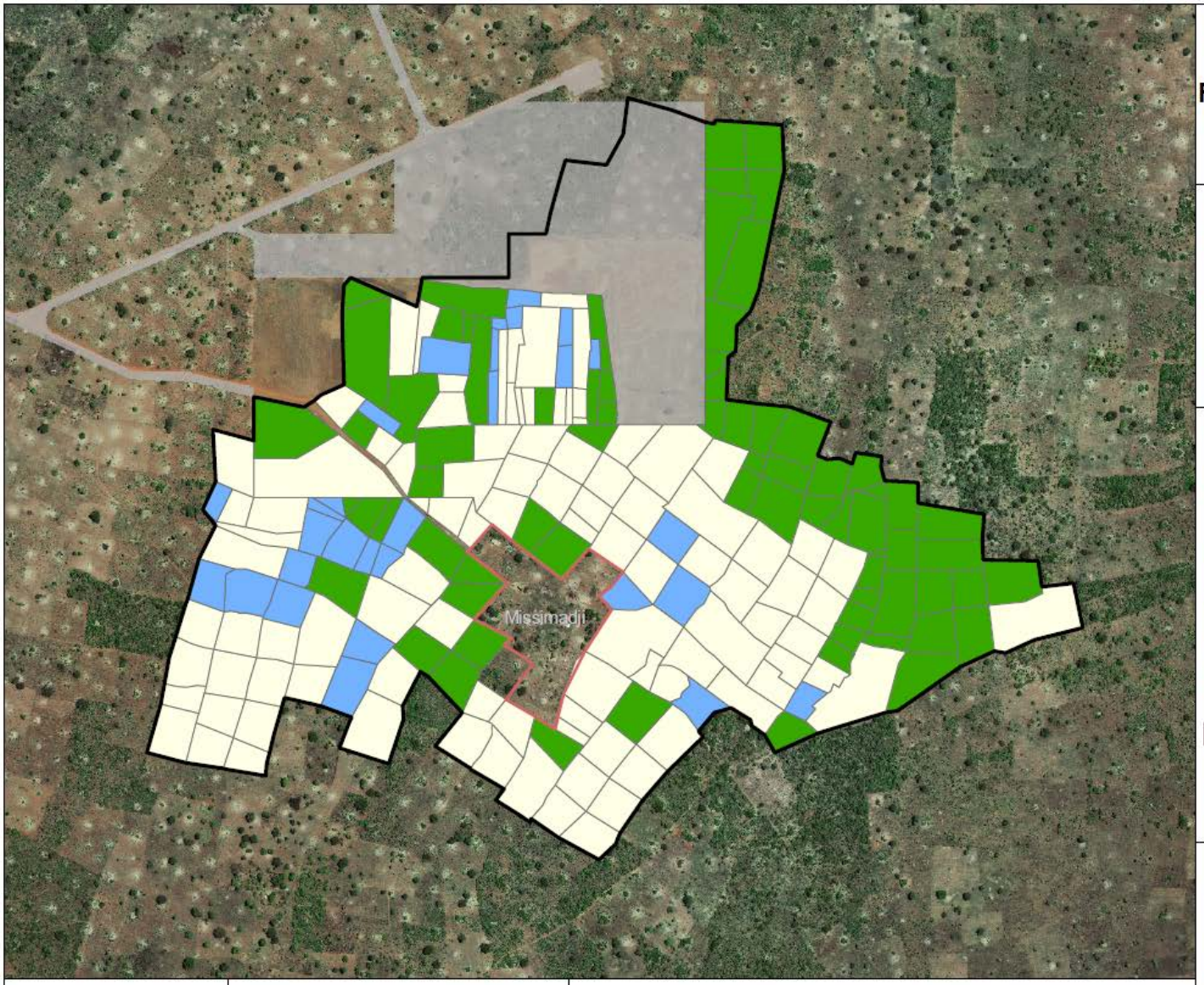
- Flooded zone
- Permanent and not returned facilities

- Settlement and protected area
- Village limit

Esso

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

Date : 2011-07-16	Author : EMP-IS	Map : Missimadji_OwnerGender.mxd



Farmer's Residence in Missimadji

N
W E
S

0 0.2 0.4
Km

Source : GEOEYE 2009, EEPCI EMP and Construction Survey Department

Legend

Residency village of farmers

- Missimadji (101 ha - 55.6% 17 ha outside the village)
- Doba (15 ha - 9.6%)
- Other villages (53 ha - 34.8%)

- Settlement
- Village limit
- Flooded zone
- Permanent and not returned facilities

Esso
ExxonMobil

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

Date : 2011-07-16	Author : EMP-IS	Map : Missimadji_FarmerResidence.mxd