

Esso Exploration & Production Chad Inc.

**Site Specific Plan
Benguirakol Village**

Land Use Mitigation Action Plan

**Prepared by the EMP Department
February 2014**

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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 its 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 allow 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.

Benguirakol (Miladi canton) is the latest of 20 OFDA villages to be surveyed. While it was affected only in a limited fashion by the development of the oil fields in the initial stages of the drilling program, it was targeted in 2005 following the identification of a satellite oil field known as Nya-Moundouli. A significant number of wells and service facilities have since been established in this community.

As of September 30th, 2013 these facilities occupied 47.5 ha out of a village land area of about 1068.3 ha, or about 4.4% of the village's area. Although the Project has occupied 80.5 ha of land at one time or another, the rehabilitation and return of unneeded land has made it possible to maintain the footprint at as a low level as possible. At present Benguirakol is considered to be a moderate impact village both in terms of project land use and its impact on the population of this community. 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 water well, a house for the school's director, a community hall and a community grain storage in 2009. As such the purpose of Benguirakol'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. 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.

2. Benguirakol's population at a glance

Benguirakol (Miladi canton) is the latest of 20 villages to be surveyed using the Village Land Use Survey technique. With a total area of only 1068 ha, Benguirakol is one of the small villages surveyed, in fact it ranks 17th out of 28 in terms of area. It has a relatively small population density with only 95 households and 514 residents. The village has been impacted by the development of the satellite oil field known as Nya-Moundouli.

Table 1: Distribution of Households and Individuals by Eligibility Factor

Range	Nbr HH	Nbr Individual
0.000 – 0.667	11 (10 %)	80 (12 %)
0.668 – 0.999	15 (14 %)	86 (13 %)
1.000 – 2.499	44 (42 %)	290 (44 %)
2.5000 -	36 (34 %)	209 (31 %)
Total	106 (100 %)	665 (100 %)

With an average household size of 6.3 persons and an average population age of 19, it is slightly over the average of the villages of the region (OFDA average is 5.5 persons per HH (see annex 3)). Some notable facts can nonetheless be outlined:

- 20.8% of households are headed by women. This is higher than what is found in comparable villages. The average number of women headed households in small villages (less than 150 households) is 12.8 %.
- 186 individuals or 36.2% of the population have received a form of compensation at one time or another. This is much lower than the situation in the OFDA region where about 70% individuals have received a form of compensation. This probably reflects the fact that the development has been concentrated in a relatively small part of the village affecting only a small number of relatively large land owners.
- 93 % of the area of the village is either actively cultivated or being fallowed. Although residents of this village farm very little land outside its limits, they still have access to 18.58 cordes or 3.44 cordes of farm land per family member.

- With 5.7 % (44 individuals) of its population which is made up of non-viable project affected individuals, this village is considered to be a moderate impact category for the socio-economic criteria.

Contrary to what has generally occurred, moving from far less accurate declarative data to the declarative data resulted in a significant increase rather than reduction in the percentage (going from 6.5% to 10.4 %) of households that are deemed to be non-viable (below 0,67 cordes per household member). This increase was not as

dramatic as one may expect, if one considers the fact that only 8.3% (55 individuals) of the population was identified as project affected non-viable. The analysis conducted confirmed that Benguirakol is in the moderate impact category in terms of both the social and land take criterion. From table 1 we can, nonetheless, note that 90% of Benguirakol's households are viable, in fact the non-viable category is made-up of only 11 households (6 households non-viable project affected).

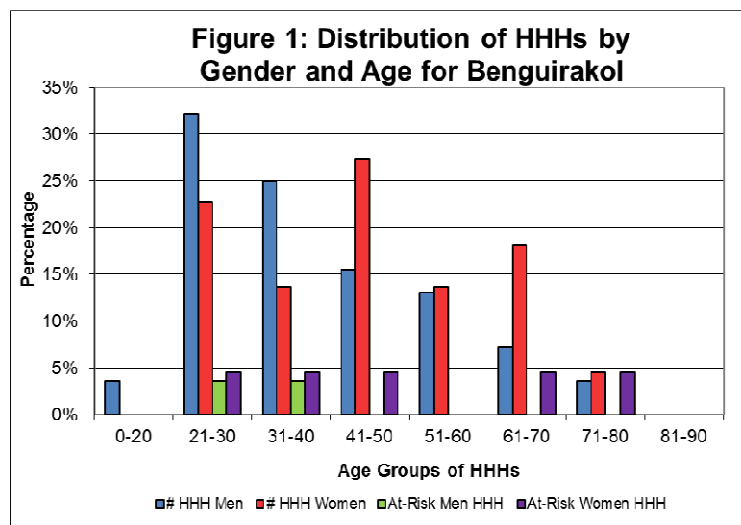
In order to ascertain whether any vulnerable groups (youngsters, elderly villagers and women) are put at any particular risk/disadvantage by the Project infill drilling program we must:

- 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 (81% 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 40% of cases where the HHH is more than 60 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.

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

	Total non-viable	Non-viable project affected
Declarative data	N/A	N/A
VLUS data	10.4%	5.7%

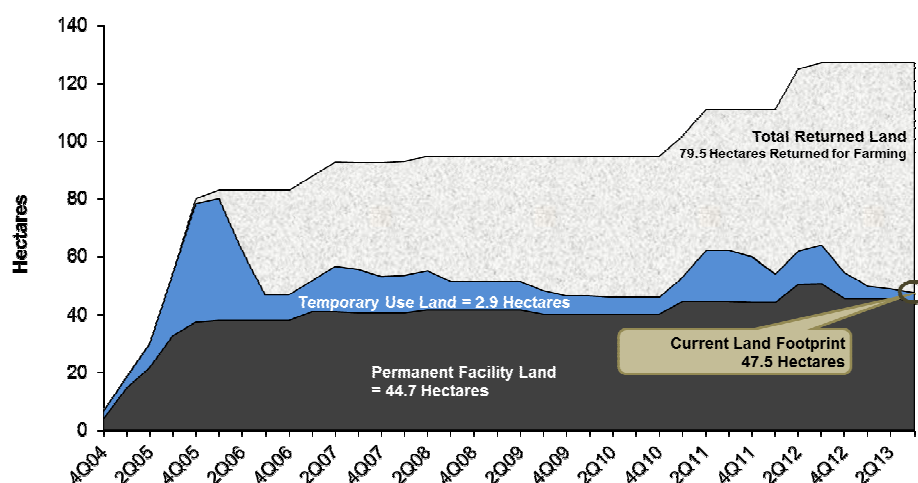


While we normally find that the proportion of at risk household tends to correspond to the gender distribution, in Benguirakol WHHH (Women Head of Household) represent 45% of at risk HHs while representing only 21% of households. Overall, 7% of men headed households are at risk (6/84) while it is 23% for households headed by women (5/22). WHHH would thus appear to have a small advantage and to be in general better off. 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 Benguirakol where the distribution is fairly even amongst the various age groups.

3. The Project's Footprint at the Village Level

While the original land take was important (about 78 ha) and lowered down to around 50 ha for a number of years, the new activities held in 2011 and 2012 on the Nya-Moundouli satellite field resulted in a small net increase in the project's footprint. If we do not

FIGURE 2: LAND USE STATUS ON THE VILLAGE OF BENGUIRAKOL



account for recent land return the project has touched 127 ha representing 11.9 % of the village's area. 79.5 ha have since been returned or 63% of the original land-take. At present the Project's land take stands at 47.5 ha or 4.4 % of the village area. It must be noted that the initial community compensation package (water well, school directors house, Community hall and community grain storage) was a compensation for the original land take, a number of additional land takes have taken place since then. The above figure nonetheless indicates that a significant amount of land has been returned during the latter part of 2011 and the first half of 2012. From this illustration we can conclude that the Project's net footprint has fluctuated over the last two years, the project has had a significant recurring and potentially disruptive effect on Benguirakol in general.

From table 3 (page 8), we further learn that all the land taken by the project and returned since then, was returned with some form of restriction as to the use to which it can be put. This indicates that even when land has been and will be returned some residual effects may remain.

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

Land use type	Total area (hectares)		
	Compensated	Returned	
Permanent with public access	8.9	0.5	6 %
Permanent with no Public access	5.6	0	-
Sub-Total Permanent	14.5	0.5	3 %
Temporary returned without restriction	0	0	-
Temporary returned with restriction	22.6	13.2	58 %
Sub-Total Temporary	22.6	13.2	58 %
Grand Total	37.1	13.7	37 %

- 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 Benguirakol

Groundwater Quality Monitoring Data

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

This network is comprised of:

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

For the village of Benguirakol, the data are collected from a piezometer, named MnPZ-02. The piezometer is located at 1 km from the village.

While the water does not breach the standards for most indicators for potable water, there may be a significant concern with the PH, which is below 6.5. In fact, the results indicate that the presence of monitored chemical compounds is often times more than 100 times smaller than the actual applicable norms.



Table 4: Water quality monitoring data for the village of Benguirakol

Results	Cond (μ S/cm)	PH	Turb. (NTU)	Cl ⁻	SO ₄ ²⁻	NO ₃ ⁻ -N	NO ₂ ⁻ -N	NH ₃ -N	Fe	Mn	fecal coliforms	TPH
Q3-2013	27.0	5.0	4.31	0.4	1	0.3	0.002	0.01	0.01	0.1	0	0
Standard		6.5 - 8.5	5	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 and Exxon Mobil's Environmental Standards, there is a continuous monitoring of ambient air for nitrogen oxides (NO₂) and monitoring of sulfur dioxides (SO₂) on a quarterly basis.

No predicted location for air monitoring is present in Benguirakol, as per the air modeling program. Most relevant data to use are those for Ngalaba which is located between the most probable source of contaminants (Miandoum gathering station) and Benguirakol. Benguirakol is located at more than 32.5 km north-west from Miandoum Gathering Station.

Ambient air data collected shows the following:

- Average of monthly levels of emission (2012) at the stack for NO₂ varies between 1.00 and 7.97 micro grams per cubic meter of air (ug/m³), or at worst 12 times less than the maximum allowable of 100 ug/m³.
- Average monthly levels of emission at the stack for SO₂ varies between 0.03 and 4.86 micro grams per cubic meter of air (ug/m³), or at worst 19 times less than the maximum allowable of 80 ug/m³.

From the above, we can conclude that the project has no significant if any detrimental impact on both the air and water quality of the village of Bnguirakol.

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 infill 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.

Table 5: Compensated Individuals and Amounts

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 established 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.

Year	Compensation Payment (XAF)	# of Compensated Individuals	Cumul Compensated Individuals*
1998-2002	0	0	0
2003	4,464,000	17	17
2004	332,000	4	18
2005	162,865,500	104	109
2006	3,696,000	20	113
2007	14,353,500	39	122
2008	1,429,000	6	123
2009	0	0	123
2010	0	0	123
2011	55,246,000	73	156
2012	65,168,000	73	186
2013	0	0	186
Total	307,554,000	336	186
* Compensated individuals are only counted once			

Since the Project was started, 186 individuals were compensated receiving more than 307 million XAF, an average of 1.6 million XFA per compensated individual.

Table 6: Number of trained individuals by option and year

Year	Improved Agriculture	OFF Farm	Total
2006	0	0	0
2007	11	0	11
2008	2	1	3
Total	13	1	14

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 being declared eligible for resettlement through on or off-farm training.

Since the first impacted individual was trained in 2007, 14 impacted individuals opted for one of the training options of the resettlement program. This arises from the fact that relatively few individuals have been impacted and that most impacted individuals are relatively large land holder. (See table 5)

A comparison of tables 5 and 6 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 real 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.

Completion of the Village Land Use Survey (VLUS) has made it possible to identify five (5) additional eligible individuals who will receive resettlement benefits starting January 2014. As they have just recently completed their steps of reflection leading to the selection of their resettlement option we can confirm that they have all opted for improved agriculture technique.

On the basis of the village land use survey it was found that, 13 of the 14 previously trained individuals have sufficiently increased their available land base to no longer be considered at risk. The increase in land base resulted from, either:

- The identification of land not previously associated with the household. The VLUS is a more precise process than the declarative surveys previously used.
- They may have received some reclaimed land, from the project, through the land return process.
- They may have received some land through more traditional mechanisms (inheritance, land transfers...)

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

Following original land take, the village selected a package of items in lieu of community compensation. This package was comprised of a water well, a house for the director of the school, a community hall and community grain storage.

As explained by the village chief of Benguirakol (Guemndoudjé Julien) these various items have been put to good use and have been managed and maintained by the community at large, the management committee and himself. This fact is illustrated through the pictures presented on pages 13 and 14.

Although the village had a well-constructed and used traditional water well the new drilled well offered by the project has had a significant positive impact on the population's health.

On the basis of a minimal fee (25 XFA per 2 pales of water) they have been able to generate sufficient income to ensure its operation and maintenance.

The importance of this well to the community is illustrated by the fact that between 50 and 80 households (representing between 34% and 55% of the village's households) buy water on a daily basis, this results in an annual income of about 400000 XFA. These funds go into a fund which is called upon when repairs or upgrades are required. This strategy may explain why this well is still functioning while similar facilities in other communities have long since gone into disrepair.

As put by the chief, access to clean water is essential if a community is to thrive. This is the reason why they chose this community compensation item.

It should also be noted that this community has entered into an arrangement with the village of Moundouli. Under this arrangement they gave each other access to the facilities received from the project through the Community Compensation Process and Donations from Esso and its' partners.



For example the director of the high school (grades 6 to 3) is housed in the house granted by the project. They have thus been able to recruit and retain a highly qualified individual.

As explained by Mbaihamgone Justin, photographed on the porch of his house, being offered such a nice house was a key element in accepting the position of head master at the Moundouli High School and leaving his previous position in Bebedja.

Another Community compensation item received by the community of Benguirakol is a community grain storage. As was the case for the drilled water well a pay for use system was implemented, under which each user must pay 100 XFA in order to store a bag of grain for up to 12 months. Funds thus collected have been used to maintain and upgrade the facility and thus ensure that it is just as functional today as it was when it was transferred to the community 4 years ago.

Finally the community had opted for a community hall. While it does not generate income as some of the other facilities do or is not used on a daily basis. The chief explained that it is useful in that it offers a convenient place to hold meetings with the local community or host activities involving the community and local partners such as NGO's , or regional administration.

They did think about making it available to others in exchange for a small user fee. Although such situations have not taken place, they feel this is the best avenue to ensure the sustainability of the structure.



7. Relations with the community and Major Topics of concerns

Public Consultation

As of September 30th 2013, **8** public consultation sessions were held in 2013. In total **318** participants were present at these various sessions. The major concerns raised by the community during these sessions dealt with:

- Cadastral activities
- Restrictions relating to Using of reclaimed sites
- Claim procedures
- Malaria
- Bathing in stagnant water

Claims process

With the establishment of a new claims management program/process in early 2011 all of the old claims have been settled. **16** new claims were received in 2011, **29** in 2012 and **7** in 2013; none are pending as of the preparation of the SSP. The vast majority of claims are for trees or fields outside of the compensated land parcel that are 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 2013, **5** residents of Benguirakol were hired to perform jobs requiring limited skills (non-qualified jobs) :
 - Grass cutters hired by EEPCI Contracor for Moundouli Gathering Station clearing.

Donations

- 2013: No donation.

8. Benguirakol's Current Needs and Resources

- The amount of land needed by those compensated non-viable families to become economically viable is 9.69 ha.
- Benguirakol's resident population has access to 993 ha of arable land; they also have 74 ha of farmland in other villages.
- 14 HH have previously graduated from resettlement training programs.
- 5 At Risk households' heads will enter into the resettlement program in 2014. Note that some of these households may no longer be non-viable following receipt of returned land or may recover on a land basis before entering the resettlement program. As they had been declared eligible to the resettlement program before recovering this land they will complete their training program as committed.
- At present, no employment opportunity exists in this community other than agriculture and commerce. It is expected that all concerned eligibles will choose improved agricultural training (IAT) as a resettlement option.
- In terms of public infrastructure, Benguirakol's children presently have access to the school built in Moundouli. These facilities can presently house the children of both Benguirakol and Moundouli and offers a full primary grade cycle in addition to the first 4 years of high school. Children who chose to continue their education must move on to one of the regional colleges in order to complete their high school education. In 2013 about 30 pupils from Moundouli and Benguirakol chose to do so.
- Water is supplied through both a well built and sheltered traditional well and a drilled well granted by the project.

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). The package made available to the community must reflect the fact that it is now considered to be a moderate impact community, having moved down from its previous rating (high impact).

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

- 5 project-affected HH are non-viable; they will be registered into the BBS training program in January 2014. Upon completion of the literacy program they will move on to the rainy season portion of the IAT, the resettlement option they have all chosen.
- The one previously trained still at-risk individual will be monitored in 2014 in order to evaluation whether some reinforcement is required, to help him and his household in their recovery process.
- If these options do not succeed during the 5 years of monitoring, then the HH will be offered physical resettlement options or if qualified reinforcement training and/or grant equipment and livestock.

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 later part of 2011 and in 2012 is to offer them a Supplemental Community Compensation opportunity. While the wish of the community must and will be respected in the selection process (MARF) the following options offer the best potential to address the needs of the community. The one that should be given the most consideration is a flour mill or a complementary facility such as a Shea butter or peanut oil extraction mill. Further reinforcing what activities are presently taking place.

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.

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

Site Specific Actions for Benguirakol

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	While some limited land return is expected in the immediate future little significant gains are expected in this area.
Physical Relocation Individuals	Physically move at risk household to new location outside of current village	Yes	Possible however, no one in Benguirakol 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 but no requests in this regard at this point.
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. 5 eligible will start the training program in 2014.
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 2009. Community chose a well, a house, a community hall and a grain storage.
	Phase 2: Oversee implementation; Create management committee	Yes	Construction and establishment completed in 2009.
Supplemental Community Compensation	Phase 1: MARP	Yes	Could start in Q1 2014
	Phase 2: Oversee implementation; create management committee.	Yes	Could be completed in 2014 if budget permits

Site Specific Plan Implementation Timeline

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

Action	<u>Timeline</u>
EEPCI provides Resettlement benefits to qualified project affect at-risk individuals.	2007-2008 (14)
MARP, Initial compensation	2008-2009
Construction Benguirakol Initial Community Compensation	2009
Village Land Use Survey completed	August 2013
Monitoring process of individuals who previously received resettlement.	February 2014
EEPCI provides Reinforcement Training and equipment to qualified resettlement training program graduates.	Summer 2014
EEPCI offers Basic Business Skills and Improved Agriculture Training to first time resettlement eligible farmers.	Jan 2014 (5)
MARP	February 2014
Benguirakol choice of Supplemental Community Compensation	March 2014
Construction Benguirakol Supplemental Community Compensation Projects	April-Dec 2014

Annexes

Annex 1: Land available to villages

	Bémira	Benguirakol	Moundouli	Moundouli Satellite Average	OFDA Average
Village Area in Hectares	651	1068.3	1151.4	956.9	1821.6
Settlement area in Hectares (% village)	24.7 (3.8 %)	27.7 (2.6 %)	44.9 (3.9 %)	32.4 (3.4 %)	50.5 (2.8 %)
Project Perm. Land Take + Temp. No Returned in Hectares (% village)	13.1 (2 %)	47.5 (4.4 %)	44.9 (3.9 %)	35.2 (3.7 %)	120.8 (6.6 %)
Available Land inside the village limit in Hectares (% village)	613.2 (94.2 %)	993.1 (93 %)	1061.6 (92.2 %)	889.3 (92.9 %)	1650.3 (90.6 %)
Available Land Density inside the village limit (Hectares/Person)	0.79	1.49	0.98	1.06	1.72
Cultivated (Field) or Owned (Fallow) outside the village in Hectares (% of total land of the residents)	55.3 (8.7 %)	73.7 (10 %)	142.5 (15.8 %)	90.5 (11.9 %)	200.7 (12.6 %)
Total Cultivated (Field) or Owned (Fallow) of the residents in Hectares (% of total land of the residents)	637.5	734.5	903.3	758.4	1591.6
Available Land Density inside and outside the village limit (Hectares/Person)	0.82	1.1	0.83	0.9	1.66

Annex 2: Use of Available Land per Village

	Bémira	Benguirakol	Moundouli	Moundouli Satellite Average	OFDA Average
Cultivated (Field) or Owned (Fallow) by non-residents inside the village limit in Hectares (% of available land inside village limit)	29.9 (4.9 %)	324.6 (32.7 %)	300.1 (28.3 %)	218.2 (24.5 %)	308.2 (18.7 %)
Cultivated Field Farmed by Resident inside the village limit in hectares (% of available land)	392.7 (64 %)	350.5 (35.3 %)	497.6 (46.9 %)	413.6 (46.5 %)	649.1 (39.3 %)
Fallow Owned by Resident inside the village limit in hectares (% of available land)	189.5 (30.9 %)	310.3 (31.2 %)	263.1 (24.8 %)	254.3 (28.6 %)	676.9 (41 %)
Ratio Fallow/Field	0.48	0.89	0.53	0.61	1.04

Annex 3: Demography of villages

	Bémira	Benguirakol	Moundouli	Moundouli Satellite Average	OFDA Average
Nbr of Residents	777	665	1084	842	960.5
Men	352	329	543	408	474.1
Women	425	336	541	434	486.4
Avg Age in Years	18.7	19.1	18.7	18.8	18.7
Nbr HH	145	106	178	143	176.1
Avg. HH size	5.4	6.3	6.1	5.9	5.5
Avg. cordes Land per HH inside and outside village	8.7	13.7	10.1	10.8	16.2
Avg. Resettlement Factor (Based on all land inside and outside village)	1.625	2.191	1.653	1.8	3
% Area cultivated (Field) or owned (Fallow) by women out of total area "owned" by village residents inside and outside village	10.4	8.3	14.8	11.5	19.6

Annex 4: Thematic Maps of Benguirakol

