

## Land Use in the Oilfield Development Area

A three-year program of house-to-house surveys has now been completed, yielding a complete census of each land holder in the ten villages where the project has used the most land for development of the oilfields.

The survey effort, unprecedented for an oilfield development project, provides a fine-grained picture of the project's land use impact. The detailed information on the circumstances of each household — number of people, land holdings, past compensation and more — gives the project a computer database and mapping tool that can be used to track the livelihood status of each affected household. The program has been so effective that five additional villages have been added to a new second phase of the program.

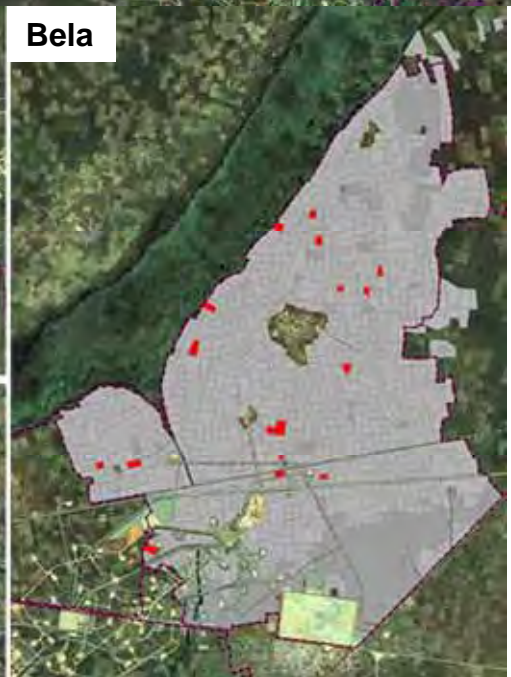
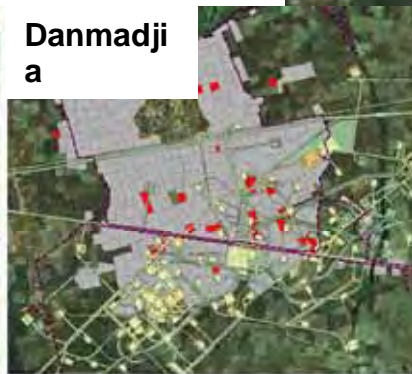
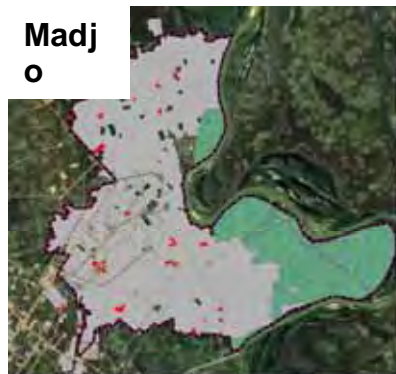
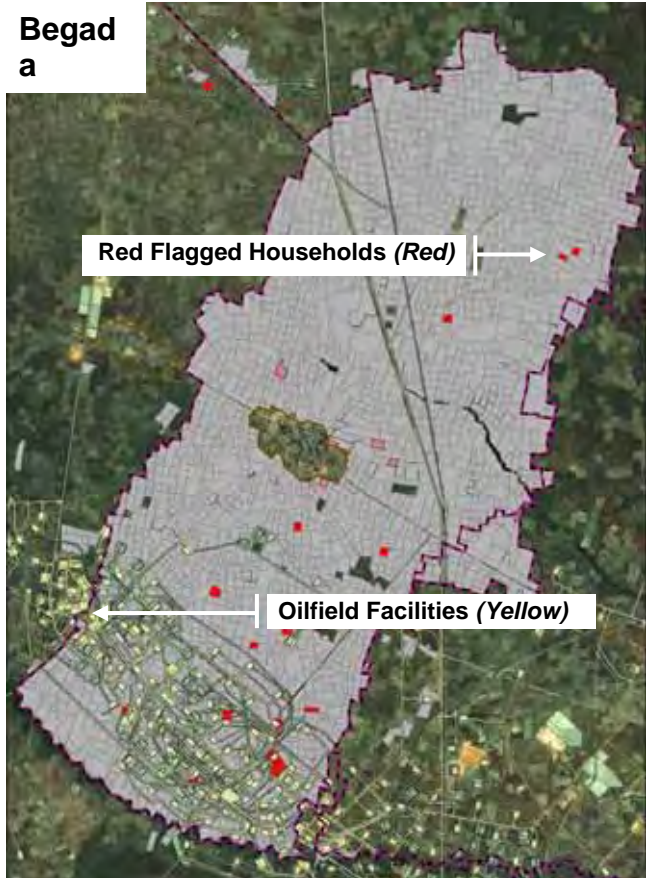
Focus Shifting to Household Level

Analysis of this detailed house-to-house data shows that the primary impact of the project's land use in the oilfields is not at the village level, but at the household level. The project's land use mitigation work continues at the village level, but this shift to a primary focus on households departs from the actions developed in the early days of creating the Land Use Mitigation Action Plan. It was once believed that entire villages had been heavily affected by project land use as more wells were added to develop the oilfield, given the challenging geological conditions encountered in the Doba Basin oil formations. However, the house-to-house census data has confirmed:

- The total number of households requiring livelihood restoration is much smaller than originally estimated. As a result, the project has provided livelihood restoration benefits to roughly three times more households than actually qualified for these benefits. (The project plans to keep its ongoing commitments to all compensated households.)
- Only a small fraction of households in the ten targeted villages have been put at risk, or red flagged, by project land use. Although about three-fourths of households in the ten villages have received some type of compensation, only 9% of those affected households have dropped below benchmark livelihood criteria, less than 7% of the total population.
- Many of the affected households were already at risk prior to project land use because of factors that have now been identified by the census studies. These farm livelihood risk factors (e.g., already small land holdings, age, crowded households, lack of support from relatives, etc.) will be used as key performance indicators to focus the project's mitigation efforts.

Mapping the Census: Household Level Impact

This map of the Begada village area (right), generated from the project’s census database, demonstrates the detail the project has gathered, enabling mitigation of land use impacts at the household level. The gray area on the map shows all the households where livelihoods are generally unaffected. For each household, the database includes information on past compensation, number of people in the household, their land holdings and more. The households marked in red have been red flagged because they fall below the project’s EMP standard for the amount of farm land needed to maintain livelihood — 2/3s of a corde (1/3 of a hectare) of land per household member. Land marked in pale yellow identifies the positions of well pads, roads, right of ways and other oilfield facilities. In this particular village of over 300 households, only 15 households were red flagged for livelihood restoration during the house-to-house census, 11 of them directly affected by project land use. Overall, only about 7% of the households have been red flagged in the ten villages originally listed as most affected by oilfield area land use.



Each village map built from the house-to-house census data (examples above) shows the same pattern, a large area of gray indicating households above the EMP benchmark for maintaining livelihood. Only a small fraction of households have been red flagged as requiring livelihood restoration assistance.

### Focused Environmental and Socioeconomic Impact Assessment Study

A new study in the most intensive area of drilling has validated the project's approach to mitigating the effects of increased land use from the need for added oil wells. The study also provides some recommendations to improve implementation of the Land Use Mitigation Action Plan. The environmental and socioeconomic impact assessment focuses on the Komé and Bolobo oilfields where most of the new drilling has been taking place. This "in fill" drilling adds wells in the spaces between existing wells in order to do a better job of extracting oil from the challenging oil formations in Chad's Doba Basin. As requested by the environmental staff of the World Bank Group's International Finance Corporation, the project commissioned the new study to make certain that the effects of additional drilling are being properly mitigated.



As part of the study, a socioeconomic expert (top left) made another field trip to Chad in December and is shown here interviewing people who have participated in project compensation programs. The visit included environmental staff members from the International Finance Corporation who had requested the study. The study covers the wide range of issues typically included in such an assessment, ranging from the potential for oil spills to health effects. Some recommendations regarding land use impacts include:

- Development of additional key performance indicators to be used in evaluating the status of those affected by the project and to track livelihood maintenance and restoration progress.
- Techniques for closer collaboration between the project's various socioeconomic teams.
- Methods for sharing information among the teams to improve consistency of information and reduce the total number of times the project contacts land holders.
- Inclusion of additional information in the reports on Land Use Mitigation Action Plan activities.
- Information needed to further explore potential for converting riverside lowland and swamp areas to rice fields and thus add to the stock of land available for farmers.

## Action Plan Progress Report

The Land Use Mitigation Action Plan organizes into nine categories all of the activity relating to the project's work to maintain farm livelihoods, a framework established in 2007 when the plan was first developed.

### Identification & Assessment (Action Area 1)

House-to-house socioeconomic surveys of the most affected villages and households have been used to build a detailed census database of land use and land users in the Oilfield Development Area. The data forms the foundation of mitigation planning.

- As indicated at the beginning of this chapter, the surveys have been completed with nearly 3,000 households surveyed in the original three oilfields area.
- Surveys will be extended to five additional village areas in order to clarify land use impact in a wider area, given the large proportion of households now shown to have been within the project's EMP benchmark for livelihood preservation.

Handheld computers help field workers gather the large quantity of data needed for the house-to-house surveys. The units connect with a satellite-based GPS system for precisely linking the data to the household's farm land so the information can be plotted to maps.

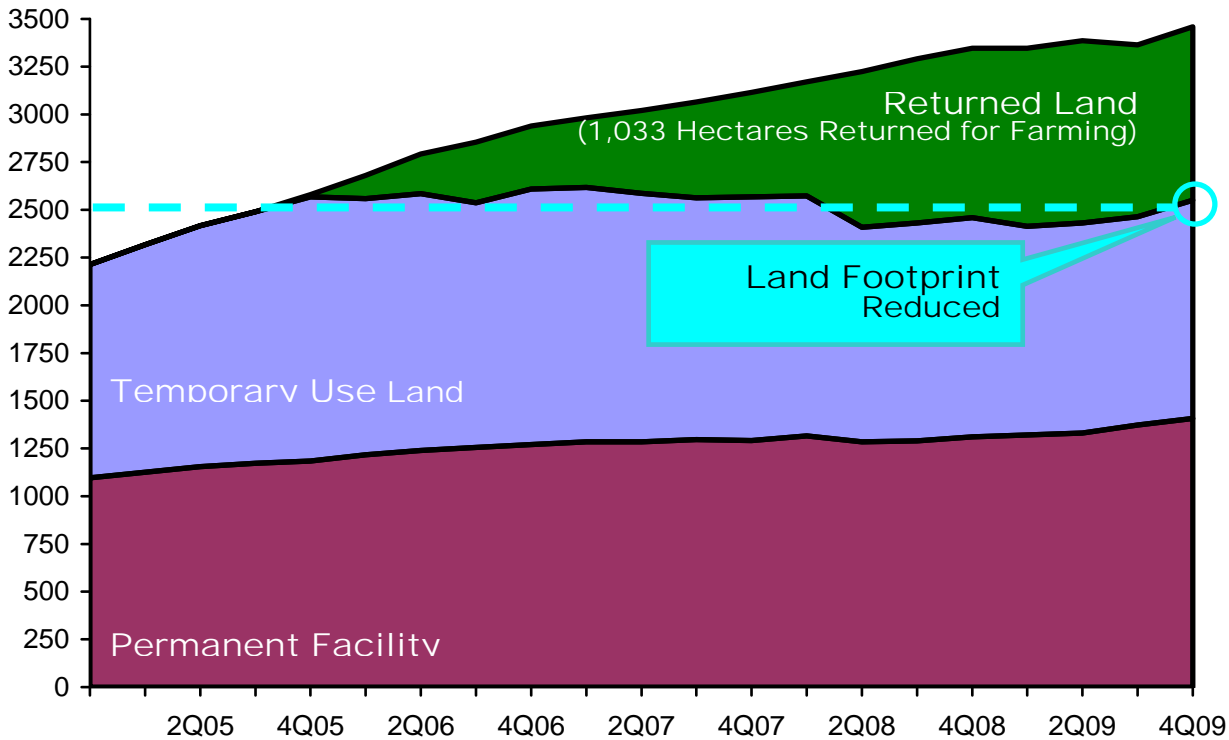


Land Use Impact Reduction (Action Area 2)

In order to minimize the project’s use of land — to reduce the project’s footprint — construction teams and engineers have been working to reduce or reclaim land being utilized by the project so the land can be used for farming.

- The project land footprint has been reduced to 2,550 hectares from a peak of 2,600 hectares three years ago. Since the land reclamation program began, over 1,030 hectares of project-use land has been returned to farmers, more than keeping pace with the additional land required for the expanded number of oil wells.
- An array of land use impact mitigation methods are being employed, including well pad size reduction, merging well pads, deviated drilling, well stimulations and block-by-block well development.

◀ Managing the Project’s Total Land Footprint



The project’s land reclamation effort has reduced the total land occupied by the project to 2,550 hectares, down from a peak of about 2,600 hectares three years ago. The ongoing reduction in overall land use was achieved at the same time that dozens of oil wells were being added in order to maintain production levels. So far, land reclamation efforts have returned 1,033 hectares of land to farming.

## Ongoing Land Return



For each of the ten villages in the Oilfield Development Area, a site specific plan has been developed for land use mitigation. For example, at Bela village, the site specific plan includes the reclamation of a large borrow pit. These farmers from the village (top) moved quickly after the return of the land to plant their crop of grain. Here, at the harvest, they indicated the first crop was a good one.

Philemon Djikolmbaye (right), farmer, Bela village: *“This is the first crop for us since the land return. The compensation was in 2008 and the return was in one year, this year. On this land we are standing on you can see the crop has been very good. Some of the borrow pit is low and it collects water and we had much rain this year which affected some of the land. We are all from Bela village and we work together on the harvest, going from field to field.”*



Potential for Creating New Farm Land: Building on Tradition



In many locations along the rivers in southern Chad, including in the Oilfield Development Area, people grow rice (top). As in these photos from the area near Kagarouye village, they rely on annual rains that flood the low lying and often swampy areas (bottom) near the river. In late 2009, evaluation continued for a potential pilot project to create new farm land for growing rice, a new stock of land that would be available to farmers whose land has been used by the oil development project.

Potential for Creating New Farm Land: Consultant Visits & Testing



To evaluate the potential for creating new land in riverine locations, the project has commissioned a consultation from the Africa Rice Center (formerly the West Africa Rice Development Association). Their experts on rain fed rice growing visited the area late in the year (left, above). In addition to interviewing area residents and inspecting existing rice growing practices, the consultants conducted soil testing (right, above) to observe such factors as the depth of the water table and the clay content of the soil. The consultants have indicated that all the areas they visited would be very good for growing rice. The project is now evaluating whether to proceed with a pilot project of dike building that will test the concept. The consultants are recommending that a training program also be implemented to help the existing and new rice farmers make the most of the expanded rice growing opportunity.



Celestin Nanhoutangar (above), rice farmer, Kagarouye village: *“In this area we have always grown rice, for many generations. We met with the people who came here to study the new land project, and we hope this will go ahead. You can see how much land we have, but it is too low, and we do not have the ability to clear such a big area. They talked about making dikes along the river to create new land. If this is done, the farming here will be very good.”*

### Resettlement (Action Area 3)

The Action Plan sets an overarching goal of livelihood restoration for households and communities most affected by the project’s land needs. Action Area 3 on the plan calls for the creation and implementation of site specific plans to accomplish this goal, building on the existing Environmental Management Plan compensation and resettlement principles.

- Site specific plans have been developed for nine of the ten Oilfield Development Area villages and implementation is either underway or completed in each case.
- In addition to village level mitigation, a program of household-by-household reinforcement for previous Off Farm Training and Improved Agriculture Training has been implemented as described in the following Action Areas 4 and 5.

### Off Farm & Improved Agriculture Technique Training (Action Areas 4 & 5)

These two training options offer alternatives to physical resettlement of households and their farms. Although the farmers are compensated for the land needed by the project, their farms have been reduced in size. The programs are designed to help them sustain their farm livelihoods over the long term. Action areas 4 and 5 of the plan provide for improvements in implementation.

- Additional off farm training is not being offered in the Oilfield Development Area. Studies show that the market area has been saturated with new businesses created during the first years of the program. However, the off farm training is being offered in the satellite field villages such as Moundouli.
- Reinforcement training has been offered to households that have not been completely successful after their initial training. As shown in the following table, follow up assessments indicate that 122 of the 139 land holders that took the training have restored their livelihoods, an 88% success rate.

◀ 2009 Reinforcement Training Success Rate

| Type of Training       | Number of Participants | Livelihood Restored |
|------------------------|------------------------|---------------------|
| Vegetable Gardening    | 31                     | 27                  |
| Crafts/ Local Products | 14                     | 14                  |
| Animal Husbandry       | 73                     | 60                  |
| Agroforestry           | 11                     | 11                  |
| Fishing                | 5                      | 5                   |
| Rice Cultivation       | 5                      | 5                   |
| <b>Total</b>           | <b>139</b>             | <b>122</b>          |
| <b>Success Rate</b>    |                        | <b>88%</b>          |

Using the red-flag system from the house-to-house census, the project has identified households that need extra help beyond the compensation they received when oilfield development first required some of their land. For compensation, many of the households chose off farm training in a trade that would supplement their farm income. Others chose improved agriculture training to maintain their livelihood through techniques for improved land productivity. However, for a variety of reasons, not every trainee has been capable of maximizing this opportunity. For them, the project has been offering reinforcement training. The reinforcement has been working, achieving an 88% success rate among those who participated in the training in 2009.

## Business Literacy Training: Adult Education in an Outdoor Classroom



In addition to direct reinforcement training in a trade or improved agriculture, the project offers another kind of supplemental help to assist with livelihood restoration. Business literacy training helps small business people to learn or improve basic skills in math, bookkeeping, marketing and inventory management. This teacher (above) uses a chalk illustration to illustrate a reading lesson. Knowing these things helps the business person hold on to more of the money they make and to invest funds in growing their business.

Gatingar Toudjiamlaou (right), shop owner: *“The most important thing I learned from the course was to better manage my store. I learned to keep records of my sales, and from this information I now know how to plan my stock so I have enough for my customers but not too much. It also helps me know how much to save for future stock when I know the business will be coming, as for holidays. We also apply these lessons to family money management, and that has helped us live better.”*



Jude Ngarndingamé (left), butcher, Begada village: *“In the business literacy course I learned the alphabet, how to write and read Ngambye. I also learned about management of my butcher business. With this knowledge I make more money because I know better how to market and manage my money, how to keep back some money for my business to build it for the future.”*

Individual Compensation (Action Area 6)

The Action Plan calls for an update to the project Land Management Manual, which is an implementing document for compensation set out in the Environmental Management Plan. Work in this action area was completed in 2008.

Community Compensation (Action Area 7)

Community compensation provides mitigation for project impacts at the village level in the form of development projects to be chosen by the village, such as school improvements, water wells and income generating development projects.

In all of the villages, a comprehensive consultation process has been developed to help the communities choose their projects. The participatory rural assessment technique employs NGO facilitators to guide the process through as many as ten village meetings. All but three of the villages have chosen their projects and all the selected projects have been completed or are in progress.

- In the Oilfield Development Area, communities are being provided supplemental community compensation in addition to the compensation received during initial oilfield development. A total of 15 supplemental community compensation projects have been established for the 15 distinct communities in the ten Oilfield Development Area villages.
- In the Nya and Moundouli satellite field communities, a total of 20 villages are being provided their initial community compensation following development of the oilfields in their area.
  - ◀ Progress on Community & Supplemental Compensation Projects  
A total of 35 communities are receiving community compensation of supplemental compensation. Some communities chose two smaller projects rather than one big project. Thus, a total of 43 projects have been chosen.

| <b>Type of Project</b>         | <b>Complete</b> | <b>In Progress</b> |
|--------------------------------|-----------------|--------------------|
| Community Granary              | 2               | 0                  |
| Community Hall                 | 2               | 2                  |
| Corn Farming                   | 1               | 0                  |
| Flour Mills                    | 3               | 3                  |
| Schools: Three Room            | 2               | 1                  |
| Schools: One Room              | 5               | 2                  |
| Schools: Houses for Directors  | 3               | 2                  |
| Schools: Replacement furniture | 3               | 0                  |
| Water Wells                    | 12              | 0                  |
| <b>Total</b>                   | <b>33</b>       | <b>10</b>          |

- In addition to the community compensation programs, more than 40,000 mango and acacia tree saplings were distributed in 2009 to households in the 15 communities of the ten Oilfield Development Area villages. Educational campaigns in each community helped villagers understand how to plant and care for their trees.

### Consultation and Communication (Action Area 8)

Public consultation forms the core of the Land Use Mitigation Action Plan.

- As described above, a new collaborative consultation process has been effective in helping communities select their community compensation development projects.
- This Project Update Report is the eighth edition with detailed information on the project's land use mitigation work since the initial identification of the land issue. The reports are posted on the [www.essochad.com](http://www.essochad.com) website. They are also widely distributed in print to stakeholders and NGOs.
- Land Use Mitigation Action Plan detailed reports on livelihood restoration for households and villages (as described in Action Area 9) have also been posted on the project website at [www.essochad.com](http://www.essochad.com).

**Monitoring & Organization (Action Area 9):** To help track progress of the Action Plan implementation, several monitoring tools have been created.

- Quarterly reports on the status of villages to the environmental staff of the International Finance Corporation.
- Annual reports to the International Finance Corporation environmental staff on the status of individual households.
- Site specific mitigation plans for each of the most affected villages.
- The previously described household-to-household surveys and other mapping and socioeconomic monitoring tools. These surveys:
  - Monitor the livelihood restoration and maintenance progress of households which have opted for off farm training or improved agriculture training.
  - Identify each individual household affected by new land needs in the land user database and analyze the potential impact of reduced land for farming.
  - Aid in the design of the village-by-village site specific mitigation plans for livelihood restoration and maintenance.

Context:  
Background on  
Land Use &  
Compensation

History of EMP Compensation Programs

All land users and villages have been compensated according to the Environmental Management Plan that was approved prior to project construction.

Since construction began in 2000, the project has compensated nearly 12,900 individual land users for more than 7,000 hectares of land in 375 villages along the entire length of the project from the oilfields in Komé, Chad, to the terminus of the export pipeline at Kribi, Cameroon.

In the Oilfield Development Area, individual land user compensation has been paid for more than 3,800 hectares of land involving just over 4,400 individuals. The project has thus utilized at one time or another about 3% of the 100,000 hectares of land in the Oilfield Development Area. When all temporary construction use land has been returned, the percentage of use will be just over 1% of the 100,000 hectares.

The project's compliance with the EMP compensation requirements has been documented in these Project Update Reports and by the External Compliance Monitoring group and the International Advisory Group. (For statistics on the latest compensation for land use, see the section on *Compensation*.) A set of principles set out in the EMP have guided the compensation effort, including:

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

History of the Land Use Mitigation Action Plan

As the three original oilfields were being developed, and results began coming in from the completed wells, it became clear that more wells would be necessary to develop the Doba region oil. This additional drilling, and the infrastructure needed to collect the oil and to supply electricity to the wells, was consuming more land than originally anticipated.

- The project's efforts to address this land use situation began in mid-2005, when it declared a Level II Noncompliance Situation regarding the pace of

reclamation and return to communities of temporary use land as specified in the EMP.

- In early 2006, the project freed the necessary construction resources to begin clearing the land reclamation backlog so that the land could be returned to villages for agricultural use.
- In June, 2006, the authors of the *Chad Resettlement and Compensation Plan Evaluation Study* (Drs. Robert Barclay and George Koppert, 2006) collected field data for an independent study jointly commissioned by the project and the International Finance Corporation.
- By the end of 2006, based on the study, the project had developed an initial mitigation action plan and had begun implementing it.
- The final Land Use Mitigation Action Plan, adopted in April 2007, enhanced the initial plan through collaboration with the Environment and Social Development Department of the International Finance Corporation. For the full text of the finalized Action Plan and associated documents, see the project website at [www.esso Chad.com](http://www.esso Chad.com).
- By early 2008, a team of experts assigned to implement the Land Use Mitigation Action Plan had completed all of the first year work commitments outlined in the plan. Ongoing work to restore livelihoods has been organized around the same nine action areas of work categories in the original plan.