

## Land Use in the Oilfield Development Area

The project has launched a new phase of improvement for its land use mitigation work in the Oilfield Development Area. With enhanced land use impact assessment tools – in-depth socioeconomic studies and sophisticated computer database software – the project will be able to respond more flexibly and quickly to the constantly evolving circumstances of individual farm households in the oilfields area.

### Land Use Impact Assessment Tools

Over the last six years, the project's Land Use Mitigation Action Plan (LUMAP) has built a strong system for data-based land use impact assessment, a system once described as state of the art by the World Bank's External Compliance Monitoring Group.

To assess and respond to land use impact, socioeconomic specialists collect detailed information on affected households (left). The socioeconomic information is fed into a database that displays the information on precision land use maps for study and action (right).



This combination of field socioeconomic studies and sophisticated computer technology helps the project measure, track and predict land use impacts on households and villages as the project continues to develop Chad's oil resources.

- Farmers affected by project land use are accurately identified and compensated.
- Farmers receive livelihood restoration assistance if their household livelihood capacity drops below standards set in the Environmental Management Plan.
- Overall impacts on each community are assessed by aggregating the impacts on individual land users using computer generated maps for analysis.

### Step-by-Step Improvements

The new phase of improvement in the project's land use impact assessment tools builds on years of refinement work by the project's socioeconomic team.

Years of Evolution

**Pre-LUMAP:** During the project's initial land use acquisition, beginning in 1997 and up through the construction phase, a database was maintained of all compensation cases. However, determination of eligibility for resettlement compensation benefits was based almost entirely on declarative information. The project relied on farmer claims about the number of people in a household and did not yet conduct household socioeconomic studies. As improved land use impact assessment tools later revealed, during this period many households received resettlement compensation even though their farm livelihoods didn't qualify them for that compensation according to the Environmental Management Plan guidelines (see below).

**Village Land Use Surveys:** The Land Use Mitigation Action Plan was developed and launched. The project began conducting house-to-house socioeconomic surveys of every household in all 16 of the most affected villages within the oilfield area. These village surveys included households and their farm fields even if they had not been directly affected by the project. The census provided important baseline data for measuring household and community land use patterns. It stands as one of the most extensive and detailed census surveys ever conducted for a development project in Africa. Socioeconomic information was merged onto a map-based database system to help examine trends and overall effects of project land use in villages.

**Affected Household Surveys:** With benchmark data in place, the project began focusing its socioeconomic studies on the households that had been directly affected by project land use. Data was gathered on households that had received compensation or qualified for livelihood restoration through one of the resettlement program options. Refinements in the interview and survey methodology gave the project a clearer picture than was possible before, verifying land use and double-checking for conflicting claims, focusing project resources more efficiently towards affected households. The map database was significantly enhanced using satellite imagery and ongoing GPS-based precision ground verification of field boundaries.

*In total, the project has now done in-depth socioeconomic studies on more than 3,200 households, including over 14,500 people. In that process, more than 30,200 farm fields have been precisely surveyed using GPS technology.*

Today's New Tools

**Dynamic Real-Time Data:** Enhanced socioeconomic studies and software will allow a dynamic, real-time approach to land use decisions and implementing livelihood restoration. Whenever the project returns or acquires land, all the affected households are resurveyed with an extensive socioeconomic interview process. The resurveys take place within a few weeks and capture any changes that might affect a household's livelihood since the last survey. The number of children supported by the household might have increased. The household might have developed a new income producing business or its total landholdings might have been increased by marriage or reduced by project land use. Follow up

socioeconomic surveys are then conducted to verify that livelihood maintenance strategies are working for households that qualified for resettlement options.

#### Results of Improved Land Use Impact Assessments

Performance Improved The rich new information from improved land use impact assessments has helped the project fine-tune its land use mitigation efforts.

- Better understanding of the constantly changing socioeconomic circumstances at the household level helps the project take all relevant factors into account when making decisions about land use and livelihood maintenance.
- The volume of data also provides valuable insight into socioeconomic trends at the community level such as population growth rate, death rate, birth rate, divorce rate, land rotation and population density.
- The resurvey process, supported by the map-driven database software, significantly improves the accuracy and speed of delivery of livelihood maintenance for households qualifying for resettlement compensation.
- Over the long haul, the data trends will help predict household and community impacts of the project's land use so adjustments can be made if necessary.

Insights Gained These improvements have produced important insights into the real world socioeconomic conditions in the Oilfield Development Area.

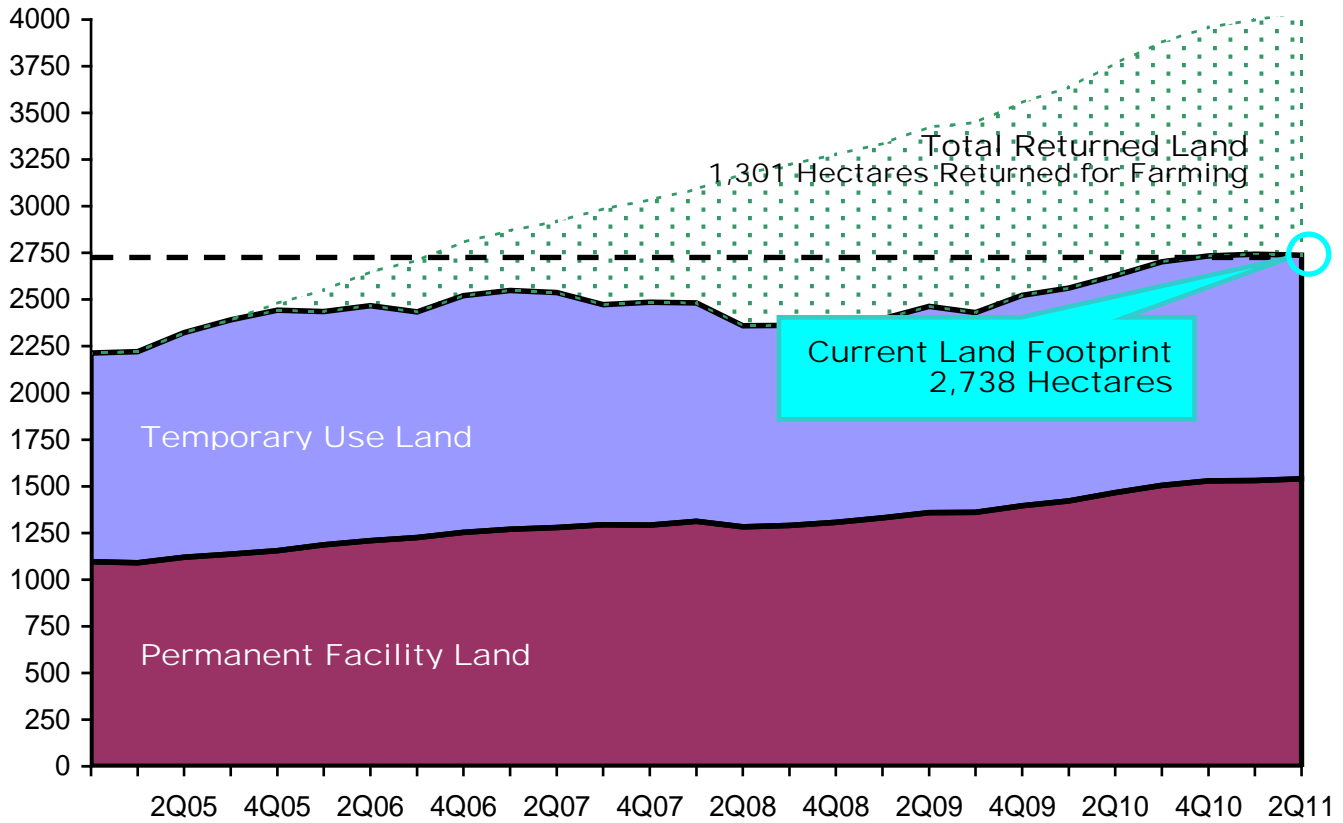
- The house-to-house surveys revealed that the project had initially greatly overestimated its impact on farm livelihoods in the OFDA. The new information shows that across the OFDA, less than one-third of households receiving resettlement options compensation actually qualified for livelihood protection under the Environmental Management Plan.
- Conversely, some households that initially appeared to have solid livelihoods were found to have actually been at risk. For example, a farmer may have had less land or a larger family than originally believed, thus qualifying the household for resettlement option benefits and livelihood maintenance.
- Early livelihood assessment techniques didn't take into account socioeconomic factors that affected resettlement compensation eligibility. For example, it was discovered that many individuals are not strictly farmers, but actually rely on multiple traditional income sources for their livelihoods – a significant factor when assessing the impact of the project.
- Many households in the OFDA actually had access to significantly more land than was originally apparent to the project for a number of reasons, including land acquisition through marriages and other family dynamics.

Improved Land Use Impact Assessments: Two Case Studies

Based on information in the project’s Land Use Impact Assessment tools, this case study table tracks the changing livelihood circumstances of two real households in Mbanga village, both affected by the oilfield development. (Their names have been withheld for privacy reasons.)

<b>Phase</b>	<b>Mbanga Farmer #1</b>	<b>Mbanga Farmer #2</b>
<b>Pre-LUMAP</b>	<p>This farmer was believed to be severely impacted based upon early data collected through the project’s pre-LUMAP assessment techniques and reliance on declarative information.</p> <p><b><i>The project provided the farmer with resettlement compensation, including livelihood maintenance training.</i></b></p>	<p>The pre-LUMAP data, relying on declarative information, showed this farmer to have enough land to be above the minimum threshold required for resettlement compensation.</p> <p><b><i>The project did not provide resettlement compensation to the farmer at this time.</i></b></p>
<b>Village Land Use Surveys</b>	<p>This more complete survey process revealed that the farmer had much more land than previously understood and did not technically qualify for resettlement compensation.</p> <p><b><i>The project judged the farmer as no longer at risk following training.</i></b></p>	<p>The house-to-house surveys discovered that the farmer had married and had a child, which brought him much closer to qualifying for compensation.</p> <p><b><i>The project classified the household as marginal and maintained it on a watch list.</i></b></p>
<b>Affected Household Surveys</b>	<p>More extensive socioeconomic study surveys revealed that the farmer was not solely dependent upon farming, but had additional sources of household income. Satellite imaging was able to further refine the exact amount of land used by the household.</p> <p><b><i>Based on the new data, the project confirmed the farmer as no longer at risk.</i></b></p>	<p>Satellite and GPS technology verified the farmer’s land with more accuracy. No change in his status was detected.</p> <p><b><i>The project kept the household on the marginal status watch list.</i></b></p>
<b>Dynamic Real-Time Data</b>	<p>The project acquired more of the farmer’s land in 2010. This land take qualified the farmer for resettlement compensation for the first time. However, in 2011, the project returned land – enough to move the household above the minimum qualification threshold.</p> <p><b><i>After the land return, the project re-evaluated the farmer’s status and the farmer was found to no longer be at risk.</i></b></p>	<p>The project acquired more of the farmer’s land which triggered a resurvey of the farmer’s socioeconomic situation. During the survey, it was learned that another child had been added to the household. The farmer thus qualified for resettlement compensation.</p> <p><b><i>The project provided resettlement benefits based on the new information from the enhanced land use assessment tools.</i></b></p>

Land Reclamation & Return: Holding Steady on the Total Land Use Footprint  
 Using an array of land reclamation techniques, the project has limited its total land use in the Oilfield Development Area to roughly the same level for the last six years, since the Land Use Management Action Plan began. Although the continuing program of drilling to fully develop Chad's oil resource has required acquisition of additional land in each of those years, the project has aggressively been working to reclaim and return unneeded land to farmers to keep pace with the new land requirements.



As this graph shows, the total project land footprint in the six oilfields of the Oilfield Development Area has been kept to 2,738 hectares. The project's land reclamation and return initiatives have stayed even with the land requirements of the extra drilling by returning a total of over 1,301 hectares of project-use land to farmers since the land reclamation program began.

### Land Reclamation & Return: Compost to Improve Reclaimed Ground

An innovative new composting program has been helping the project perform high quality land reclamation in the oilfield area. A team of women (below) has been hired by the composting subcontractor and equipped with red bucket compost spreaders to help with the work. The project, one of the few large-scale composting operations in Chad, produces the compost from the project's kitchen scraps, wood and other waste. To learn more about the project's composting program, please see the chapter on *EMP Management and Monitoring*.



Spreading compost on this reclaimed oil wellpad land is a final step before returning it to the village and the farmers who originally used the land before the wellpad construction.



Mbáihikadjinang Zacharie, farmer, Mbanga 2 Village: *"I am really happy to get this land back, and having the compost is a good thing. I will grow food crops – sorghum, okra, and beans. It's no problem for me to farm near this oil well, and it is good to have the land back. Along with my other fields, this will make it easier to feed my two wives and six children."*

### Land Reclamation & Return: Improved Land Return Process

The project has for some time utilized a formal land return process called a quitus ceremony to put land back in the hands of a village after it has been reclaimed. The continuous improvements developed through the LUMAP returns the land sooner and ensures that previous land users are notified of the return. During the return, a project socioeconomic team goes to the field and meets with the farmers and their chiefs. They verify the field locations from maps made during the original compensation (left) and check the quality of the soil reclamation (right) before the chief signs for the return. Beginning with the land returned in 2010, the project socioeconomic team is now surveying use of the returned land and determining who is farming the land.



Madjitonou Moal, farmer, Mbanga 1 village: *“The land looks very good. I know I can get a good crop this year. I will plant a fast-growing type of sorghum, so I can harvest it before the cows and pigs can get to it. I will also plant okra, a sauce herb and beans. Most of the food will help feed my family, but I will also sell some of it to earn money to buy salt, soap, and oil. It’s a good thing that I was paid for my land, and now I have it back to grow on again. I expect to have a good crop because the land was treated well before being returned to me.”*



Ngadeur Amond, Chief, Mbanga 2 Village, signing the quitus agreement (below) to accept back the reclaimed land: *“We have participated in the quitus ceremony many times before and we are very happy to be able to use this plot of land for farming again. The farmers are also happy and looking forward to getting a good harvest this year. With all of the soil work that has been done, the farmers have what they need. Because they are happy, as the chief, I can confirm that this is a good thing for the village.”*



### Community Compensation: A Fast Track for a New Masonry School

Below, a headmaster and his schoolchildren eagerly tour their new village school (below), as finishing touches are being completed – just in time for the new school year. The school was made possible through the project’s community compensation program, which, in addition to direct individual farm land use compensation, provides impacted villages in the project area with development projects to make up for diffuse and hard to quantify indirect impacts.

In this case, the village of Maikeri chose their school project using a new rapid-turnaround community consultation approach, replacing the old multi-step community decision process that often took many months. Right from the beginning, the people of Maikeri knew they wanted to replace their old thatched school, so the fast track consultation process dramatically reduced the development time while still making sure that the affected community reached a consensus decision.



Djikoldingam Elysee, school principal (center of group), Maikeri village: *“There are 297 students from this village who attend this school. We used to have to squeeze them in to the uncomfortable old school – five to a bench. The new school will not only resolve the issues of basic comfort and space, but will also hold the children’s attention and reduce the distractions which make it difficult to learn. Now, we will have tables, benches and areas to circulate and move around – overall, a much better environment for children to learn in.”*

**Community Compensation: The Fast Track Replaced a Flimsy Thatched School**  
The people of Maikeri say their new masonry school will be much better for education and they won't need to rebuild their old thatch school rooms each year when Chad's rainy season blows them down.



Mbainamom Caleb, 17-year old student, Maikeri village, looking at his old thatched school: *“I am going to a regional school next year, but if I had one more year here, I wish I could have gone to this new school. The old thatch school was very hot, and we had no desks or proper chairs and we had to sit on horizontal poles. Also, because of the rainy season, we usually could not finish the school year because the wind and rain always blew the classrooms down. I am happy that my little brothers and sisters will be able to attend this new school.”*



Bouyo July, mother of 6, Maikeri village: *“As the mother of six children who are in school, I am very happy about the new building. In the old school, it was very hard to learn, even under the best weather conditions, and when rainy season came, it ended most of our school years early. This sturdy and well-built school will give our children the security and comfort that they need to learn. I hope that with the education my children receive, they can make a positive difference in the development of our village.”*



Richard Koumatoloum, Chief, Maikeri village: *“The school brings smartness, education for our children. Without this school, we would be like a dead village. This new school will help our village be more alive. As chief, I can say that in five years, we will be a much stronger village because of the new school. The community compensation has been excellent for my village.”*

