

Let There Be Light!

Primary School Electrification with Jatropha Curcas Oil
Kadelso, North Kintampo, Ghana
Occidental College

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Section I:

Project Goals: Our goal was to assist the population of Kadelso in sustainably powering the local school with jatropha bio fuel, as well as to build enough capacity so that the village will be able to independently generate sustainable electricity and employment opportunities for its population. This establishes a self-sustained energy system, which will hopefully inspire neighbor villages and villages in other countries to follow the example of Kadelso.

Project Details: The implementation of our project preceded a four month long preparation phase, in which we contacted machine sellers in Ghana, designed the workshops, organized logistics and discussed the work relationship with Jatropha Africa. In June, one month before our departure, we learned that the company's head was going to leave to take on a different job, which meant that Jatropha Africa would now only provide three hectares of jatropha but not be available for additional support. While we would have to implement the whole project on our own, find a translator and have no help in getting around in Northern rural Ghana, a region completely unknown to us, we were fully up to the challenge.

Upon arriving in Accra, we visited several oil expeller and generator sellers with the great help of a local technician, Mr. Justice Dodze, who was recommended to us by Jatropha Africa's former head. Mr. Dodze was going to make modifications to the diesel generator so that it could run with jatropha oil, which the generator seller deemed impossible but stirred his curiosity. If our project was going to work, he assured, he would like to open a company with us. Full of additional motivation, we left the machine in Accra with the technician and drove to Kadelso in the North of Ghana with our hired translator Dominic to start our work on the ground.

Kadelso is a small village of around 700 inhabitants in the middle of North Kintampo district. The main North-South road runs directly through Kadelso, creating a market-like atmosphere with village women selling plantain and yam (sweet potatoes) on the side of the road. A group of chiefs and elders govern the village, with whom we had to meet for their approval of and assistance for our project. Sitting in the chief's hut and presenting our plans was a powerful first encounter with the friendly and welcoming Ghanaian culture but also symbolic of the great work relationship with the village that was waiting ahead of us.

On the same afternoon, we employed a Kadelsian electrician, carpenter, mason, and five men to help with the structure and lay the cables to the school. Building a structure in a rural area was one of the most challenging yet satisfying aspects of the project. For a whole week, we took old taxis to the most remote and smallest warehouses along the road to pick up pipes or cement and transporting them back. The innovative approach of the local people in modifying pipes etc. to our needs with the limited tools available was both impressive and inspiring. It also highlighted the country's entrepreneurial spirit that is paramount for development and a bright future of the Ghanaian North.

At the same time, we set up meetings with the headmaster and teachers to discuss the workshops and surveys with the school and villagers. Teaching the community on *why* we power the school with jatropha and its benefits was pivotal to our mission; only the whole village's understanding would trigger their enthusiasm and long-term engagement necessary for a sustainable success. While the villagers were open but rather passive during our first workshop, they soon warmed up to us and joined to watch the construction of the structure and the machine installation, offering a helping hand and getting water for the cement. We also got the chance for very personal conversations while collecting and opening jatropha seeds with young adults. One of them shared that the current high inflation hindered him to drive to Tamale for his work since Diesel prices had been dramatically increasing. As a response to his problem, we bore the idea of jatropha run motorbikes, which we are currently discussing with our technician.

Jatropha Africa had planted three hectares of jatropha close to Kadelso six months before our arrival. Kadelsian farmers had been cultivating the plant, which made the formation of a Village Energy Committee (VEC) an easy task. The elected leader Idi, an influential and very smart man, was of the most help to us and we are confident that he will be able to coordinate and maintain the energy system. Idi also invited us to his house and the many afternoons with self-brewed tea and political conversations on Ghana broke down any language or cultural barriers.

When the machines finally arrived from Mr. Dodze in Accra, we were happy that the generator seller had been proven wrong and that the machines were working perfectly. Seeing the light bulb shine in the first class room that we tested was an incredibly rewarding feeling; the past six months of intense preparation had fully paid off. Upon hearing of the working light, a delegation of elders visited the school where we presented the machines and the work we had done with the villagers. While our budget had been only sufficient to power the school, the chiefs surprised us with news: Impressed with our fast success, they would raise funds with the villagers for pipes and cables to the health center and nearby houses that would also be powered by jatropha.

We therefore accomplished our main project goals: In the short term, we provided electricity to the school in Kadelso, created employment, established structured committees to overview the jatropha process and switched from dangerous energy sources to a CO2 neutral energy source. In the long run, the project will enable long-term education, which leads out of poverty and crime and towards opportunities for a stable life; raise a generation that is aware of sustainable energy use; and provide independence and self governance to a rural area in Ghana. We are currently discussing with the technician and the generator seller to open a business in Accra and expand our project. This would inspire neighboring communities to use jatropha, thus contributing to a broader use of renewable energy in Africa and fighting against conflict that is caused by environmental pollution and climate change; gender equality that leads to economic growth; and raise families' awareness for sustainable energy use.

Section II:

The two most pressing issues of the 21st century are global poverty and climate change. Both fundamentally jeopardize global peace, which we in view of our project characterize as being in harmony with your community free from poverty, as well as with the environment. Our project contributed to reaching this peace on two fronts: First, we brought light to a school, which will help students learn in a safe and welcoming environment leading them to better jobs and out of poverty. Second, by using jatropha as a renewable energy source, we contributed to the emerging global effort of halting climate change and conflicts over oil that have resulted from that change.

Faced with issues like global warming that have grown from an international to a global threat, we learned that we cannot anymore focus on only one problem and change it on its own; poverty and the destruction of the environment are closely intertwined and need projects that tackle such issues at once. Kadelso also taught us to think outside of the box. Used to the technology in the US and Europe, we were stunned by the creativity the Ghanaians used to successfully accomplish their tasks and we take their mindset back to our homes and lives. Finally, we also found life-long friends, an exciting business opportunity, and a deep appreciation for the environment in a place where humans have not destroyed it yet.

With global poverty and climate change as the two most challenging issues of the 21st century, I learned that the smallest light bulb powered by renewable energy in a school room is the most powerful symbol of peace for our generation: It does not only lend light to our children to learn, prosper and nourish their families; it also loudly welcomes a future in peace with the earth and its resources that we are here for to preserve and worship every single day. (Christina Seyfried)

We hope that through attending a sustainably run school, students of Kadelso will help Western Africa become a trendsetter for the rest of the world as we are entering a new age of sustainability. (Stephane Kattie)

