

# A story of improving cooking stoves in a Dogon village, Mali, West Africa

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The meeting had lasted for some time. The representatives from the invited NGO had spoken and explained the reasons behind their presence, and the village chief had gone through his formal invitation and had given his blessings. But not a single woman for whom the meeting was organised in the first place had uttered a word. It was finally asked, "Is any woman going to talk?"

The meeting was in the Dogon village of Beignematou. It is a small village of 350 inhabitants situated on the edge of the "Cliffs of Bandiagara", a World Heritage Site in the West African republic of Mali. Also known as the "Land of the Dogons" this region lies south of the Sahara Desert, in a semi-arid region called the Sahel, where the sands of the Sahara is never very far away.

The meeting had been organised as part of a project that had originally started in 2002 as a participative school project which included the designing and building of the village school. However, in 2005, it was broadened to cover wider environmental aspects as the project implementers realised that the major livelihood threats were insistent desertification, environmental degradation, poverty, malnutrition and migration, amongst others.

One idea to compensate for the wood used in the construction of the school was to encourage villagers to plant saplings of the affected species. The villagers, however, did not think those

species would be able to grow, so it was agreed to either abandon the tree planting idea or look for a new approach. Research carried out by the Woodless Construction Project in Niger showed that building activity in the Sahel was responsible for 7% of destruction of the vegetal cover. A major part of this destruction was a result of firewood needs for domestic cooking, so the idea of an Improved Cooking Stoves programme was suggested.

Women in Beignematou cooked on traditional three stone fires, which coupled with strong winds, meant that cooking used a lot of firewood. With prolonged famines and greater human and domestic animal pressure, firewood was becoming exceedingly difficult for the women to find (Figure 1 & 2).

Commercial cooking requirements were also assessed; local restaurants in Bandiagara (equivalent of the district headquarters) used improved cooking stoves made of metal sheet that could be used for both wood and charcoal. The stove also recuperated the charcoal formed during the firewood burning. Fabricated by the local metal workers, the design had been integrated into the local economy.

However, this was not a feasible option for the village of Beignematou, 40 km of rough roads (suitable only for all terrain vehicles) away from Bandiagara. Further inquiries led to the office of a local NGO, "Ya G Tu". They had prototypes of simple earthen stoves in

their office courtyard. Ya G Tu, a woman-centred group, carried out demonstration and training programmes in improved cooking stoves in remote villages. And were keen to discuss a possible intervention with Beignematou village.

A village meeting with Ya G Tu was organised. All the women and several men of the village attended. This was the first time that the women of Beignematou had participated in a meeting with an outside NGO. Naturally, they were hesitant and therefore had not spoken a word. Dicoré, from Ya G Tu was aware of this fact and took a gentle approach knowing that patience was key. Soon the older women started to participate and by the end of the meeting everyone was interested and co-operating in the Improved Cooking Stoves project. Six women, two each from the three areas that make up Beignematou were chosen for training (Figure 11).

The demonstration started with the stove mixture consisting of:

- Three head loads of clay soil, the same as used for making adobe bricks
- One head load of donkey dung
- One head load of millet chaff
- Three buckets of water.

The ingredients were mixed thoroughly, covered for protection from the sun and watered daily. The mix would be ready in a week's time (Figure 3).

The Ya G Tu team returned in a week's time for the fabrication of the stove, assisted by the chosen group of six women. All interested households had to prepare the stove mixture for fabrication for the improved stoves before the next visit.

Three representatives from Ya G Tu arrived at the fixed date. Assisted by the group of six women and a few young men they fabricated stoves for 19 households out of the total of 37 households over a period of two days (Figures 4 to 9). The following observations were made:



Figure 1 Women spend long hours searching for firewood and then walk long distances in an arid environment to reach their villages. (photo: Peeyush Sekhsaria)



Figure 2 Urban areas continue to depend on firewood and wood based charcoal for cooking needs, putting immense pressure on already stressed rural environments. A firewood depot in the capital, Bamako. (photo: Peeyush Sekhsaria)



Figure 3 After one week the mix is ready to be used for the fabrication of the stove. (photo: Peeyush Sekhsaria)



Figure 4 Each stove is custom made. Measurements of the vessel are taken based on the diameter of the cooking vessel. (photo: Peeyush Sekhsaria)



Figure 5 The vessel is placed on three stones, now organised as per the vessel measurements and the stove fabrication begins. (photo: Peeyush Sekhsaria)

- Many people were waiting to see the outcomes out of this project before involving themselves.
- Good soil was only available at a distance and fairly large amounts were needed. This made the task of transport difficult for women.
- As the quantities of mix prepared had been small, stoves for smaller size vessels<sup>1</sup> had been fabricated.
- People were very keen that the project continued.

Ya G Tu also evaluated the impact of the stoves fabricated in the first phase.

In the second phase, a team of two young men from the village were to organise the supply of earth with the help of donkeys and also assist the women in stove fabrication. The objective was to replace all stoves in the village with Improved Cooking stoves.

The result was that the village team fabricated stoves for the rest of the 18 households bringing the total stoves to 48, spread over 37 households.

In their evaluation concerning the first 19 beneficiary households Ya G Tu noted, "With the improved stoves, 1 fagot<sup>2</sup> of firewood that was previously used for 1 day is now used for 3 days."

The women had become more proactive, asking for meetings, participating and actively discussing issues and ideas.

One interesting fact was that now all households had improved stoves, but one of the commercial ventures in the village is the making of millet beer and millet beer making stoves still remained in 18 households. Millet beer is an important source of income to the women, being sold in the village and the neighbouring villages during weekly markets. Millet beer preparation used the largest vessels and consumed large quantities of firewood. The fabrication of Improved Stoves for millet beer making was, due to their large sizes, considered more difficult. However due to the success of the household Improved Cooking Stoves, the village team was confident and enthusiastic. The village successfully fabricated improved stoves for all the eighteen millet beer preparing households, without the support of the Ya G Tu team.

Firewood that was used up in two days now lasted 5-7 days. Food cooked faster and the wind was no longer a problem. The stove remained warm long after the fire was put out and was used for heating water.

In one month, after three visits by the representatives of Ya G Tu, the training of 6 women and 2 young men, and the involvement of a small team for transporting the earth, Beignematou villagers were all using Improved Cooking Stoves (Figure 10). Their savings in precious firewood and corresponding hardships were 300 %.

A follow up meeting was called by the six woman trainers, as neighbour-



Figure 6 The stove is hand moulded around the stones and the vessel. The surface is smoothed and a uniform shape is assured. (photo: Peeyush Sekhsaria)



Figure 7 Rotating and lifting it at the same time the embedded cooking vessel is carefully removed. (photo: Peeyush Sekhsaria)

ing villages were asking them about the fabrication of stoves. The trainers wanted to know: "Could they fabricate stoves for others?" They were worried as they had never gone to other villages to fabricate stoves in the past, the people would not pay and importantly who would cook for their family when they were away? All these concerns were discussed as well as ways of overcoming them in such as way as to 'scale-up' the work.

The scaling up of the work has still to be achieved and is proving difficult. In Beignematou itself, new stoves had been fabricated, some of those that have been damaged had been repaired and even replaced, but there needs to be more institutional and financial support for the Beignematou women to be able to go to neighbouring villages and fabricate stoves, although there is a de-



Figure 8 Final touches are given, the inside of the stove is smoothed and cleaned. (photo: Peeyush Sekhsaria)



Figure 9 The opening for firewood is marked in the moist earth. The opening will be removed after a day. (photo: Peeyush Sekhsaria)

mand and need for them to do so.

As Michel, a dynamic father of four children had put it very simply, “Earlier we had never even thought that such an idea exists. For us they are very, very good.”

## Summary

In summary two interesting issues have emerged from this project:

- Although it was a women-centred programme and the NGO ‘Ya G Tu’ had a wide experience in this kind of community work, it was found that the participation of men played a key role in the success of the project. Men can use donkeys to transport large quantities of earth for stove building; women do not use donkeys and have to transport mud in baskets from long distances. Men are used to earthwork as a result of farming and the use of mud in making adobe bricks, mortars and plasters in construction. They are therefore better placed to identify the best earth and their location. The

conclusion was that women and men have different roles to play in the stove making process but both should be involved in a participatory and planned process.

- In terms of knowledge transfer, the social distances seemed to play a more important role than the physical distances. The women of Beignematou were ready to fabricate stoves for villages that were up to four hours walking distance that were related either through marriage or through migration, than in the neighbouring village that belonged to a different clan. This is an important cultural issue that needs to be taken into account when designing ‘scaling up’ programmes.

<sup>1</sup> Vessels of different sizes are used depending on the family size and the specific preparation being made. Most families have two or even three stoves of different sizes depending on the size of the vessel being used.

<sup>2</sup> Two Fagots roughly make up one headload of firewood.

## Profile of the author

*Peeyush Sekhsaria, an Architect – Geographer specialised in Earthen Architecture and Sustainable Development. He has an M. Phil in Geography from the Sorbonne. He is interested in questions of sustainability and participation. He is interested in taking this project to a larger scale in the same region and can be contacted on psekhsaria@yahoo.co.uk*



Figure 10 One of the first stoves being used. (photo: Peeyush Sekhsaria)

*This project was realised as part of a school project with the participation of CRATerre-France, Cultural Mission of Bandiagara, Misereor-Germany, Association Mali Initiatives.*

Anybody at the individual or organisation level can get in touch with Ya-G-Tu, please keep in mind that their English is very limited, but they need all sorts of help to take their programmes forward

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Figure 11 The team of six village women responsible for the Improved Stove Programme in the village. (photo: Peeyush Sekhsaria)