

# **Feasibility of using biochar briquettes as a household fuel by internally displaced populations: assessment in Pulka and Gwoza towns, Nigeria**

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## **Introduction**

Conflict between armed groups has displaced at least 2.5 million people across northeastern Nigeria, affecting traditional livelihoods. In Borno state, MSF currently operates in two towns, or military safe zones, Pulka and Gwoza. Most internally displaced persons (IDPs) cannot afford to buy firewood, so venture outside the safe perimeter to gather it. The need to leave the safe zone may lead to a risk of violent incidents. Biochar briquettes may provide a sustainable and cleaner fuel solution to this problem; briquettes are combustible blocks made of compressed and readily available biomaterials, such as grass or sugarcane peel.

## **Methods**

We aimed to evaluate the feasibility of implementing biochar briquettes in Pulka and Gwoza in two phases. The initial phase included: a) assessing local cooking practices; b) identifying and testing biomass materials; c) designing and prototyping biochar presses; d) setting up workshops to collect feedback from field project staff and over 70 community leaders; e) interacting with MSF staff to assess the intervention. The second phase included: a) a temporary service to distribute free briquettes to IDPs; b) assessing safety perceptions and time-consumption of firewood collection; c) monitoring service adherence; d) engaging with international and national humanitarian actors to mobilize implementation plans.

## **Ethics**

This description and evaluation of an innovation project did not involve human participants or their data; the MSF Ethics Framework for Innovation was used to help identify and mitigate potential harms.

## **Results**

During October 2017, five biochar presses were built and promoted in Pulka and Gwoza. Prototype testing demonstrated that a 20L bucket of raw material was sufficient to produce fuel for one household's cooking needs for one day. Locally produced biochar presses cost approximately \$20 and required in total 5-7 hours to produce. Feedback during demonstration sessions from the community showed that there is interest in using briquettes as an alternative to firewood.

## **Conclusion**

We found that it is feasible to produce fuel using biochar briquette presses in the context of militarised safe zones in two Nigerian towns. Since April 2018, a pilot service has been set up in both towns to produce and distribute free briquettes, reaching over 100 households. Results will be used to advocate externally for the urgent need for alternatives to firewood. Wood-based fuels are expected to be subject to governmental restrictions in the future due to their negative environmental impact. Future evaluation focusing on household air quality and alternative distribution models should be done to explore the suitability of this fuel in other emergency contexts.

## **Conflicts of interest**

None declared.