Introduction
Many countries lack a sustainable supply of wood for fuel because trees that survive the climatic conditions are prematurely cut for firewood. Women spend hours gathering wood to cook with so that the lives of their families are not risked by unsanitary water.

Families produce waste materials that are rich carbon sources that could be pressed into a solid briquette and serve as a fuel source. A hand-press has been designed to make fuel briquettes. The hand-press design utilizes materials available affordably in Africa so that they be built in-country to reduce cost and to promote sustainability by local ownership.

Research Purpose:
To explore and describe household non-transportation fuel sources, fuel uses, concerns and benefits regarding current and new fuel sources in western Cameroon as well as the economic feasibility of selling hand-presses.

Research Questions:
What types of fuels are currently used in a household in western Cameroon for cooking and how are they obtained? Would users be interested in using biomass briquettes?

Methods
A modified structured interview was conducted with 42 participants. The researcher asked a set of questions but allowed for free response and probing. A convenience sample was taken in two locations in Cameroon in western Africa. One sample was taken in a rural community and the second sample was taken in an urban community.

Interview responses were recorded in the researcher’s field notes and subsequently populated into an Excel data file using open coding. Open coding makes codes based on relevant respondents were willing to name a price towards for production. However, only 2/3 of respondents are willing to pay. This, in addition to the difficulties producing sufficient pressure with a hand-press, confirms that moving forward with producing a hand-press is not economically feasible.

Urban respondents are willing to buy briquettes which last for at least two hours, for 0.85 USD. This indicates a market for biomass briquettes in the urban community. It is recommended that a powered press, for example utilizing a hydraulic pump, which can produce multiple briquettes at a time, should be built as a small commercial enterprise to capitalize on the available biomass briquette market.

Testing needs to be conducted on the length of burn for a briquette as well as heat produced compared to wood. These are the two most frequent concerns expressed by respondents.

References