

# The design of a charcoal-based cooking stove

## matching the cooking and food habits in Uganda and Ghana



Presenting Prakti's newest charcoal stove: the CharcHole! This charcoal stove is specially designed to suit the needs of women living in urban and peri-urban Uganda and Ghana while exerting less harmful CO and saving on charcoal.

Women in Uganda and Ghana have different cooking habits and power requirements. To provide a stove that may be used in both countries, power requirements were measured during the preparation of the most common dishes. The measurements indicated that maximum desired power in Ghana is much greater than in Uganda. Conversely, the required minimum power in Uganda is lower than in Ghana. To achieve both needs, it was determined that regulating power output was desirable. This is achieved by including a regulating door in the design. These doors influence the amount of air flowing through the stove resulting in a different power output. When the doors are fully opened the CharcHole produces its maximum power

of 660 Watts. When a lower power is desired the user may close the doors up to the desired point. On the doors an indication is given for high, medium and low power.

During the cooking research, it was observed that the women use a variety of flat and rounded bottomed pans in varying sizes. The CharcHole supports both types. The pans are supported by four metal stands as this decreases the risk of pans tipping over, as opposed to traditional stoves in Ghana where pans are placed directly on the burning charcoal. It fulfils the wish of Ugandan women where no contact of pans and charcoal is desired to prevent blackening of the pans during cooking.

The removal of the ashes may be done while cooking. When the doors are fully opened the ash tray may be removed, emptied and placed back in the stove. This procedure is easier than the traditional method where the stove has to

be tipped over. This ash tray has as an extra benefit that the stove may be cleaned much easier on the inside.

The research showed that a wide variety of charcoal is used. The size of the pieces differs, therefore it was chosen to include a grate with small holes. This allows for optimal use of the charcoal because it burns into smaller pieces.

Another insights of the cooking research revealed a shift in fuel preferences over the seasons. During the rain season charcoal becomes much more expensive and gas turns out to be the more affordable option for households. To be able to target this need a supplementary gas extension may be purchased. This extension will be sold separately from the charcoal stove. If the gas extension would be utilized, the grate has to be removed using the door hook. Also the ash tray needs to be taken out. Removal of both allows room for the extension in the combustion chamber.



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