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An Appropriate Institutional Cookstove for Nepal

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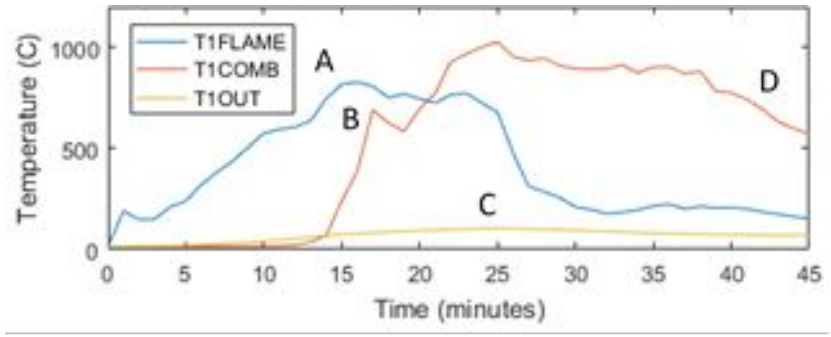
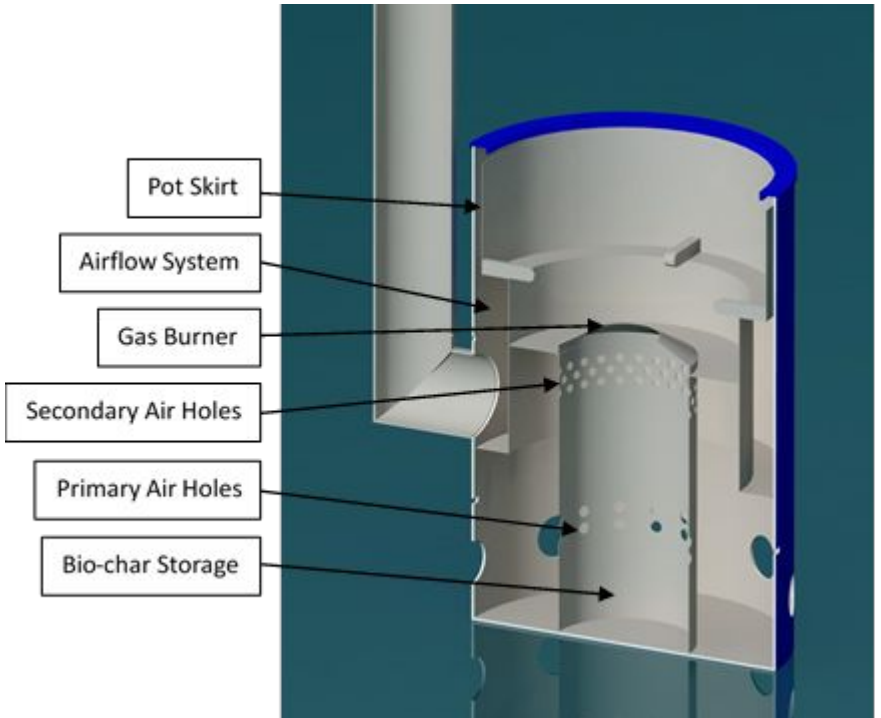
Nepal Project Background & Video





Project Aims

1) Arrange for the manufacture of ten prototype institutional stoves in Kathmandu.

2) Distribute the prototype stoves to institutions identified as likely to benefit from and to be able to afford to purchase the technology (schools, monasteries, farmers).

3) Evaluate stove performance in the field in terms of: efficiency, emissions and usability, with respect to traditional stoves alongside conducting semi-structured interviews with users.

4) Improve the stove design as a result of feedback from the field tests including ‘real life’ PM2.5 and CO exposure monitoring.

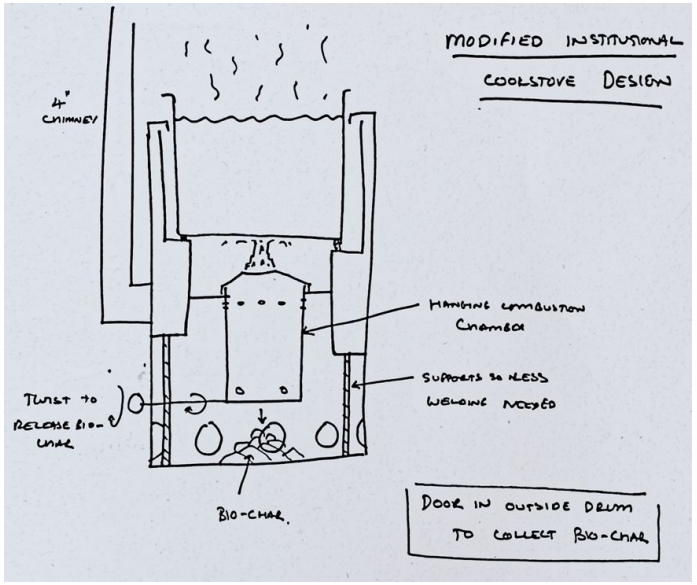
Lab Test Results

Centre for Rural Technology, Nepal
Regional Cookstoves Testing and Knowledge Centre (RTKC)
Bhanimandal, Lalitpur

www.crtnepal.org

Test Results: Metallic Institutional Improved Cookstove (IICS), Batch Fed

High Power Thermal Efficiency: 33.6% (Tier 2)
Firepower: 14.2kW (cold start)
Firepower: 20.7kW (hot start)
High Power CO: 4.9 g/MJ (Tier 4)
High Power PM: 260 mg/MJ (Tier 2)
Boil 5 litres of water in 22 minutes
Safety: Fair



Feedback from the School

"our kids have been amazed by this [the cookstove]they have been thinking about ways to help the didi remove the pot more easily"

"with the traditional fire you have to be constantly there […] but with this when you have the proper wood and have set it up with your food you don't have to touch the fire […] in the school the cooks can not be constantly monitoring the fire as they have other jobs."

"we use 7 or 8 cylinders [of LPG] in a month, when we use this [cookstove] we only use 5 cylinders […] each cylinder is 1475Npr (15USD) […] it saves a lot of cost and time"

"if this cookstove was easier to use we wouldn't use the traditional fire"

"we cant put the big pots on the gas as they are too big, this [cookstove] has helped us a lot when cooking with the big pots"

"this [cookstove] uses at least 40% less wood"

"it's a very Nepali cultural thing having conversations around a fire […] so the kids are more comfortable with the open fire […] however for us this is better for safety."

"this have very little smoke […] we want to teach our kids about sustainable living [and] as an educator we prefer this pollution-wise."

"we would definitely buy one or two […] I would pay at least 10,000npr (100USD) [and] expect 2 and a half years use [and] if there was a guarantee of 1 or 2 years I would pay more than that"

Feedback from the Farm

“with a little firewood I can do a lot of things, I can do 3 times what I can do with the traditional fire. This is much more economic.”

“If we can make a modification and make it bigger so that I only have to cook once a day [for the cows] rather than twice.”

“It can be clumsy to put more firewood in as you have to take out the heavy pot to refill it, it can be time consuming […] around 15mins. It would be better if the firewood could be added from the side to refill it.”

“I have been re-using the coal [biochar] from the cookstove to heat water […] nothing is wasted”

“this new cookstove is much quicker and more economic than the tradition method.”

“I can save firewood, that means I can save money […] around 20,000npr (200USD) a year”

“I can go elsewhere whilst the fire is burning, as I don’t have to look after the fire […] I am more productive. I am thinking of adding 1 more cow because of these savings.”

“I would be happy to pay 10,000Npr (100USD)”

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Conclusions

- Test standards do not necessarily reflect the priorities of stove users.
- There is a market opportunity for an institutional size biomass cookstove in Nepal.
- More work still needs to be done on the technical, social and economic fronts.

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Follow-on Project

Improving Respiratory Health in Nepal

- University of Nottingham GCRF funding 08/18-07/19
- Interdisciplinary – Medicine, Engineering, Architecture, Geography and Social Sciences
- Multinational with co-I's in UK and Nepal

- Work includes:
  - **Barriers to improved cooking stoves**
  - **Understanding of chronic lung health**
  - **Public health video to raise awareness**
  - **Workshop with ICIMOD**
  - **Review of burden of disease**
  - **Guideline work**