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Project Klimablick

Unlocking Potentials of New Cooking Methods with Bio-Briquettes and Efficiency Stoves for Rural Areas in Madagascar

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Source: Own

Outline

- Introduction and Problem Statements
- Organization Involved
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- Results from Experiments
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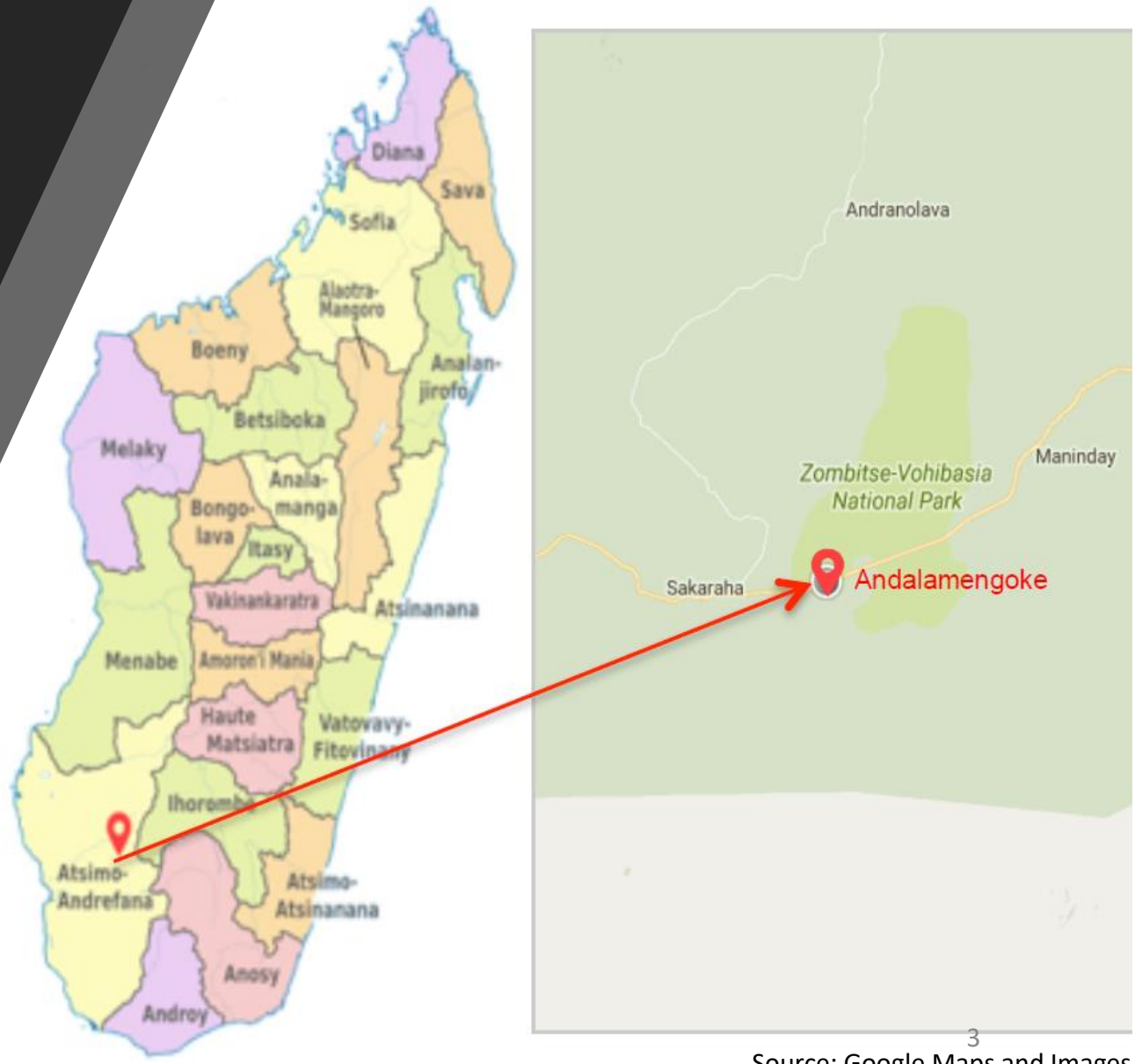
Introduction

- Madagascar is the 4th largest island and with rich vegetation, it is a biodiversity hotspot
- Uncontrolled logging, forest fire, traditional practices have depleted the forest cover threatening biodiversity, water resources and soil stability
- Additionally, it is one of the ten countries expected to be the most affected by climate change in the world



Source: Google Maps and Images

Organizations Involved

Lernen-Helfen-Leben e.V., Germany

Founded by retirees in Germany and it's objective are to establish and support projects in developing countries

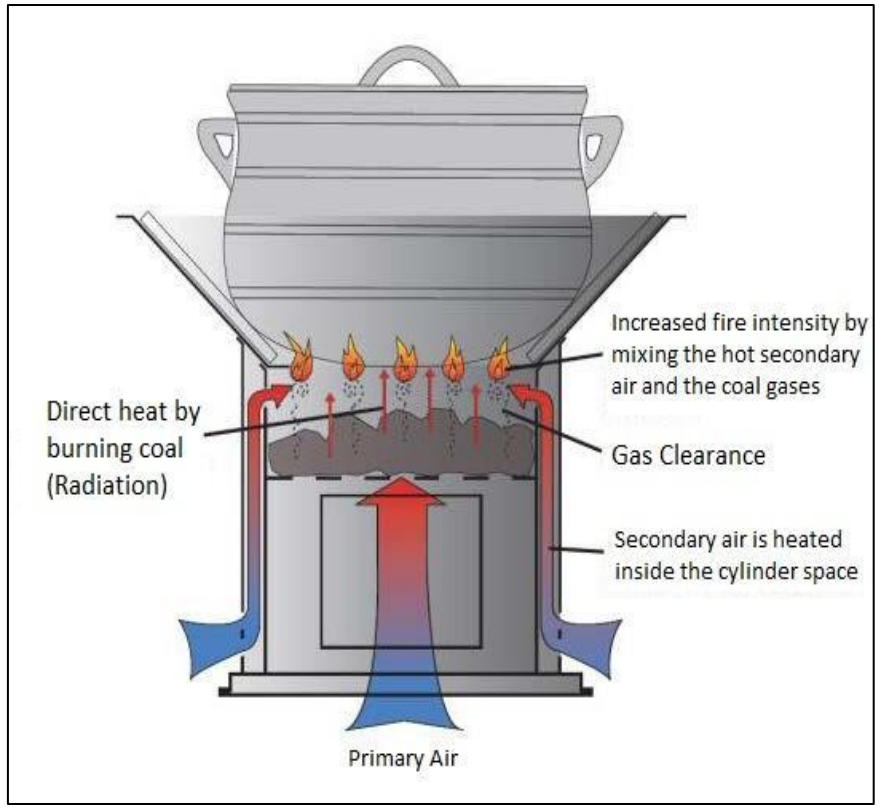
AJPER, Madagascar

AJPER is the partner organization of LHL, founded by students of the university in Fianarantsoa, working and promoting the projects in Madagascar

Efficiency Stoves

Model 1: Wood Stove

Model 2: Charcoal Stove



Model 3: Pyrolysis Based Stove

Source: Own

Biomass Hand-Press for Briquettes Production

- Simple manual mechanism
- Easy assembling and dismantling
- Easy transfer

➢ Producer of the press is the organisation “Arbeit und 3. Welt” in Hildesheim

Source: Own

Briquettes Manufactured

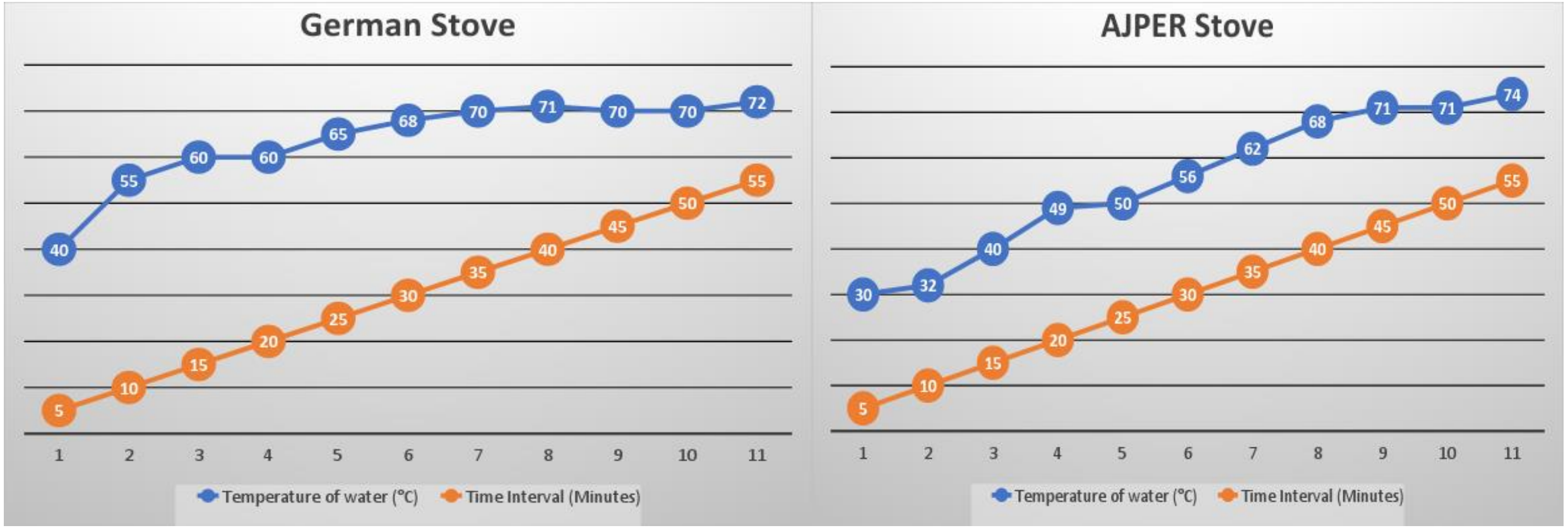
Source: Own

Experiments and Results

3 trials with bio-briquettes and stoves

Source: Own

Comparison between Stoves



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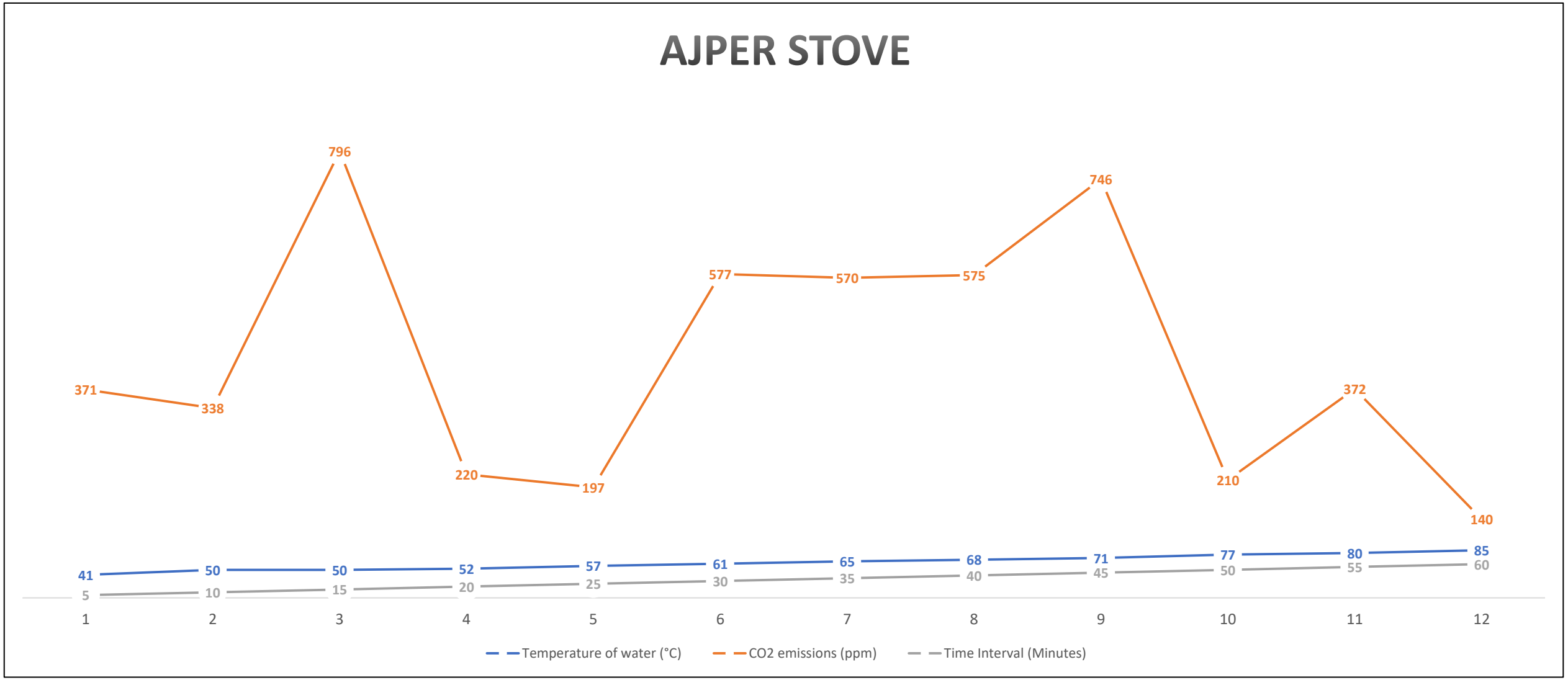

Most efficient result

Source: Own

Energy Production Calculation

- 345 g of bio-briquettes was around 6 to 8 briquettes of different weights which were used to boil 5L of water. So total energy potential of this combination of briquette when added together ranges around 4000 to 8000 KJ approximately.

Dry Bio-Briquette Weight (g)	23% of Grass		77% of Cow Manure		Total Energy Potential of the Bio-Briquette (KJ)
	Portion (g)	Energy Potential (KJ)	Portion (g)	Energy Potential (KJ)	
35	8.05	117.53	26.95	417.725	535.25
45	10.35	151.11	34.65	537.075	688.18
55	12.65	184.69	42.35	656.425	841.11
65	14.95	218.27	50.05	775.775	994.04
75	17.25	251.85	57.75	895.125	1146.97

Source: Calorific Values from Ronak Agrotech Engineering

Conclusions and Future Scope

- With the application of bio-briquettes and efficiency stoves, the wood will be saved, as well as the health of the kitchen workers
- Further R&D in Stoves, Press, modeling and experiments with bio-briquettes
- Dealing with social problems like ‘resistant to change’ mindset
- Establishment of a customer-friendly business plan

References

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Thank You

Questions, Comments, and Feedbacks Please