



**Chances for Nature** e.V. develops sustainable concepts and ideas for the protection of habitats and biological diversity, which are implemented with local communities of particular project areas. The focus of our work is a harmonious coexistence of man and nature.

**Chances for Nature** implements particularly those concepts and ideas where people directly benefit by the protection of natural habitats and biological diversity in terms of developing alternative and sustainable income opportunities.



## Fuel efficient stoves for Menabe, Western Madagascar

### Aims

The aim of the project “Fuel efficient stoves for Menabe” is to mainstream the use of fuel efficient stoves by rural households in the area of Central-Menabe in order to improve livelihoods of local people and to reduce the use of natural forest resources in form of firewood and/or charcoal. Fundamental part of this work is to educate and support local stove builders in the area to create a rewarding business for themselves as alternative income.

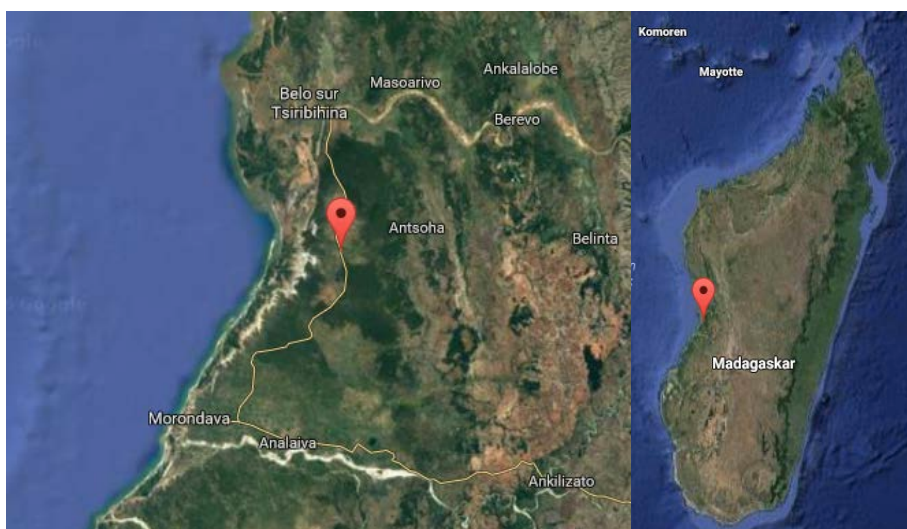
## **Summary and background**

90 % of households in Madagascar still depend on natural firewood or charcoal as primary energy source for cooking. This dependency on firewood and charcoal fundamentally increases the use of primary forests in Madagascar and leads among other threats to intense deforestation in Madagascar. It is estimated that the yearly deforestation rate in the region of Menabe was up to 2,6 % between 2000 and 2014. Menabe is considered to be a hotspot of biodiversity with high rates of endemism of plants and animal species.

Fuel-efficient stoves, called Fatana Mitsitsy in Madagascar, can reduce the amount of charcoal or firewood to at least 50% and additionally emit less harmless carbon monoxide during combustion in comparison to traditional stoves and open fire. Despite these benefits for consumers, the usage of fuel efficient stoves is still not widely distributed in households in Madagascar as the initial investment into a fuel-efficient stove is comparably higher than the use of traditional tripods or stoves and the benefits of the stoves are often not widely communicated in the population.

Chances for Nature (CfN) started in 2014 to spread the usage fuel-efficient stoves in the area of Menabe using awareness campaigns as well as education and trainings for the construction of fuel-efficient stoves using locally available materials. Awareness for the use of fuel-efficient stoves in all major villages in Menabe is mainly conducted using a mobile bicycle cinema, which reaches between 100-300 people each time, but also via organizing sales and marketing events on local markets. A total of 29 participants out of four different communities have learned how to construct the stoves and are certified to build these fuel-efficient stoves. A small association has been set up by previous workshop participants from the village in Beroboka in 2014 to pool resources for the production of stoves. Until now the group is selling and producing stoves mainly on advance order.

CfN is supporting local stove artisans with tools, materials and expertise to set up new marketing channels. CfN is particular interested to support arrangements between local stove artisans and the restaurant and tourism business to increase sales for local stove artisans. A construction of a garage for the production of fuel efficient stoves is prospected for the future.



*Locality of the project. Central- Menabe, Western Madagascar*

## Measures

- Suitability and analysis of soils for the production of fuel efficient stoves in communities in Menabe (implemented in 2014 with GIZ Toliara)
- Workshop I for the construction of fuel efficient stoves using soils and locally available materials and soils (implemented in 2014 with GIZ Toliara in the communities Kirindy Villages and Beroboka Sud)
- Formation of a local group of artisans in Beroboka Sud to support marketing and construction of fuel-efficient stoves (implemented 2014)
- Workshop II for the construction of fuel efficient stoves. (implemented in 2015)
  - o Introducing larger stove models
  - o Expansion to other communities and new artisans (Marofandilia, Ampataka)
  - o Introduction to marketing aspects
  - o Marketing and sales event
- Advertisement for the use of fuel efficient stoves using a mobile cinema (since 2014, regularly in all major communities in the area of Menabe-Antimena)
- Evaluation of the use of fuel efficient stoves in the area and support of new stoves-artisans (ongoing, regularly)
- Construction of a garage for the group of artisans in Beroboka Sud (planned)



*Stove from above*



*Education & Training*



*Education & Training*





Marketing & awareness

**Technical data of the stoves:**

Model	Height	Diameter	Fuel	Current local price in Ariary
Charcoal	~19 cm	~25,5 cm	Charcoal	8.000
Charcoal large	~21 cm	~30 cm	Charcoal	12.000
Firewood	~22 cm	~21 cm	Firewood	8.000
Firewood large	~24 cm	~25 cm	Firewood	12.000

**Composition of stoves:**

The composition of the inlay of the stoves is the same for all models. However, the composition varies if stoves are produced in different villages due to differences in soil quality, especially clay. The stoves produced by local artisans from Beroboka have a composition of 50% of clay, 30% of sand of termite mounts and 20% of fine sand. (Alternatively: 50% of clay, 30% of cement and 20% of fine sand). All materials for the inlays are locally available at the production site. The case is made of 0,25mm aluminium sheets, which are bought in the nearby city Morondava. A stove can be used at least for 2-3 years.



Traditional vs. fuel-efficient stove

**Contact:**

Chances for Nature e.V.  
 Brauweg 9a  
 37079 Göttingen

Dr. Matthias Markolf  
 mmarkolf@chancesfornature.org