Deutsches Biomasseforschungszentrum
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DBFZ

Development of an affordable and fuel-flexible biomass burner for clean cooking in Togo: Analysis of environmental and climate impacts

Özge Mutlu[1], Dennis Krüger[1], Jérémie Kokou Fontodji[2]

Background

Lack of access to clean cooking

3,8 million deaths[2]

nearly **30 %** of the world population has no access to clean cooking, especially in developing parts of the world[1]

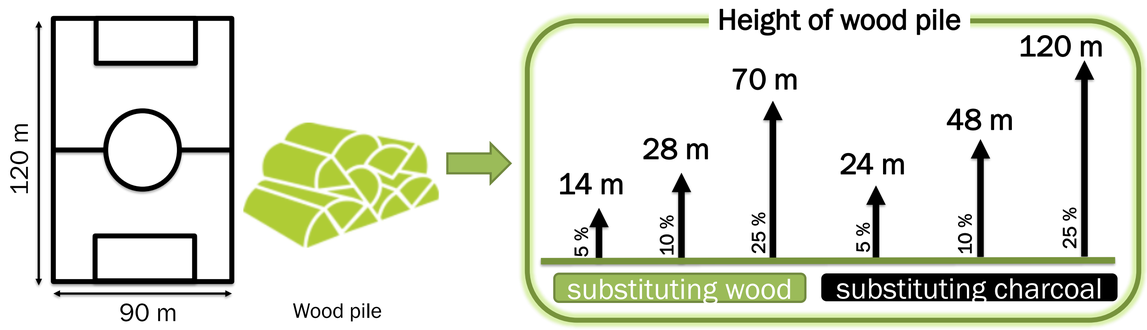
600,000 younger than **5 years old** lose their lives annually due to indoor air pollution related diseases[3]

1 Gton CO_2-eq is released annually[5]

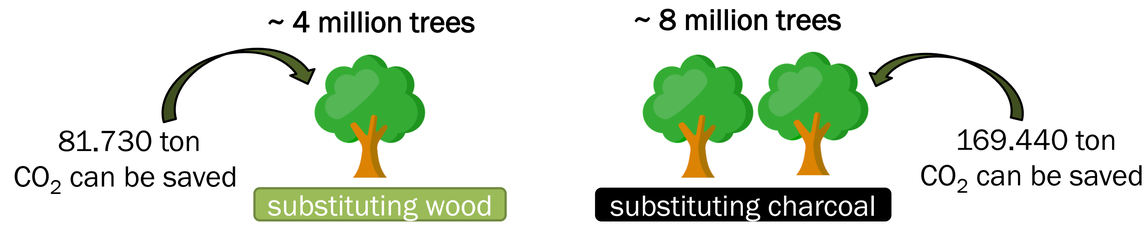
16 million ha forest area is exploited as fuel source every year[4]

Results

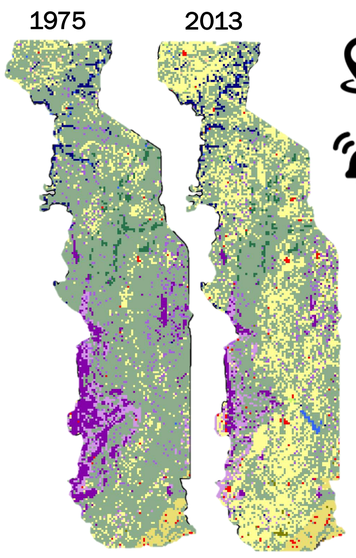
If wood and charcoal are substituted with palm kernel shells using Apeli stove and the amount of saved wood would be piled up in a football field assuming that 500 kg of wood can be stored in 1 m^3 space, the height of the wood pile would be:



Assuming 1 tree can absorb 21 kg of CO_2 per year → the amount of saved CO_2 in case of using Apeli stove (5 % scenario), would be equal to the amount of absorbed CO_2 by the number of trees given below:



Problem & Solution

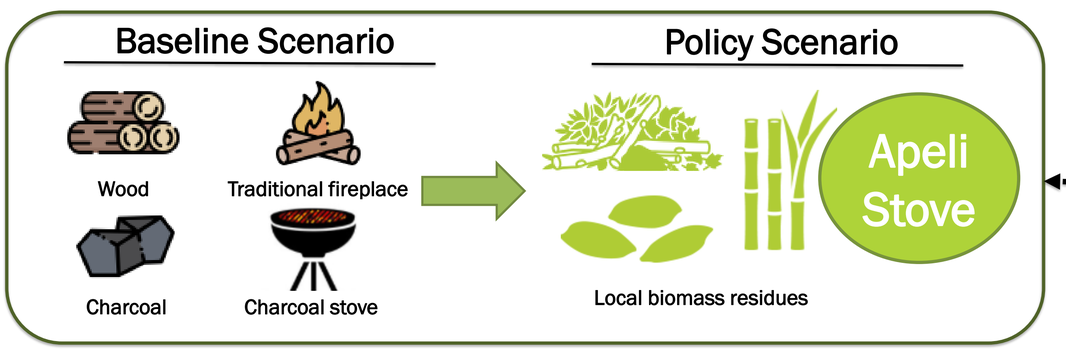


Location: Togo

Problem: Alarming deforestation rates due to wood and charcoal usage as fuel in traditional and charcoal stoves

Forest
Degraded forest
Gallery & riparian forest
Woodland
Savanna
Herbaceous savanna
Steppe
Agriculture
Irrigated agriculture
Cropland and fallow with oil palms

Fig 1: Change of forest areas in Togo[6]



How much **wood and CO_2 emissions can be saved** if baseline scenario is replaced with policy scenario?

Key Messages

© Photo by Dennis Krüger

Fig. 2: Apeli stove developed by DBFZ

- High efficiency (45 %)
- Less fuel consumption
- Low-cost
- Fuel-flexible
- Environmentally-friendly

✓ Results of emission measurement based on ISO 19867-1 will be published soon.

✓ More information on LabTogo project can be found here: https://www.dbfz.de/en/projects/labtogo

References

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[1] Deutsches Biomasseforschungszentrum, Thermochemical Conversion Department, Leipzig, Germany
[2] Laboratoire de Recherche Forestière, Faculté des Sciences, Université de Lomé, Lomé, Togo

DBFZ Deutsches Biomasseforschungszentrum gemeinnützige GmbH
Torgauer Straße 116 | 04347 Leipzig | www.dbfz.de
Contact: Dr. Özge Mutlu
oezge.mutlu@dbfz.de | Phone: +49 (0)341 2434-544

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