

Programmatic CDM Idea Note – CDM Gold Standard small scale PoA

1. Title: Efficient Wood Fuel Stoves for cooking, Nigeria

2. Project participants

- a) atmosfair gGmbH: Main CDM project developer. atmosfair is a German not-for-profit company providing voluntary offsets for greenhouse gas emissions from air travel by CDM Gold Standard projects.
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- b) LHL: Project Participant
Leben Helfen Lernen e.V. (LHL) is a German non-profit organisation founded in 1988 by former development workers to support private development projects in the field of education and environment.
Contact: Paul Krämer, Email: P.Kraemer.Soest@t-online.de
- c) DARE: Coordinating entity
D.A.R.E (Development Association for Renewable Energies) is a Nigerian non-profit organisation aiming at promoting the sustainable management of natural resources in the Northern States of Nigeria.
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3. Host country: Federal Republic of Nigeria

4. Short summary of the project and applied technology

The planned Programme of Activities (PoA) will supply households and small businesses with efficient wood fuel stoves (SAVE 80) and polypropylene boxes for retaining of heat in different states of Nigeria.

The Save80 is a portable stove developed and prefabricated by a German manufacturer and assembled locally. It has a nominal effective thermal power of 1.5 kW and needs only 250 g of small brittle sticks of wood to bring 6 litres of water to the boil, 80% less than traditional fire places. On one side near the upper rim there is a quadratic port for feeding fuel into the burning chamber. After lighting, air is sucked in and enters the burning chamber from below. The design ensures preheating of the air and a complete combustion with no visible smoke and only small amounts of ash. Exhaust air outlets are on the side opposite the feeding port.

The stove is suitable for cooking, heating and sterilising water and frying, but not for baking, except flat bread. After reaching the boiling point, food can be transferred to the heat retention box, where it will continue to simmer until it is well cooked.

The PoA will disseminate up to 45.000 SAVE 80 stoves until 2018.

Besides saving greenhouse gases, the objectives of the planned PoA are:

- To bring wood consumption down to a sustainable level so as to allow natural recovery of forests and/or reforestation to take place,
- To curb GHG-emissions resulting from wood fuel burning,
- To diminish Indoor Air Pollution from wood smoke and avoid its harmful health consequences,
- To diminish the fuel wood bill for households,
- To contribute to the preservation of wood resources so as to avoid inter-communal and/or inter-religious conflict over resources

5. Expected emissions reductions

Based on surveys conducted in Kaduna State, one cooking stove will save about 1,10 t of CO₂e per year. The whole PoA is expected to reduce 220.000 tons of CO₂e until 2018.

Emission reductions are expected as follows:

Years	Estimation of annual emission reductions in tons of CO ₂ e
2009	3.498
2010	7.314
2011	12.402
2012	17.490
2013	22.578
2014	27.666
2015	32.754
2016	32.754
2017	32.754
2018	32.754
Total emission reductions (tonnes of CO ₂ e)	221.964
Annual average of the estimated reductions over the crediting period (tCO ₂ e)	22.196

The first CPA is expected to reduce 3.948 tons of CO₂e per year, and 39.480 tons of CO₂e within a 10 year crediting period.

6. The planned POA (program of activities)

The planned PoA consists in the sale of efficient fuel wood stoves to households and roadside restaurants in the Northern States of Nigeria. Cooking stove delivery from Germany, assembly in Nigeria and sales to the users will be coordinated by the German Non-Governmental organisation LHL e.V. and the Nigerian Association DARE (Development Association for Renewable Energies), serving as coordinating entity. The users will receive guidance and training on how to use the cookers and a significant financial support (i.e. costs for the cookers will be reduced from 110 Euro to 60 Euro per device, making the cooker affordable for low income households). Data on all cookers sold under the different CPAs will be stored in a central database managed by DARE and LHL. All users of cookers disseminated under this PoA will sign contracts with DARE, stating that they will cede any rights on CERs to DARE.

7. A typical CPA (CDM project activity)

CPAs will consist in the dissemination of cookers in one state in one year (between 500 and 5.000 cookers per CPA). Different CPAs will possibly be installed in the same state, but in different years. A sales record keeping system (central database, with IDs for every customer and cooker sold) will prevent mismatching of cookers to CPAs.

8. Description of the first CPA

The first CPA consists in the dissemination of cookers in Kaduna State, Nigeria, in 2008. Expected sales are 3.300 cookers.

9. Baseline scenario

For all CPAs, the same baseline scenario will be applied. Small Scale Methodology AMS-II.G. (Energy Efficiency Measures in Thermal Applications of Non-Renewable Biomass) will be used.

It is assumed that in the absence of the project activity, the baseline scenario would be the use of fossil fuels for meeting similar thermal energy needs. Thermal energy needs are calculated by multiplying the quantity of biomass originating from non-renewable sources that is saved in tonnes. Emission reductions are calculated by

multiplying the thermal energy with the emission factor of the fossil fuels most likely to be used in the absence of the project activity.

Wood and charcoal consumption is identified by a survey on weekly cooking energy consumption among user families before acquisition of the Save80 stove. Data collection will be part of the sales procedure.

Wood and charcoal consumption will be cross-checked by weighing, using a spring balance, kerosene and LPG consumption is determined by interview. The yearly consumption is then calculated by multiplication with 52.

The share of NRB is determined by using surveys and statistical data.

According to FAO data, fuel wood consumption in Nigeria exceeds annual yield by far, except in the High Forest Zone. In the Nigerian Guinea Savannah zone (Kaduna State and central Nigeria) fuel wood stems to 77 % from Non-Renewable Biomass (situation 2005). Fuel wood production in this zone is further declining. The situation the Sudan savannah zone (Northern States) is even worse.

Total emission reductions per CPA are the emission reductions per system (cooker and heat retaining box) multiplied with the number of systems in the CPA.

10. Additionality

Additionality of CPAs is shown by identifying and describing investment barriers, technological barriers and barriers due to prevailing practice:

Neither loans to cover the initial investment, nor training is accessible to the project beneficiaries without external support. Efficient wood stoves have not been introduced to Nigeria at a large-scale so far.

Without CDM-funding, the PoA would not be feasible, due to prohibitive costs for acquisition of cookers on a household level.

In the case of the proposed project activity, no ODA funding will be employed; CERs will be the only source of external funding.

11. Monitoring

Monitoring will be built on the database record system, and shall consist of an annual check of efficiency of a representative sample of all appliances.

The monitoring group will record weekly consumption of firewood for the SAVE 80; The data will be cross-checked with specifications from the technology provider and with literature values.

12. Funding

Production costs for cookers are entirely covered by CERs over their crediting period; however, parts of the revenues will directly be used to set up an efficient sales and marketing structure.

Atmosfair will partially upfront payments for CERs.

13. Planned time schedule:

Validation – Registration:	August – November 2008
Start crediting period:	January 2009
Implementation of cookers:	starting in 2008