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"Solidarity in a competing world — fair use of resources"

Harming Own Interests? Lessons Learned from Accompanying Villagers Change of Perceptions Regarding Innovative Improved Stoves

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Abstract

Cooking energy is scarce in developing countries where a substantial part of the population strongly depends on woodfuels – particularly firewood and charcoal – to meet their energy demand as prerequisite for optimised calorie intake. The major part of the rural population is still applying inefficient traditional three-stone firewood cook stoves thereby likely increasing degradation of forest resources. Respective strategies counteracting damage of forests are non-existent leading to environmental damage. Since more than 30 years research and development projects aim on decreasing the energy input per cooking unit as well as emission quantity. The presented research design aimed at the adaptation, design and testing of improved cooking stoves and at creating a mutual process of knowledge exchange with the villagers to understand the up-grading-strategy of improved cooking stoves and the importance for their livelihoods. Training groups with about 100 farmers were organised to implement a specific technology (the "Salama improved stove"). This was realised via action-research integrated in the Trans-SEC project operating in four villages of Morogoro and Dodoma (Tanzania). Stove construction activities and the self-organised dissemination processes were monitored, which resulted in 125 additional households implementing the Salama stove. Data collection was carried out via a) focus group discussions to analyse variances between villages and general challenges of adoption and b) in-depth parameter testing of cooking and stove performance implemented in 80 households including emission tests in 24 households. Implemented stove models save about 50 % of fuelwood and reduces emission of GHGs by 65 % respectively, but they only are successfully implemented if wood resources are scarce. Users highly appreciated that the stoves were well insulated and safe in handling. They undertake design changes to allow improved simultaneous cooking with the two pots, leading to a 40 % reduction of overall cooking time. Concluding, it is substantial for successful implementation of improved cooking stoves that optimal engineering has to be accompanied by participatory exchange on users needs and perceptions. Subsequent up-scaling, further knowledge dissemination and increased local ownership will therefore carefully include improvements by the villagers diverting from the initial stove design including optimised combustion processes and heat transfer.

Keywords: Controlled cooking test, efficient cookstoves, energy access, firewood, household air pollution, kitchen performance test, Tanzania, technology adoption

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