



# Sunseed Tanzania Trust

## Firewood & Family Ties: The impacts of traditional cookstoves on Tanzanian Households.

Over 90% of Tanzanians in rural areas rely on biomass energy for traditional cooking stoves and have little or no access to modern energy services such as electricity and LPG (Johnsen, 1999; SPARKNET, 2006; MEM, 2003). Traditional stoves consist of 3 stones about the size of a person's head, which are placed to allow a pot to sit precariously on top, with a fire lit underneath.

Considering the nature of these stoves, and the fact that they are used indoors, it is no wonder that when most of us think of the negative impacts they have on rural households, we think of the effects on health. Indeed, the health impacts are huge. Indoor air pollution kills between 1.5 and 2 million people every year and leads to respiratory infections, ear infection, heart disease, lung and other cancer, tuberculosis, still-births and low birth-weights, as well as various eye diseases (Ezzati & Kammen, 2002; Modi et al. 2005; World Bank, 2002; DFID, 2002; UN-Energy, 2005). Children are especially vulnerable to these health impacts, as well as to burns caused by the open fire (Matinga, 2006).

A further commonly mentioned impact of using three-stone fires relates to the reliance upon biomass fuel – charcoal and firewood. Women in rural Tanzania walk 4-8 km to collect firewood three times a week, 4-5 hours each time, to carry home 10-20kgs of fuelwood (Chidawali, 2006). Not only is this very labour intensive, but it also puts women at risk of animal bites, burns, cuts, falls, back-ache and exhaustion, as well as violence and sexual assault (Ezzati & Kammen. 2002; ITDG, 2004, Wickramasinghe, 2003).

The well-being, or livelihood, of a household can be described not only in terms of its health and labour potential, but also by looking at education, financial resources, infrastructure supply, natural resources such as water and land, and social networks of exchange (DFID, 1999). Some of these dimensions of a household's livelihood are more difficult to measure than others, but together they constitute a pool of resources that a household can rely on to sustain its livelihood.

Although the World Bank, UNDP and other development institutions have recognised the negative impacts of traditional methods of cooking upon households, they have focused mainly upon health and labour potential (DFID, 2002; World Bank, 2001; World Bank, 2002). Research carried out in August 2006 in nine villages in the Dodoma Region found many hitherto undocumented effects of traditional cooking methods upon the livelihoods of rural households, including the negative impacts upon education and social networks (Smith, 2006).

Smoke inside the home, caused by 3-stone fires, reduces the likelihood of children to study at home during the evenings due to respiratory and eye irritation. Mothers are less

likely to be able to assist their children prepare for school and with their homework when they must spend hours collecting firewood and tending to the fires. Furthermore, the demand to collect firewood reduces the opportunity for women to access adult education.

The importance of relationships with friends and family is often overlooked when looking at the causes and effects of poverty. Networks of exchange between and within family and friends can significantly improve a household's security during periods of shocks or stress, as these relationships can be relied upon for help with items like food, childcare and extra labour. The cultivation and maintenance of these networks occurs in many ways, from informal interactions like visiting one's household or through conversation, to more formal arrangements like membership in groups or participation in community activities (DFID, 1999).

The burden upon women to collect firewood and tend to inefficiently burning fires means that they have less time to nurture and maintain these relationships and networks. This time burden impacts on women's ability to participate in important community activities, such as weddings and funerals. Smoke inside the home was also reported to cause damage and tension within the marriage.

How do the technologies promoted by STT address these issues?

Firstly, the fuel-efficient Lorena stove burns wood 50% more efficiently than 3-stone fires. This means that it takes twice as much firewood to cook a meal on the 3-stone fire than it does to cook the same meal on the Lorena stove. This increased efficiency means that the demand upon women for the arduous task of firewood collection is reduced by half. Also, fire burns more easily on the Lorena stove, so women can spend less time tending to the fire while cooking.

This all means that when women use the Lorena stove they have more time in their days to help their children in their studies, pursue their own education, or to strengthen relationships with friends and family members through participation in community activities.

Also, the Lorena stove has a chimney that is designed to suck the smoke from the fire outdoors. This reduction in indoor smoke means that women and children are less susceptible to the harmful impacts upon their health and education.

Secondly, the Ng'anga Heat Retention Cooker (HRC) does not require any fuelwood at all. Beans or rice can be brought to the boil on the Lorena stove, and then placed inside the Ng'anga, which insulates the heat and keeps food cooking for several hours. So the Ng'anga helps to further reduce the demand for firewood collection, as well as the amount of smoke created to cook meals indoors.

While these improved cooking methods do not offer an alternative to biomass fuels as a means for cooking, they are intermediate forms of technology which aim to reduce the negative impacts that are currently experienced by 90% of the population. The Tanzanian Government predicted in 2000 that biomass fuels will continue to be the dominant source of energy for cooking in rural households for the foreseeable future (GoT, 2000), so until alternative and/or modern energy sources are made more

accessible to rural households, improved stoves and HRCs will serve to address a very real and very serious hindrance to poverty reduction faced by rural Tanzanians.

## References

- Chidawali, J. (2006) Personal Communication
- DFID (1999) *Sustainable Livelihoods Guidance Sheets*, available at [http://www.livelihoods.org/info/info\\_guidanceSheets.html](http://www.livelihoods.org/info/info_guidanceSheets.html)
- DFID (2002) *Energy for the Poor: Underpinning the Millennium Development Goals*, Produced for DFID by Future Energy Solutions: London
- Ezzati, M. & Kammen, D. (2002) "The health impacts of exposure to indoor air pollution from solid fuels in developing countries: Knowledge, gaps and data needs", *Resources for the Future Discussion Paper*, 02-24
- Government of Tanzania (GoT) (2000) *Poverty Reduction Strategy Paper*
- ITDG (2004), *Powering Poverty Reduction*, ITDG Position Paper for Renewables 2004, Bonn, 1-4 June 2004.
- Johnsen, F. (1999) "Burning with enthusiasm: Fuelwood scarcity in Tanzania in terms of severity, impacts and remedies", *Forum for Development Studies*, 1
- Smith, C. (2006) "Household energy consumption and rural livelihoods: The effectiveness of Tanzanian energy policy in improving the lives of the rural poor – a case study of the Dodoma Region, Tanzania." *Unpublished Dissertation*
- SPARKNET (2006) *Tanzania Country Report Synthesis*, Available at <http://db.sparknet.info/goto.php/TanzaniaCountrySynthesis>
- Matinga, M. (2006) "Energy as a key variable in reducing child mortality: A gender and energy perspective on empirical evidence on MDG 4", *Discussion Paper*, DFID/ENERGIA project on Gender as a Key Variable in Energy Interventions, December 2005.
- Ministry of Energy & Minerals (MEM) (2003) *The National Energy Policy*, United Republic of Tanzania
- Modi, V.; McDade, S.; Lallement, D. & Saghir, J. (2005) *Energy Services for the Millennium Development Goals*, UN Millennium Project, UNDP: New York
- UN-Energy (2005) *The Energy Challenge for Achieving the Millennium Development Goals*, United Nations System. Available at <http://esa.un.org/un-energy>
- Wickramasinghe, A. (2003) "Gender and health issues in the **biomass** energy cycle: impediments to sustainable development", *Energy for Sustainable Development*, 7 (3), 51-61
- World Bank (2001) *World Bank Group's Energy Program: Poverty reduction, sustainability and selectivity*, Energy and Mining Board
- World Bank (2002) *Meeting the Challenge for Rural Energy and Development*, Vice Presidency

**Catherine Smith**  
**May 2007**