

Key messages

- Using fuel-efficient practices and technologies can help to:
 - 1) reduce deforestation and environmental degradation;
 - 2) provide alternative livelihoods;
 - 3) increase food security by reducing the sale of food rations and increasing meal intake;
 - 4) reduce indoor air pollution and associated health risks, which particularly impact women and children;
 - 5) improve the protection and safety of women and young girls.
- Implementing projects that contribute to forest and ecosystem conservation can enhance energy conservation initiatives.
- Using participatory approaches in both the design and implementation of an energy-saving initiative can enhance the success of the project and its sustainability.
- Considering the role of women in the collection and use of fuelwood is important to include in both the project design and implementation.

FUEL EFFICIENCY IN DARFUR

INTRODUCTION

A major environmental impact from human displacement in Darfur is deforestation and habitat destruction due to the collection of wood for cooking and construction. Although other biomass fuels are sometimes used, fuelwood is the primary source for household energy in Darfur.

Deforestation in Darfur is estimated at more than 1 per cent a year. In cases where there is no deadwood supply, fresh, green wood – which is both energy inefficient and produces a lot of smoke – is being sourced.

At a household level, women (and young girls) are primarily responsible for collecting fuelwood and cooking. When wood is in short supply, women often resort to selling food rations to purchase this wood, may choose to eat undercooked meals or may even forgo meals. Moreover, women will often risk their physical safety by travelling long distances to collect shrubs and brush. When cooking indoors, women and children are often exposed to smoke, a health hazard which causes 1.5 million premature deaths worldwide each year (WHO 2002).

ENVIRONMENTAL AND CROSS-CUTTING CONSIDERATIONS

Using fuel-efficient options can contribute to:

- improved ecosystem recovery and protection;
- more opportunities for alternative and diversified livelihoods;
- better food security and nutrition;
- a reduction in indoor air pollution and associated health risks;
- reduced vulnerability to gender-based violence.

Strategies for reducing wood consumption may include:

- distribution of culturally appropriate fuel-efficient or alternative energy stoves and other fuel-related technologies, e.g. kerosene, liquefied petroleum gas (LPG) or mud stoves;
- knowledge sharing and awareness raising of best practices in energy saving food and wood preparation techniques.

Such strategies have been highly effective. For example, compared to open fires, most improved stoves can save 25 per cent of energy used. For a fuel reduction strategy to be successful, however, local knowledge and cultural preferences should guide decision-making. Moreover, the use of gender-sensitive participatory processes can result in higher acceptance rates.

Other strategies for improving degraded forest land may include:

- awareness raising and training in practical natural resource management approaches and practices, especially with rural communities;
- the creation of community owned woodlots or introducing alternative trees and crops through agro-forestry;
- seedling nurseries to support tree-planting programmes;
- participatory community forestry initiatives.

Tips for improving cooking practices and wood preparation (UNHCR 2002):

- ✓ **Cut firewood into smaller pieces**
Smaller pieces of wood have more surface area, so they ignite quicker and burn more fully. Small sticks with a diameter of 3-5cm are recommended.
- ✓ **Find ways to shield fires and control air flow**
Fires need different amounts of air at different stages. When igniting, they need more than when at full combustion. By controlling the air, up to 20 per cent less fuel may be needed.
- ✓ **Simmer food**
Food takes the same amount of time to cook when it is simmering versus boiling. When simmering, less may be needed and more of the food's nutritional value may be retained.
- ✓ **Immediately extinguish fires after use**
By deliberately putting out a fire, rather than letting it burn out, up to 20 per cent less fuel may be needed.
- ✓ **Pre-soak dry food**
By soaking hard foods in water for 5-8 hours before cooking, as much as 40 per cent less fuel will be needed because cooking time will be shortened.
- ✓ **Grind or cut food into smaller pieces**
Food cut into small pieces has more surface area to volume and cooks faster. This may save up to 30 per cent of fuel needed.
- ✓ **Use lids that fit tightly and add weight on top**
Food that is covered tightly will lose less heat to convection and radiation. In places where lids do not fit perfectly, consider improvising with locally available resources, such as plates. By having a tightly fitting lid, 20 per cent of required fuel can be saved.
- ✓ **Use a double cooking method**
When one pot is on the fire cooking food, place a second one on top for warming water, where the size of pots makes this practical.
- ✓ **Add water to pots while cooking**
Rather than fill a pot with water from the start, it is better to add just enough to cover the food and add water as needed. This way no extra water must be boiled out.
- ✓ **Avoid over cleaning pot exteriors**
Fire-blackened pots, although not soot covered, are good at absorbing radiated heat and can reduce cooking time.

Further reading and resources

- International Network on Household Energy in Humanitarian Settings. <http://www.fuelnetwork.org/>
- Darfur Stoves Project. <http://darfurstoves.org/>
- Destitution, Distortion and Deforestation: The Impact of Conflict on the Timber and Woodfuel Trade in Darfur** (UNEP, 2008). http://postconflict.unep.ch/publications/darfur_timber.pdf
- Dealing with Energy Needs in Humanitarian Crisis Response Operations: A Quick Scan of Policies and Best Practices of Humanitarian Aid Organizations and Potential Alternative Energy Sources and Technologies** (IES, IUCN, 2009). <http://www.fuelnetwork.org/Environment>
- Finding Trees in the Desert: Firewood Collection and Alternatives in Darfur** (WRC, 2006). <http://www.unhcr.org/refworld/docid/48aa82ec0.html>
- Assessing the Effectiveness of Fuel-Efficient Stove Programming: A Darfur Wide Review** (ProAct, 2008). http://proactnetwork.org/proactwebsite/media/download/FES_Report/FES_Report_ProAct.pdf
- Cooking Options in Refugee Situations: A Handbook of Experiences in Energy Conservation and Alternative Fuels** (UNHCR, 2002). <http://www.unhcr.org/406c368f2.html>
- Beyond Firewood: Fuel Alternatives and Protection Strategies for Displaced Women and Girls** (WRC, 2006). <http://womensrefugeecommission.org/docs/fuel.pdf>
- Gender and Energy for Sustainable Development: A Toolkit and Resource Guide** (UNDP, 2004). <http://www.undp.org/energy/genenergykit/genderengtoolkit.pdf>
- Fuel Provision and Gender-Based Violence: Fuel Efficiency as a Prevention Strategy** (UNIFEM, 2005). http://www.fuelnetwork.org/index.php?option=com_docman&task=cat_view&gid=13&Itemid=57

ProAct Network is a Swiss-based non-governmental environmental organisation. Our work aims to help vulnerable communities improve their resilience to disasters, climate change and humanitarian crises, through sustainable environmental management. This briefing note was compiled under the project "Strengthening Environmental Awareness and Building Management Capacity of the Sustainable Action Group's Operations in Sudan", funded by Christian Aid.

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