

## **A highly efficient fuel wood stove – the Save80 in Kaduna, Nigeria**

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The Save80 is a portable stove developed and prefabricated by a German manufacturer and assembled locally to create employment and income. 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 (all components) is made of stainless steel and weighs about 4 kg. Wood in small pieces, diameter and length about that of a finger, is fed into the stove through the quadratic opening. Smoke is seen only immediately after kindling. The stove is suitable for cooking, heating and sterilising water and frying, but not for baking, except flat bread.

After reaching the boiling temperature, food – for instance rice – can be transferred to the Wonderbox, a retained heat cooking device. There it will continue to simmer until it is well cooked. In the meantime, the Save80 can be used to prepare the sauce. The Wonderbox is made of expanded polypropylene, unbreakable, stackable, lightweight, fitting the 8-litre pot of the Save80 and keeping the temperature for a long time. After 2 hours the temperature decreases from 100 ° C to about 90°C, after 12 hours it is still 65 °C. The Wonderbox allows important energy savings in addition to the savings by the Save80.

The Save80 components are shipped in large packages to reduce volume. A 40-ft container HC (High Cube) can accommodate the components for 1400 stoves with equipment. Assembling the stoves is done in a workshop at the site of destination. The first container shipment – financed by private loans and donations – has arrived in Kaduna/Nigeria. Promotion, mounting and sales are done by the “Development Association for Renewable Energies” (DARE) in Kaduna, see [www.dareworld.org](http://www.dareworld.org) . DARE is supported by its German partner-NGO “Lernen – Helfen – Leben e.V.” (Learning – Helping – Living).

Industrial production allows constant quality standards; however, transport cost, port congestion, complicated and expensive administrative procedures and high customs duties make it difficult to offer the Save80 at a price well below ~50,- € (plus stainless steel pot 8 litre: ~20,- € and Wonderbox: ~15,- €). On the other hand, the mobilization of climate protection funds, eventually coupled with the availability of micro-finance facilities, tax-free import in the short run, or at long sight local production if possible, might allow large-scale dissemination of this very promising stove. This is of utmost importance in view of the rapidly declining forest wood resources in Nigeria.



The Save 80 on a supporting stand, made by DARE technicians (Photo: Yahaya Ahmed, DARE).