

## South Africa Solar Water Heating

Solar water heating is a well-established technology in sunny South Africa, and solar water heaters (SWHs) appropriate to South Africa's mild climate are manufactured and marketed locally.

In the past, SWHs in Durban have been marketed to middle and upper-income families as solar swimming pool heaters. Low-income families often have little access to loan finance, and cannot afford the high initial cost of SWH. As a result they must heat potable hot water on electric, paraffin or LPG cookers-- an inefficient and expensive practice.

The South African government has made affordable housing a priority, and city governments in major metropolitan areas are each building between 10,000 and 20,000 new homes per year. Few of these housing programs address energy considerations, while energy use (mostly cooking and water heating) represents up to 35% of the monthly expenditure of township residents. The South African solar water heating industry had not yet tapped into this potentially huge market. Since 1999, with USAID support, Winrock's South Africa REPSO has taken a gradual approach to bridging these gaps.

With USAID support, Winrock commissioned an end-user evaluation of low-cost solar water heater models in the Ivory Park township near Johannesburg, provided direct technical assistance and feedback to manufacturers on more appropriate system designs, and helped the South African Bureau of Standards revise the solar water heater performance specifications to accommodate smaller, low-cost designs. Winrock then approached Durban (now eThekweni) Metro Housing, recommending a 100-home pilot to help the housing authority gauge consumer acceptance, and determine financial and energy savings, with an ultimate

goal of having SWHs form part of the authority's housing delivery package. Winrock helped eThekweni Housing integrate SWH into the Lusaka and Klaarwater communities on a pilot basis, identified financing mechanisms, and began outreach to other municipalities.

The pilot project established baseline hot water consumption patterns (amount, time of usage and cost) and determined whether locally manufactured SWHs could meet this demand. SWH from three manufacturers were selected for the project, which included a 50% subsidy for the SWHs, with the balance paid in cash by the owner. A community awareness and promotion program was launched in the two suburbs and subsequently extended to the entire metropolitan area, including plays conducted by local youth groups, prizes, and displays of the selected SWHs.

The pilot project was a great success and has highlighted a demonstrated demand for solar water heaters among low-income families. Over 700 people requested systems, while approximately 100 SWHs were sold in townships on a cash basis within six months. Sales are expected to increase once consumers have access to an appropriate financing package.

Finance is currently being arranged through the Development Bank of South Africa, and Ithala Bank, a local development finance institution.

eThekweni Metro Housing has expressed interest in proceeding further with the program, and discussions are underway to implement a 4,000 system scaling up of this program. Winrock was invited to feature the SWH units on demo homes built during South Africa's largest housing conference in October 2003 with an aim of helping other metropolitan areas introduce SWH in their low income housing

projects. Already, two of this project's most commonly used SWH have been installed in a Cape Town energy efficiency project, and one solar water heater manufacturer recently received a request for 40 SWHs to be installed on a single block of rental flats, financed by the local authority.

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