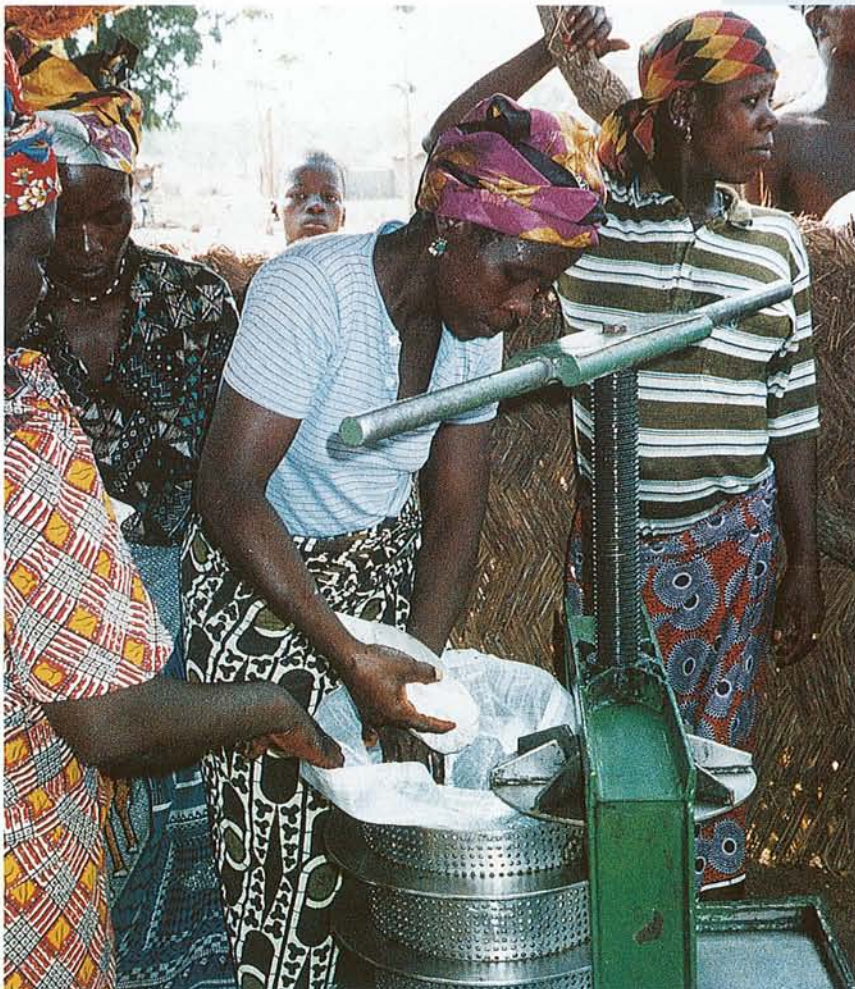


Rural women earn cash for “butter” from nuts in Ghana

[Improved processing of shea nuts in northern Ghana (R6631)]

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The UK Department for International Development (DFID) follows a **Renewable Natural Resources Knowledge Strategy (RNRKS)** which aims to reduce poverty by enhancing productive capacity in the RNR sector in an economically and environmentally sustainable way. The development outlined here was supported by the **Crop Post-Harvest Programme**, which is one of the eleven main research programmes which compose the RNRKS.



A recently developed manually operated press for the extraction of shea butter is successful and popular with rural women in northern Ghana. The production of shea butter is an important income earning activity for women in rural areas and for many it is their only source of independent income. The butter is used for cooking or cosmetic purposes.



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Labour intensive traditional methods

Traditional processing of shea nuts is carried out by women and children and involves lengthy, arduous processes, using



In order to use the bridge press the dried kernels are pounded as for the traditional method, but there is no need to roast the pounded nuts before milling, saving time,

fuel and labour. After milling there are no kneading or rinsing stages, reducing the work involved. A specific quantity of water is worked into the paste which is then wrapped in cotton cloth and placed in the press. Pressure is applied and the oil is extracted. The press has a capacity of 15kg, is operated manually and requires minimal effort to operate. After the oil has been extracted the residue is removed from the press as solid blocks which can be sun-dried and used as a fuel. No further processing of the oil is necessary.

*Photographs
courtesy of
Lynda Hammond
and Tony Swetman
NRI, University of
Greenwich*

large quantities of fuelwood and water which often have to be carried long distances to the village. The women complain that roasting the pounded kernels and boiling the extracted cream are hot, heavy tasks and that the kneading stage causes pain in the back and shoulders.

Traditional preparation starts by removing the green pulp to expose the nut which is then parboiled and sun dried. The nuts are crushed with a stone or wooden paddle to remove the outer shell and the oil-bearing kernels are separated. These are then either sold immediately or stored for subsequent processing into shea butter using traditional methods.

Research has led to the development of a process using a mechanical bridge press which offers:

- reduced processing time - from 9.5 to 3.25 hours
- reduced water use (a scarce resource in these semi-arid areas) - from 90 litres to 1.7 litres
- no need for fuelwood (another scarce resource)

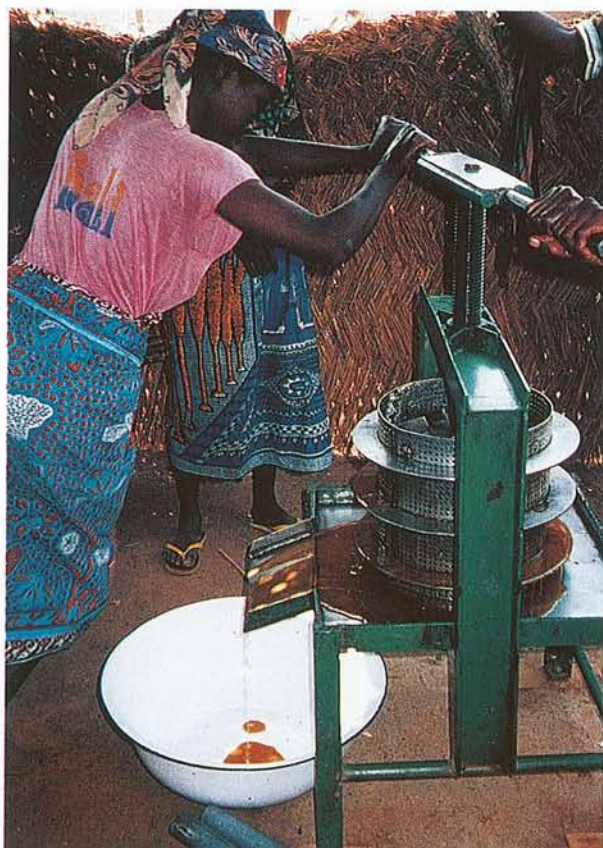
(figures for 25 kg shea kernels)

Shea trees grow wild in the semi-arid parts of the equatorial belt of Central Africa in a region stretching from The Gambia in the west to Sudan in the east. Women and children collect the ripe fruit and take it to the village for processing, although this collection can be hazardous because of snakes.



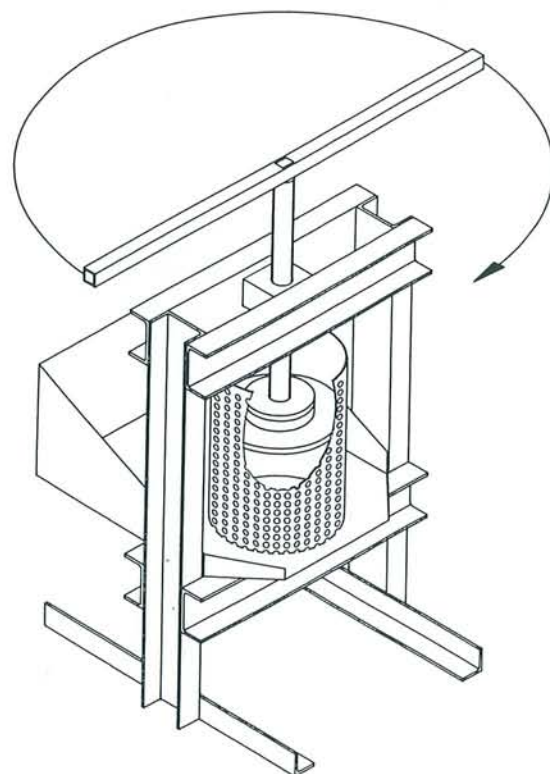
Working with local institutions and people

In collaboration with Ghanaian NGOs such as the Tamale Archdiocesan Agricultural Project NGO (TAAP) and the University of Science and Technology (UST) in Kumasi,



financial evaluation of the process, analysed the shea butter for acceptability and looked at the domestic market for shea butter. A TAAP extension worker carried out weekly monitoring of the trial, backed up by frequent visits from UST. Workshop drawings for construction of the bridge press are now available to NGOs.

The profitability of producing shea butter with the traditional process is extremely low and substantial increases in returns per woman hour can be gained by using the bridge press. The actual costs of



HAND OPERATED BRIDGE PRESS

This research was carried out in Ghana, but can be transferred elsewhere as shea nuts are grown in sixteen African countries: Benin, Burkina Faso, Cameroon, Central African Republic, Chad, Ghana, Mali, Guinea, Ivory Coast, Niger, Nigeria, Senegal, Sudan, The Gambia, Togo and Uganda.

researchers identified suitable villages for field trials. They arranged local manufacture of presses, monitored performance, trained women processors in the use of the press, monitored the field trials to evaluate yield and acceptability of both process and product, carried out a

Instructions for siting the press

- *It is not necessary to construct a dedicated building, but a shelter makes working conditions more pleasant.*
- *Ensure there is ample space around the press for working.*
- *The press must be firmly bolted to the ground by constructing a concrete base on which it can be mounted.*
- *Consideration must be given to the final height of the arms of the press.*
- *The press should be positioned with a very slight downward slope to allow the oil to flow freely from the collecting tray.*

Allow the concrete to set for two days before attempting to use the press.

processing by the improved and traditional methods are comparable, but the true saving from the new technology is :

- environmental - as there is no need for fuel and drastically-reduced water use
- financial - fuel and water both have costs and this technology generates an additional fuel supplement
- time-saving - as an opportunity cost by releasing labour for other activities

Local production

Local construction of the press was carried out by the Intermediate Technology Transfer Unit in Tamale and presses were installed in two villages, where training was offered to local women. A third press was installed at a local farmer co-operative. The response has been so positive that TAAP have ordered presses for installation in more remote areas. TAAP are also teaching local women to make soap from the butter produced by the presses, to add value to the product.



The bridge press technology is socially acceptable and is financially viable. The technology can be manufactured in-country and can be maintained locally. The process has been well-received by women processors who consider the yield of butter to be greater than that of the traditional process. The process also has advantages in terms of an additional product (slabs of shea paste residue) which finds use as a fuel in these arid regions where this commodity is scarce.

Women's NGOs targeted for demonstration

A workshop attended by members of 20 NGOs working with womens groups in the northern region of Ghana gave participants an opportunity to see the improved extraction process demonstrated by the women users, along with information about the press and its operation. In response to the success and popularity of the press, a training manual has been developed, to include details of how the press is used and workshop drawings to encourage local construction.

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