

# Making fuel briquettes from everyday waste

PACE Action Sheet 77

This Action Sheet is about one way to take advantage of the waste that is produced in our towns and cities everyday. Making fuel briquettes out of rubbish takes the waste from the city and turns it into a source of energy. Fuel briquettes can be made and sold by entrepreneurial community groups and business people.

## What are the benefits of fuel briquettes?

- Using fuel briquettes means less firewood to chop and charcoal to buy, saving you time and money and putting less pressure on natural resources
- If you make your own briquettes from waste materials, you cook for free!
- You can make money from selling briquettes.
- Briquettes mean less rubbish in the streets and in dumps.

## Are there any problems with fuel briquettes as a source of energy?

Like any burnt fuel, fuel briquettes produce smoke. It is bad for your health if you inhale too much smoke whilst cooking. Action Sheet 57: Reducing Indoor Smoke Pollution suggests ways to make your kitchen less smoky.

Materials used for fuel briquettes may have other more profitable uses. For example, good quality waste paper can sometimes be sold back to paper companies for recycling. If this is the case, fuel briquettes should only be made from low-quality dirty paper. Leaves and other agricultural waste might be more useful if composted or left on the soil as mulch – removing too much organic matter from the farmland can lead to soil erosion and loss of soil fertility.

## What materials can be turned into briquettes?

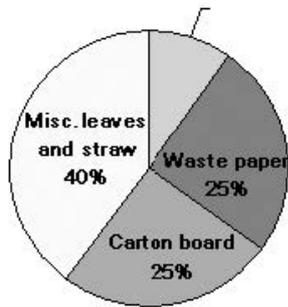
Having sorted the rubbish, you can make briquettes from anything that burns without producing toxic ash or fumes. Fuel briquettes can contain things like:

- Waste paper and cardboard
- Water hyacinth
- Agricultural residue - Leftover leaves, grasses, stems and straw from agriculture (if not needed for soil improvement)
- Charcoal dust  
Sawdust

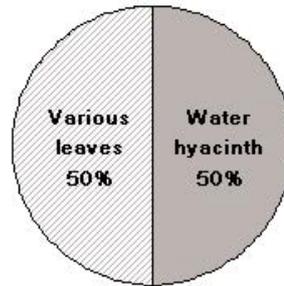
## The problem

Water hyacinth grows fast from seeds and from shoots that break off and grow into new plants. The number of plants doubles every 5 to 15 days, so in a single season, 25 plants can multiply up to 2 million! This means that if water hyacinth gets into a new river or lake, it grows and grows until it covers the water with a thick floating mat of tangled weed. This causes terrible problems for people using the waterway:

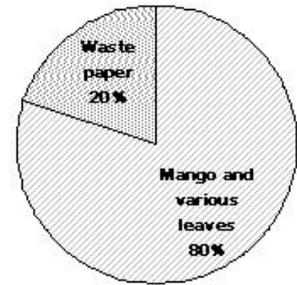
Contents of fuel briquettes in Bamako, Mali



Contents of fuel briquettes in Upper Shiwi River, Malawi (location 1)



Contents of fuel briquettes in Upper Shiwi River, Malawi (location 2).



Fuel briquettes from around Africa (Source: Richard Stanley, Legacy Foundation)

It's important to make sure the materials you are using are safe to burn inside people's houses, so do get advice about this before getting started.

How are fuel briquettes made?

The basic process is simple, although the details vary slightly according to what sort of rubbish is used.

Step 1: Sort out the materials you wish to put into the briquette: Agricultural residues and municipal processing waste.

Step 2: Chop the material up and let the agricultural residues stand until partially decomposed.

Step 3: Mix the material into a soupy slurry in water.

Step 4: Squeeze the slurry inside a porous cylindrical mould to create hollow round cylinders or briquettes

Step 5: Dry the briquettes for a few days before use



Hollow core briquette making process. Image, The Legacy Foundation.

With the press shown in the photo, a six person team can reach a local market of 50 families per day. In serving 50 families, one press group reduces fuelwood demand by 125 tons per year. Where wood is used for charcoal-making, providing 50 families with biomass fuel briquettes would reduce the demand for wood by about twice this amount.

This machine was developed by the Legacy Foundation, which has worked in Kenya, Nepal, Haiti, Peru, Southern Mexico, South Africa, Uganda and Malawi.

In making the briquettes using the machine above, paper is not essential.

The hole in the centre of the briquette encourages rapid drying, easy ignition and highly efficient burning (due to the draft and insulated combustion chamber which the hole creates). In areas where there is waste paper, pure paper briquettes can be made in a block form, as described on the next page.



