

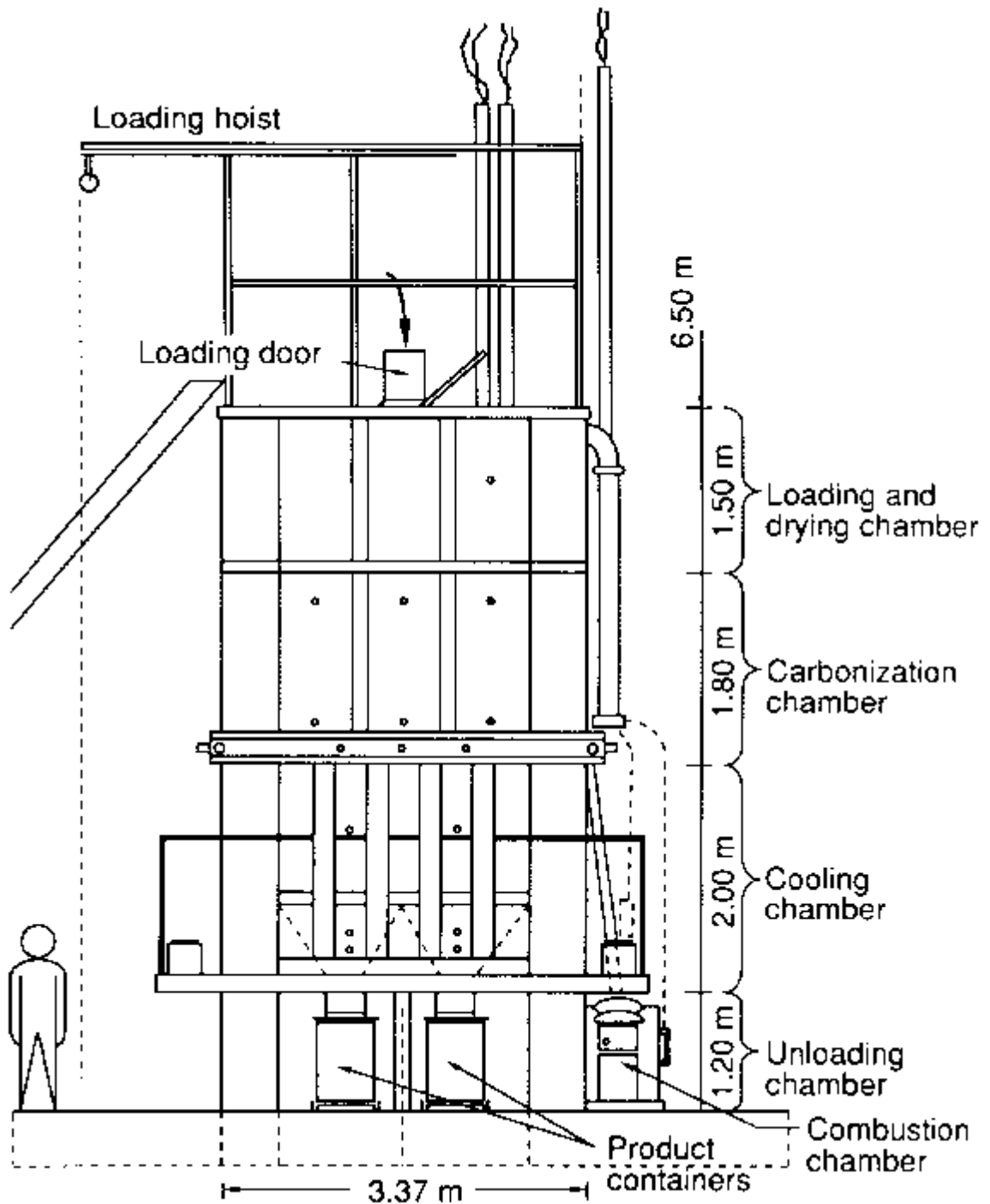
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## The Partial Carbonization of Peat to Make Domestic Fuel

Like many other African countries, Burundi suffers from a shortage of firewood, which accounts for 90-95% of the **energy** used in the country. The price of charcoal is rising steadily and deforestation is a serious problem. However, Burundi has peat reserves of up to 1 billion tonnes. Peat is already extracted in small quantities for use as fuel in some institutions, including the armed forces and small factories. However, untreated peat is not readily accepted as domestic fuel because of the thick smoke and unpleasant smell it produces.

With the assistance of the Société d'ingénierie Cartier (Canada), Burundi's national peat marketing agency, the Office national de la tourbe du Burundi (ONATOUR), has developed a small-scale procedure to transform untreated peat into an acceptable fuel for small industries and household use. Peat coking (total carbonization) is a costly process that requires sophisticated equipment, whereas partial carbonization is considerably less expensive and can produce acceptable fuel. This method, which can be used both by small and large industries, consists of the following stages:

- The peat is cut, macerated and dried in the sun.



Experimental kiln

- It is put into an oven and pyrolyzed until partial carbonization occurs.
- This procedure produces biomass charcoal that is then cooled, sifted to remove any particles that are too large, mixed with water and a binder (such as molasses), formed into briquets using a press, and dried. The biomass charcoal produced using this method contains 40-45% peat.

The combustion of the bricks was greatly improved by mixing the peat with agricultural byproducts, such as rice husks, coffee hulls, and wood shavings. The

briquets now consist of at least 50% vegetable products and are accepted by customers.

The pilot factory in Burundi can produce up to 4 tonnes of biomass charcoal per hour. Biomass charcoal is clean and efficient. Given the poor reputation of untreated peat as a fuel, an education program is required to convince users that the briquets do not have the same drawbacks as untreated peat.

This new technology might help reduce deforestation in the country. The pilot factory created 75 new jobs as well as work in the peat bogs.

#### Prerequisites

Peat reserves; binder (such as molasses or manioc flour). The pyrolysis oven can be made using local methods and materials. The pilot oven, made from fire brick and cement, covers approximately 18 square metres and costs about Can \$25 000 to build. The press for forming the briquets is imported and costs about Can \$60 000. An improved version, made in Niger, has a completely sealed metal outer layer and an interior made from fire cement.

#### Potential users

Small rural industries in countries that are experiencing **energy** problems and have peat reserves (including Bangladesh, China, Rwanda, Senegal, Sri Lanka, and Zaire).

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