



[Vol. 21, No. 2 \(July 1993\)](#)

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## Smokeless Peat for Fuel

*by Andre Lachance*

As in many developing countries, the citizens of Burundi get nearly all their household energy from firewood. As a result, forests are disappearing at an increasing rate and the price of charcoal is rising steadily.

This East African country nonetheless has at least one billion metric tons of peat, which can be used as fuel. The people, however, shun this form of fuel because it gives off a thick, noxious, foul-smelling smoke.

Burundi's national peat marketing agency, l'Office national de la tourbe (ONATOUR) and the Societe d'ingenierie Cartier Limitee of Montreal, tackled this problem together. Their research, jointly financed by IDRC and the Canadian International Development Agency, produced results: a new oven, designed by ONATOUR and Cartier, devolatilizes the peat through partial carbonization.

The quality of the product obtained by this method is the same as that of firewood. It is even cleaner as a fuel and is easy to handle, efficient and inexpensive. What is more, the process involved is simple and requires only local, often recycled materials. Before being heated, the peat is mixed with wood shavings or agricultural waste, such as rice husks or coffee hulls. The treated product is subsequently pressed into barbecue-type briquets for use in this form by households and small industries. The briquets produced by the pilot facility have been marketed as "economical biomass charcoal and have so far been accepted by restaurant owners and bakers. Sales have been so encouraging that Cartier and ONATOUR are studying the possibility of building a factory. An environmental impact study must, however, first be conducted to determine the effects of possible large-scale exploitation of peat on the water table and the health of users.

"It was an unorthodox project for an engineering company, explains Paul Courteau of the Societe d'ingenierie Cartier. "When we began talking about it, people treated me as a heretic. It took seven years to convince the Board of Directors, but today, we're proud of it!"

The procedure jointly developed by engineers from Cartier and ONATOUR is simple -- and, above all, efficient. It employs the same principles as those used in the partial carbonization of coal (lignite) -- a process that was commonly used during the industrial revolution of the 19th century in Europe and America to produce "smokeless fuel," a coked and 100% devolatilized coal.

"The irony is that we can no longer find any technical data on it," adds Courteau, who has put his expertise to good use all over the developing world. "We made do with what we had and we succeeded. The project has even won two major environment awards."

ONATOUR and Cartier have built an experimental facility that can produce up to four metric tons of biomass charcoal every hour. The peat and biomass are put into a large, brick oven, three stories high, where it undergoes partial carbonization before being pressed into briquets. The cost of this oven made

with local materials is CA\$25,000. (An oven with greater capacity would be more expensive.)

If the project to build a factory to produce peat/biomass briquets ever becomes a reality, Burundi may be able to put an end to the worrying destruction of its vegetation. It would also create jobs in the production and distribution of the once unusable peat. Other developing countries also have major deposits of peat: Bangladesh, Rwanda, China, Senegal, Uganda and Zaire. They too could benefit from this rediscovered technology in the medium term.

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ISSN 0315-9981. This magazine is listed in the Canadian Magazine Index.

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