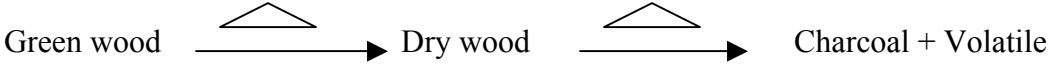
The weight of firewood is reduced to 1/3 the original value when converted to charcoal. This facilitates easy handling and economic transportation, and charcoal in storage is free of fungal and insect attacks.

In this project charcoal is produced under controlled conditions in suitably designed stoves. Smokeless cooking and using charcoal a competitive alternative to L.P. gas However, charcoal should be cheap if charcoal is used as domestic fuel. The aim of the project is to design an efficient kiln for production of quality charcoal. The advantages of above kiln over the earth-kiln is air is controllable, better quality yield, and workable in all climates. Earth kiln floods during rains, production cycle short, productivity high, transport easy. Carbonization Process can be explained by the following equations:



100 – 120 º C 270 º C

Capacity of kiln	=	7 Cubic feet
Weight of fire wood	=	2,800 kg
Condition of fire wood	=	30-50 % moisture
Weight of charcoal yield	=	544 kg
Weight of partially burnt shell	=	500 kg

Operation of kiln

Wood chunks of 400 – 460 mm were loaded into the kiln. It was lit from the bottoms and covered after 30-45 minutes. 4 chimneys were placed on alternate air inlets. After 8-10 h conversion. Carbonization completed between 16-24 h. Chimneys were removed. Air vents sealed and kiln allowed to cool for 8-12 h.

Flow Chart:

Loading → Ignition → Carbonization → Cooling → Packing → Transport → Sales outlets → Consumer.

Domestic use of charcoal the next promising area should be considered less polluting smokes, soot free, ideal for domestic use to exchange for kerosene or fire-wood. Charcoal is local renewable source.