Making biochar in soil pit kilns
Soil pit kilns are the most ancient technique of making biochar
they are still to be found as terra preta pits in many places in the world

Typical profile section of a soil west of Cologne. Among the superficial unconsolidated sediments is a black soil horizon containing deep black soil pits up to 2 m deep with high proportions of charcoal. (from: Gerlach et al 2012)
dig the pit with a diameter of 2 meters and a depth of 1 meter
The sidewall should be shallow enough to walk in.

The diameter to depth ratio should be around 2 : 1.
Put stones arround for wind protection and updraft of combustion air
Put some dry feedstock in the middle of the pit and lit the fire at the top.
Enkindle the fire from the top

Light the pyramid pile from the top
let the fire burning to about 1/3 from the top of the stack or pyramid creating a strong up-draft which pulls in air at the side walls of the pit. Spread then the feedstock at the bottom.
When enough air reaches the bottom of the pit to make it catch fire, level the burning feedstock wood to create the blaze for the first charing layer.
Add then layer by layer new feedstock
When ashes appear on the wood, put a next layer of wood. The charring continues beneath the fire front.
Time to put the next layer

When ashes start to appear on the feedstock, put the next layer of feedstock. The charring continues beneath the fire front.
The temperature at the surface of the blaze is around 620° to 660° C depending on the humidity of the feedstock.
time to quench
Stop the kiln either by water or ...

Quench the kiln with water partially activates the biochar (cleaning of the biochar pore structure and increasing surfaces)
or charge it hot with cow urine to make biochar-fertilizer
or quench it with soil and wait 24 hours
Easy to make 500 l of biochar in 2 hours
Metal-soil kiln Kon-Tiki
preparing the final place for the kiln
ready to be fired for the first biochar in Dhading
bringing down the feedstock to be charred: Eupatorium (forest killer) the most appropriate and usefull feedstock for making biochar in Nepal
The dry feedstock reduced the ignition time to 7 minutes.
Biochar field and farmer trial in pumpkin plantation
Nalang, Baireni village, Dhading, Nepal, 1/2015
Eupatorium is a most excellent feedstock for making biochar.
an hour later the biochar for the 10 field trials with pumpkins was made
digging of plant holes
carrying the compost to the field
preparation of urine-biochar substrates
applying of the compost
applying of biochar-urine slurry
mixing of compost and biochar-slurry
pro Kon-Tiki for 1.5 t biochar in 8 hours
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www.ithaka-institut.org
www.biochar-journal.org

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