

Pictorial Manual on Charcoal Production from Moveable Charring Kiln



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MinErgy Initiatives

MinErgy Initiatives is an implementation partner for this project. To give a brief background of the organization: It is a local non-governmental organization based in Nepal. Since 2011, it has been working on health, energy, environment and climate change sector. The organization has been active in developing and testing different charcoal kiln models and has been working together with different CFUGs to uplift their livelihood.



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Collect sufficient biomass for the kiln operation

1



Sufficiently dry the collected biomass in the sunlight

2



Place the kiln in flat ground to the extent possible and stack the biomass properly



Horizontally stack dry small biomass on the base of the kiln up to the lower level of fire gates

4



Stack medium sized branches and twigs radially up to the upper level of firing gates maintaining a radial gap along chimney openings and gates

5



Press the biomass manually as much as possible to achieve maximum stacking



Use personal protective equipments (PPEs) during staking and firing



Stack biomass properly such that all biomass remain the kiln



Fix the second (body) part of the kiln after finishing the loading in first (base) part



Stack the biomass in the body part as in the base part



Manually press the biomass as much as possible. Ensure grooves of the body are free to fix the bonnet



Fix the bonnet at the top of body after loading



Ensure that the bonnet is properly fixed into grooves



Check the level of the bonnet at the top



Prevent leakages by sealing grooves with water or mud



Seal all possible leakages of the kiln by water or mud



Fix all chimneys and seal with mud at joints



Open all firing gates and prepare essential materials required for firing (matches, dry twigs etc)



Start firing from all gates at the same time



**Check if the biomass is properly burning in all gates.
Once the firing is uniform in all gates, close the bonnet's door.**



If the black smoke emits from the chimney, open the gate adjacent to the chimney for a while



Observe the color of smoke emitting from chimneys. White smoke indicates the removal of moisture. Hence, keep the chimney damper fully open during emission of white smoke



Yellowish smoke indicates removal of volatiles and in such case open the chimney damper partially



Close the chimney damper once it starts to emit black smoke again



After a while open all chimneys and gates, once the blue smoke starts to emit then close all chimneys and gates otherwise repeat the process



Seal joints of all gates with mud to prevent air leakages



Remove all chimneys, fit the cap in joints and seal with mud



Seal the top cap of the bonnet with mud



**Seal all possible leakage points and let the kiln to cool down
(approximately for 8 hours)**



Unload the charcoal from gates, pack it into bags and store it on the dry area

For detail information

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