
University of Pennsylvania
Institute for Environmental Studies

presents

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Carbon Sequestration via Wood Burial and Storage

A novel concept has emerged recently for carbon sequestration by wood burial and storage (WBS), in which forests are managed to optimal productivity and selected coarse woody materials are harvested, then buried in trenches or stowed away in above-ground shelters to prevent decomposition. Because a large flux of CO₂ is constantly being assimilated into the world's forests by photosynthesis, cutting off its return pathway to the atmosphere forms an effective carbon sink. The stored wood is also a carbon/energy bank that can be a biomass reserve should future biofuel technologies such as cellulosic ethanol become practical.

The theoretical potential is estimated at 10 GtC/y, largest in tropical forests (4.2 GtC/y), followed by temperate (3.7 GtC/y) and boreal forests (2.1 GtC/y). Burying wood has other benefits including minimizing CO₂ source from deforestation, extending the lifetime of reforestation carbon sink, reducing fire danger, and salvaging dying trees killed by disease, storm and other disturbances. There are possible environmental impacts such as nutrient lock-up which nevertheless appears manageable, but other concerns and factors will likely set a limit so that only part of the full potential can be realized, likely at a practical range of 1-5 GtC/y.

Based on data from North American forest industry, the cost for wood burial is estimated to be \$7-27/tCO₂ (\$25-75/tC), lower than the typical cost for power plant CO₂ capture with geological storage. The cost for carbon sequestration with wood burial is low because CO₂ is removed from the atmosphere by the natural process of photosynthesis at little cost. The technique is low tech, distributed, safe, easy to verify and monitor, thus an attractive option for large-scale implementation in a world-wide carbon market.

Date: March 3, 2010

Time: NOON - 1:30 pm

Place: Carolyn Hoff Lynch Auditorium

On the Penn campus: Chemistry Building
34 & Spruce Sts. (enter on 34 St)

NO REGISTRATION REQUIRED

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NO FOOD OR DRINK PERMITTED IN THE AUDITORIUM
