

RE: SHOEMAKER ET AL., 2013, 342:1323-1324

DOWN TO EARTH GLOBAL WARMING SOLUTION

Shoemaker et al. (1) weigh unpalatable short versus long-term trade-offs between reducing emissions of CO₂ versus short-lived climate pollutants to minimize future global warming impacts. Supply-side approaches amount to reshuffling Titanic deck chairs if they overlook demand-side solutions. CO₂ cannot be reduced to safe levels in time to avoid serious long-term impacts unless the other side of atmospheric CO₂ balance is included, by increasing sinks while simultaneously decreasing sources (2,3).

Nearly half the excess CO₂ in the atmosphere came from soil carbon loss prior to fossil fuel combustion (4,5). Soil holds around 4 times more carbon than atmosphere or vegetation, and could hold yet more again (5). The dynamic time response spectrum of CO₂ sources and sinks shows the fastest way to decrease CO₂ is to increase photosynthesis and biomass storage as tropical soil carbon (6), which could resolve the problem in decades, but CO₂ source reductions alone will take centuries to millennia to have an effect so impacts will be far worse (6).

Transferring carbon from atmosphere to soil would greatly increase soil productivity, biomass, groundwater resources, and reduce temperature through increased evapotranspiration. Effective methods to greatly increase soil carbon by intensifying natural biogeochemical recycling (7,8) work in agricultural lands (9), in reforesting degraded land (10), pastures, and forests.

“Down To Earth” underground grass-roots Geotherapy solutions (11) to global warming have been ignored by policy makers’ exclusive focus on source reductions and geo-engineering. They need to look at the other side of the Carbon coin, implementing solutions that can work in time to make a difference by removing carbon from the atmosphere, where it does the most harm, and putting it in the soil, where it does the most good. The answer lies at our feet.

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