

# Put the Trees in the Ground: A solution for the global carbon dioxide problem?

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Of the current global environmental problems, the excessive release of carbon dioxide from the combustion of fossil fuels and the related global warming is one of the most pressing.

In an essay in the journal *ChemSusChem*, Fritz Scholz and Ulrich Hasse from the University of Greifswald introduce a possible approach to a solution: deliberately planted forests bind the CO<sub>2</sub> through photosynthesis and are then removed from the global CO<sub>2</sub> cycle by burial. “For the first time, humankind will give something back to nature that we have taken away before,” says Scholz.

“Whereas other environmental problems can, at least in principle, be solved by the appropriate modern technology,” reports Scholz, “there are

no realistic solutions for the CO<sub>2</sub> problem.” At present, a daunting 32 gigatons of CO<sub>2</sub> are released into the atmosphere every year. Previous proposals to pump the CO<sub>2</sub> into the oceans are not practicable or are ecologically problematic.

The only possible way to bind sufficiently large quantities of CO<sub>2</sub> from the atmosphere is photosynthesis. However, the resulting biomass cannot be burned or composted, because this would release the bound CO<sub>2</sub>. The trick will be to make the biomass “disappear”. Scholz recommends planting forests whose wood will subsequently be buried. Possible burial sites include open brown coal pits or other surface mines. These should be filled with wood and covered with soil. Cut off from the air in this manner, the wood would not change, even over long periods. It could in principle be dug up in the future and used.

According to estimations made by Scholz and Hasse, we would have to plant a little over one billion (10<sup>9</sup>) hectares of forest in order to bind all of the carbon dioxide produced in a year. This corresponds roughly to the surface of the virgin forest cut down in the last century. This project could be financed by an additional tax of 0.11 € per liter of gasoline or 0.003 € per kilowatt-hour of electricity.

“The forests should be planted in countries that are suitable for growing forest and also have the necessary sites for burial of the wood,” stresses Scholz. “Other countries, the primary consumers of fossil fuels, can pay them for it. This would produce a global trade that would benefit everyone involved.”

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