

Washing Carbon Out of the Air

Klaus S. Lackner, Professor of Geophysics is the chair of the department of earth and environmental engineering Columbia University. In the paper as titled above Lackner observes in the Scientific American India/Scientific American, of June 2010, that machines with filters made from sorbent materials can capture carbon dioxide, extracting it from the air. The machine could slow down or even reverse the rise of carbon dioxide, thereby reducing global warming.

CO₂ capture machine developed by Lackner consisted of filters made from sorbent materials fixed in flat panels, one meter wide and 2.5 meters high. The panels were arranged to revolve around a circular track mounted on the top of a 40 feet high shipping container. The panels exposed to air were loaded with CO₂ and other gases, would drop down to a regeneration chamber inside the container. Trapped CO₂ was freed from the sorbent materials and compressed to liquid. Refreshed panels were moved up onto the upper track to continue the cycle afresh.

With mass production, the machine might capture CO₂ at \$30(Rs.1,350/-) per ton, less than \$100(Rs.4500/-) or more presently charged for CO₂ supply.

With improvised sorbents, 10 million machines across the planet, with each machine pulling 10 tons of CO₂ per day from the air could reduce CO₂ concentration by five parts per million annually, more than the present rate of global increase. CO₂ concentration in the earth's atmosphere is now at 380ppm and rising

The CO₂ collected by air capture machines could be used profitably by industry or stored underground. As an attractive alternative, the gas could serve as the feedstock for synthetic liquid fuels for transportation. Electricity would break one oxygen atom off a CO₂ molecule and another off a water molecule H₂O. The resulting mixture of CO and H₂ is known as synthetic gas, which has been used for almost a century as feedstock for fuels and plastics. The South African Energy Company, Sasol, has been making for years synthetic gasoline and diesel with synthetic gas produced from coal.

CO₂ can be used further for pressurizing agent to force oil from oil recovery feeds. CO₂ is already used for carbonation for beverages, and freezing agent for chicken meat. applications, CO₂ can be used as feedstock for synthetic gasoline, nutrient for algae farms that produce bio fuels, and raw material for carbonate- based cement.

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