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USE OF ACCELERATED OLIVINE WEATHERING AGAINST CLIMATE CHANGE

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Since the origin of the Earth, one natural process has removed almost all the carbon dioxide that was ever produced by various tectonic activities. That process is the reaction of carbon dioxide and water with rocks, a process known as weathering. We can accelerate and logically use the same process to remove the vastly higher carbon dioxide emissions caused by burning in a few hundred years the fossil fuels, that have taken hundreds of millions of years for their formation. This process called as Accelerated or Enhanced weathering is a carbon dioxide removal (CDR) strategy that is inexpensive, modeled on nature's natural long term carbon removal cycle, and requires no new or untested technologies in order to be deployed on a large scale.Ground olivine in large-scale coastal applications has been proposed as a low-tech, low-risk approach to remove carbon dioxide and also to counteract ocean acidification. With each 1 tonne of olivine weathered, equating to 1 tonnes of carbon dioxide stored eventually stored in magnesium bi carbonate.As a highly abundant mineral, there is sufficient olivine to remove significant quantities of carbon dioxide from the atmosphere and oceans.It is claimed that the rate of weathering of olivine is too slow to counter climate change, but they base this on experimental data in sterile laboratories, under exclusion of biotic and other environmental factors. Weathering experiments that use conditions closer to nature show already much higher weathering rates.With the help of data on the weathering of olivine in nature, it is explained that the weathering of olivine is fast enough to play an important role in the cycle of carbon dioxide capture and it is safe and sustainable storage as carbonate rocks.

Biography

Chirag Bhimani is working as Sustainability and Climate Change expert in India since 3 years now. Earlier he was working as the Head of Division in the Gujarat Pollution Control Board (State Environment Protection Agency in India). His major areas of interests are Environment and Climate Change Policy, Planning & Data Analytics; Air Quality Management; Climate Change Mitigation; Best Available Techniques (BAT) Reference Documents; Contaminated Sites Remediation and Management and Coastal & Marine Pollution Management.