Carbon Dioxide Removal (CDR)

There a many ways in which we can take CO2 out of the air, and they all have advantages and disadvantages. (https://m-huffpost-com.cdn.ampproject.org/c/s/m.huffpost.com/us/entry/us_6116c65ee4b0454ed70da0ba/amp.) The table below lists the main options available at present.

Afforestation

The most trusted and simplest way to sequester carbon is through photosynthesis by green vegetation. Planting trees has been advocated by many as the most efficient and cheapest carbon sink that is available, and if the carbon is locked into products like planks or furniture the carbon is captured for a long time. Critics have pointed towards many failed planting efforts, the use of wrong plants or trees for a particular area, the need for irrigation and the fact that the CO2 is emitted if the vegetation is burned or decayed. https://www.theguardian.com/environment/2021/jul/14/amazon-rainforest-now-emitting-more-co2-than-it-absorbs

The following is a list of afforestation initiatives that can provide carbon offsets through tree planting:

https://www.trees4travel.com/

https://ncx.com/ncx/

https://bamboologic.eu/en/compensation

https://carbonfund.org/project_category/forestry/

https://www.reforestaction.com/en/carbon-offsetting

Blue Carbon

The ocean absorbs immense amounts of carbon, and could absorb much more with strategic management interventions. This includes restoration and sustainable management of marine ecosystems and large scale seaweed cultivation, but there is also research on the use of iron shavings, carbonate and silicate to enhance absorption, even using electricity to accelerate the processes. (https://www.wri.org/insights/leveraging-oceans-carbon-removal-potential)

There are several ongoing initiatives to capture what is called "Blue Carbon" as a carbon offset opportunity, mainly by restoring sea grass beds.

https://oceanfdn.org/projects/seagrass-grow/

https://www.thebluecarboninitiative.org/

Technological solutions

One the other end of the spectrum are the technological solutions like direct air capture, manufacture of durable products from CO2 and Carbon Capture and Storage. While these technological solutions do not have the risk of reversal that is associated with the natural solutions, a more Research and Development is still required to get the technologies implemented at scale. Moreover, critics claim that significant emissions are created through these methods, and they take up large areas.

This is a list of some of the most promising options:

https://www.tomorrowsair.com/

https://www.weforum.org/agenda/2020/02/researchers-have-invented-a-brick-that-can-build-itself/

https://www.springwise.com/bricks-co2/

https://www.sccs.org.uk/images/expertise/briefings/SE-CO2-Hub.pdf