



Photo: Commonland

## Physical potential of Natural Climate Solutions for climate mitigation in the Netherlands

### Climate and nature emergency

We live under a climate and nature emergency declared by the EU parliament on November 29, 2019. Formerly radical ideas are becoming the new normal. What if we converted all our grassland into more productive agroforestry, and included silvopasture (pastures with trees) for our livestock to graze on? What if we convert the North Sea into seaweed plantations? What if we sped up the natural weathering of rocks by using rock flour as soil improver? What if we restore our peatlands, making more room for rivers and restoring the land as we found it thousands of years ago?

The result would be a landscape that reminds us much more of nature, that protects our cities and that we love to live in.

### The goal - double Nature

To overcome the emergency we must help nature to draw down 1500 gigatons (Gt) of CO<sub>2</sub> globally, as soon as possible. 1500 Gt is the weight of CO<sub>2</sub> already stored in plants and trees, so to store this same amount we need to double nature.

For the Netherlands that means removing about 15 Gt, which is 1500 megatons. Removing this in 2050 means we need to be removing 55 megatons\* per year by 2030. This factsheet shows how this relates to the potential of nature in the Netherlands. Luckily recent research shows that natural climate solutions are vastly underestimated. We have compared the Dutch climate ambitions with these findings, most notably the work done by Griscom et al (2017), Drawdown (2017) and Oxford University's Nature Based Solutions Initiative.

\* Following an S-shaped adoption curve

Analysis based on an order of magnitude approach based on conservative adoption curves applied on available data sets.  
Data available upon request (act@climatecleanup.org).

### Macroalgae

Kelp and other seaweed absorb large amounts of CO<sub>2</sub> and increases marine biodiversity.

**Potential: 8.57 megatons CO<sub>2</sub>**

### Olivine at sea

The use of olivine in coastal defences captures CO<sub>2</sub> through natural rock weathering.

**Potential: 6.76 megatons CO<sub>2</sub>**

### Olivine on land

The use of olivine as a nutrient in farming captures CO<sub>2</sub> through natural rock weathering.

**Potential: 4.5 megatons CO<sub>2</sub>**

### Timber Construction

The use of wood as a building material, such as cross laminated timber (CLT), saves energy and naturally stores carbon.

**Potential: 0.2 megatons CO<sub>2</sub>**

### Peatland Rewetting

Restoring Dutch peatlands to their former state reduces CO<sub>2</sub> emissions in the short term and creates long-term carbon sinks.

**Potential: 3.08 megatons CO<sub>2</sub>**

### Land Conversion

Better use of farm land leads to greater biodiversity and creates natural carbon sinks.

**Potential: 7.30 megatons CO<sub>2</sub>**

### Silvopasture

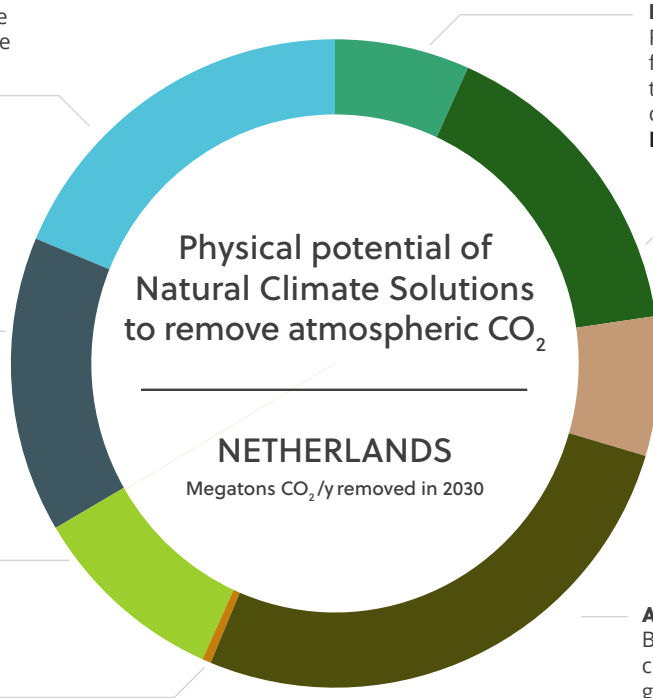
The intentional combination of trees, forage plants and livestock helps diversify farm incomes and creates natural carbon sinks.

**Potential: 3.18 megatons CO<sub>2</sub>**

### Afforestation

By restoring woodland and creating new forests the Netherlands will greatly increase the removal of atmospheric CO<sub>2</sub> and create desirable recreational landscapes.

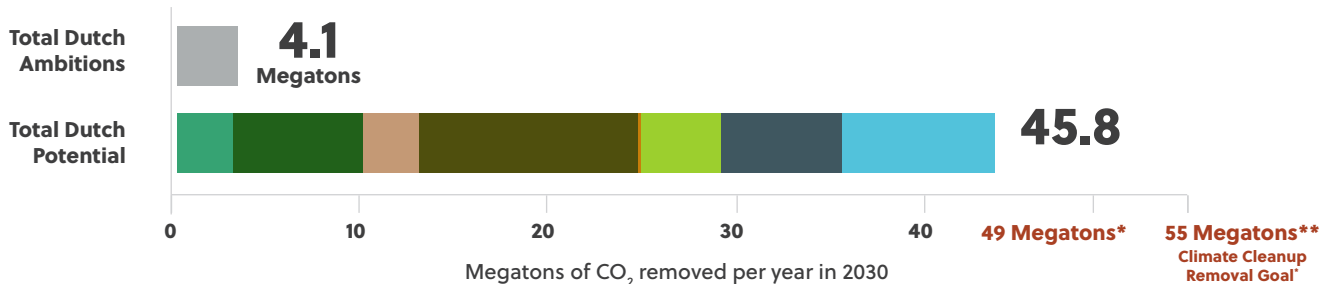
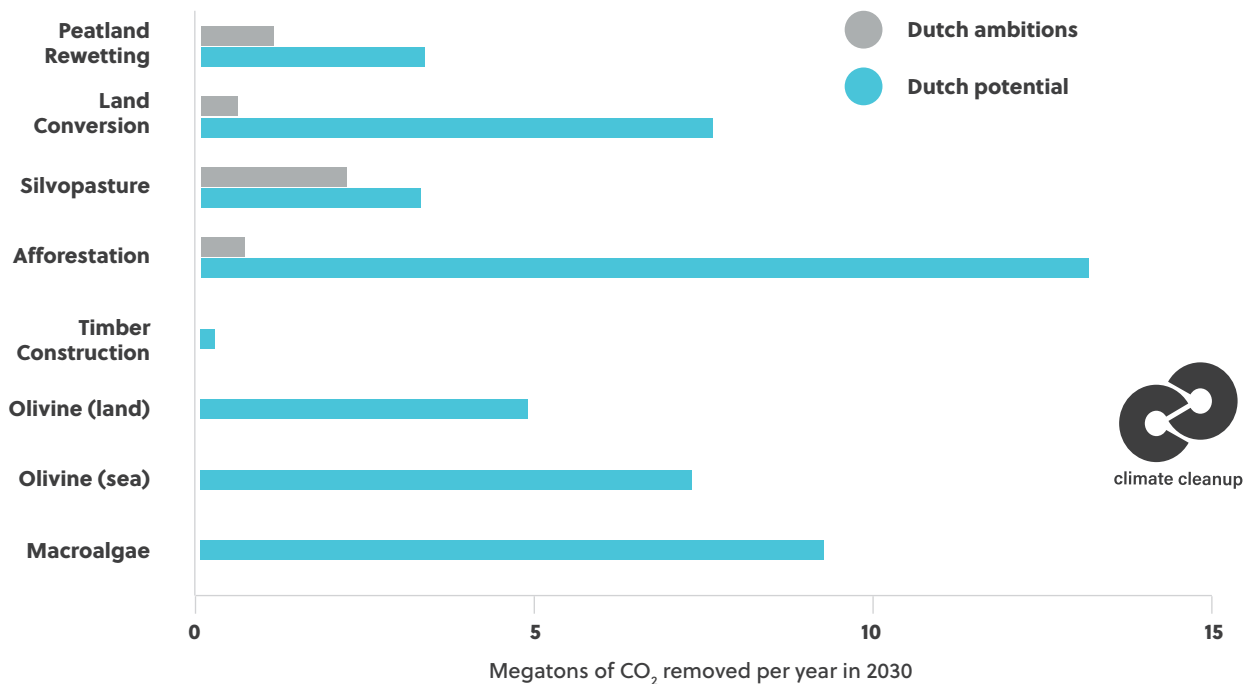
**Potential: 12.21 megatons CO<sub>2</sub>**



## Physical potential of Natural Climate Solutions to remove atmospheric CO<sub>2</sub>

### NETHERLANDS

Megatons CO<sub>2</sub>/y removed in 2030



## Dutch Ambitions vs. Dutch Potential for CO<sub>2</sub> Removal Using Natural Climate Solutions

\* 49Mt is the total reduction goal the Dutch government has set for 2030 (so not just carbon removal). This goal is derived from the European goals, which are founded in the National Determined Contributions (NDC's) as set in the Paris Agreement framework. This number is given for perspective; we do not suggest that emission reduction is not necessary, as using the full potential of NCS is a stretch; we need both reduction and removal.

\*\* The Netherlands is not even aiming to use 10% of its potential natural climate solutions. 55 Mt is the amount of CO<sub>2</sub> that the Netherlands should be removing, taking into account the historical emissions. The surface of the Netherlands is not enough to store all that is needed, which shows why reversing climate change requires a global effort.