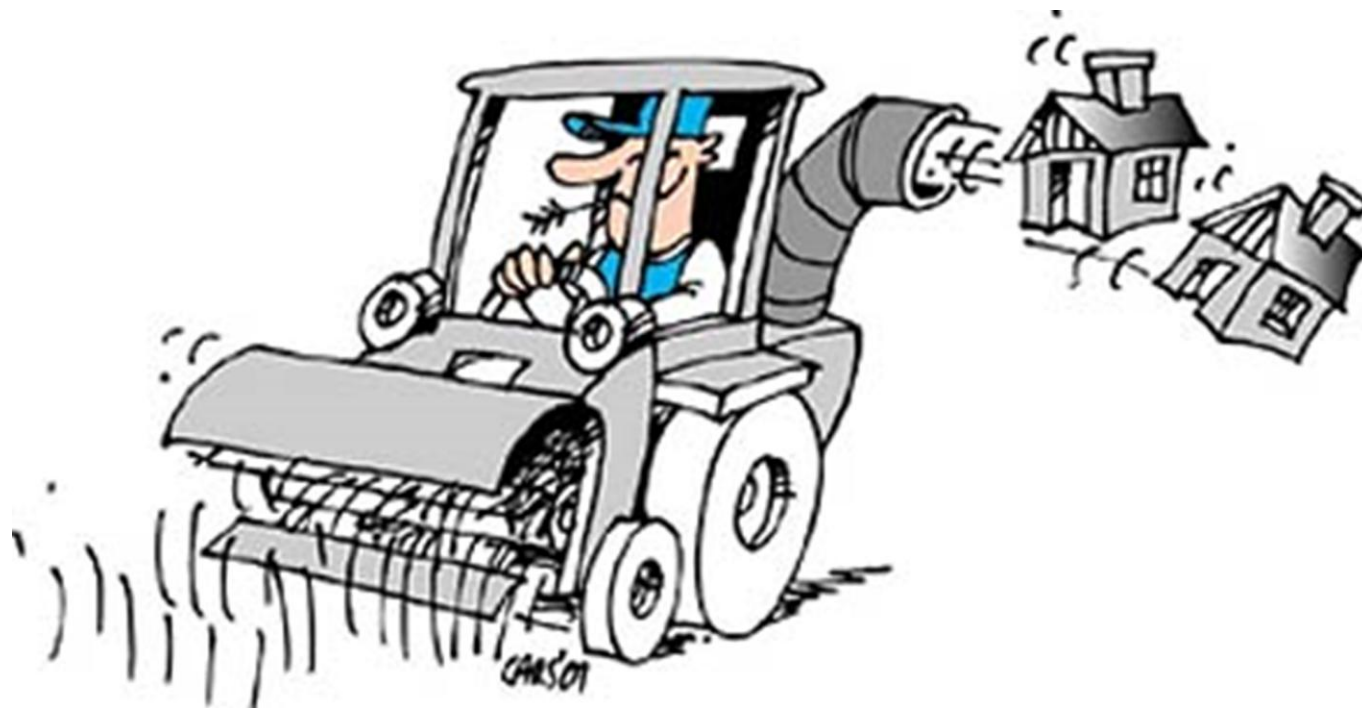
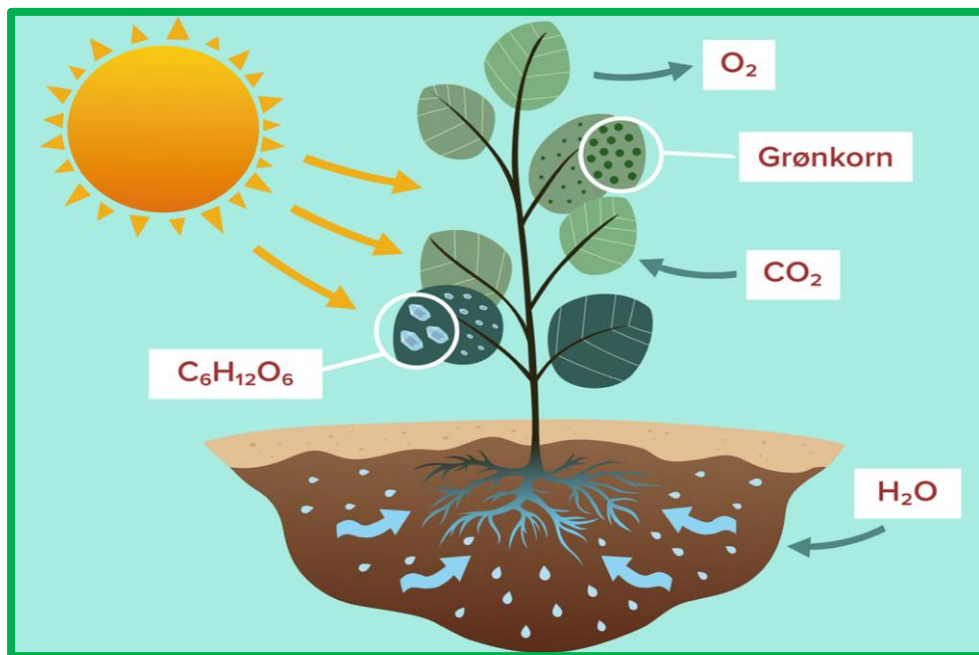




...from little things  
big things grow...

# Bygninger skal gros



Konstruktørforening, årsmøde

Koldingfjord

14. Marts 2025

Lars Keller  
EcoCocon Danmark



# Lars Keller

**EcoCocon Danmark ApS**

Co-founder

[www.EcoCocon.dk](http://www.EcoCocon.dk)

**Small Planet smba**

Co-founder

[www.SmallPlanet.dk](http://www.SmallPlanet.dk)

[Lars@EcoCocon.dk](mailto:Lars@EcoCocon.dk)

+45 2024 0505

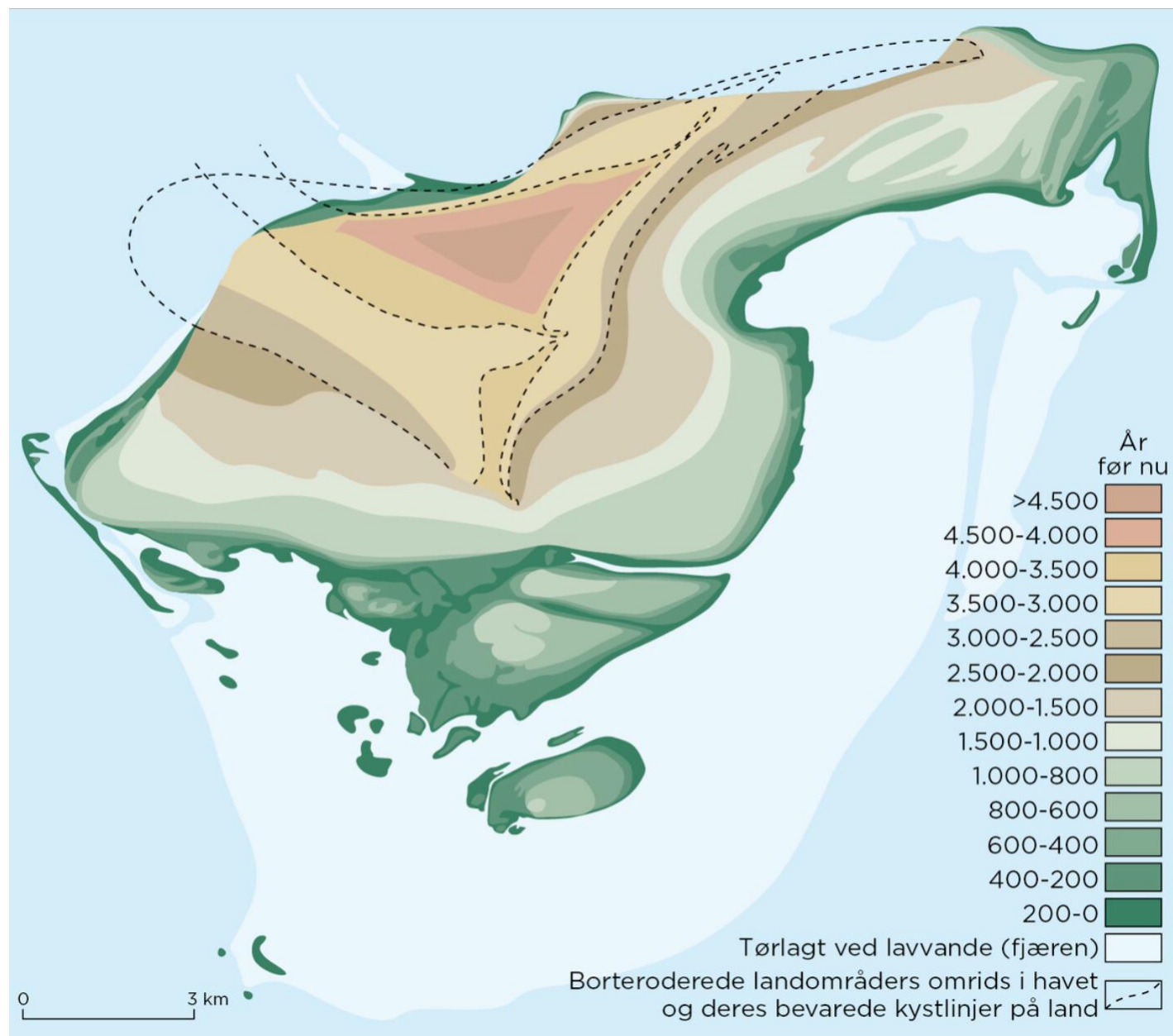
The big WHY  
Framingen  
The BIO way  
Eksempler  
Skalering



The big WHY











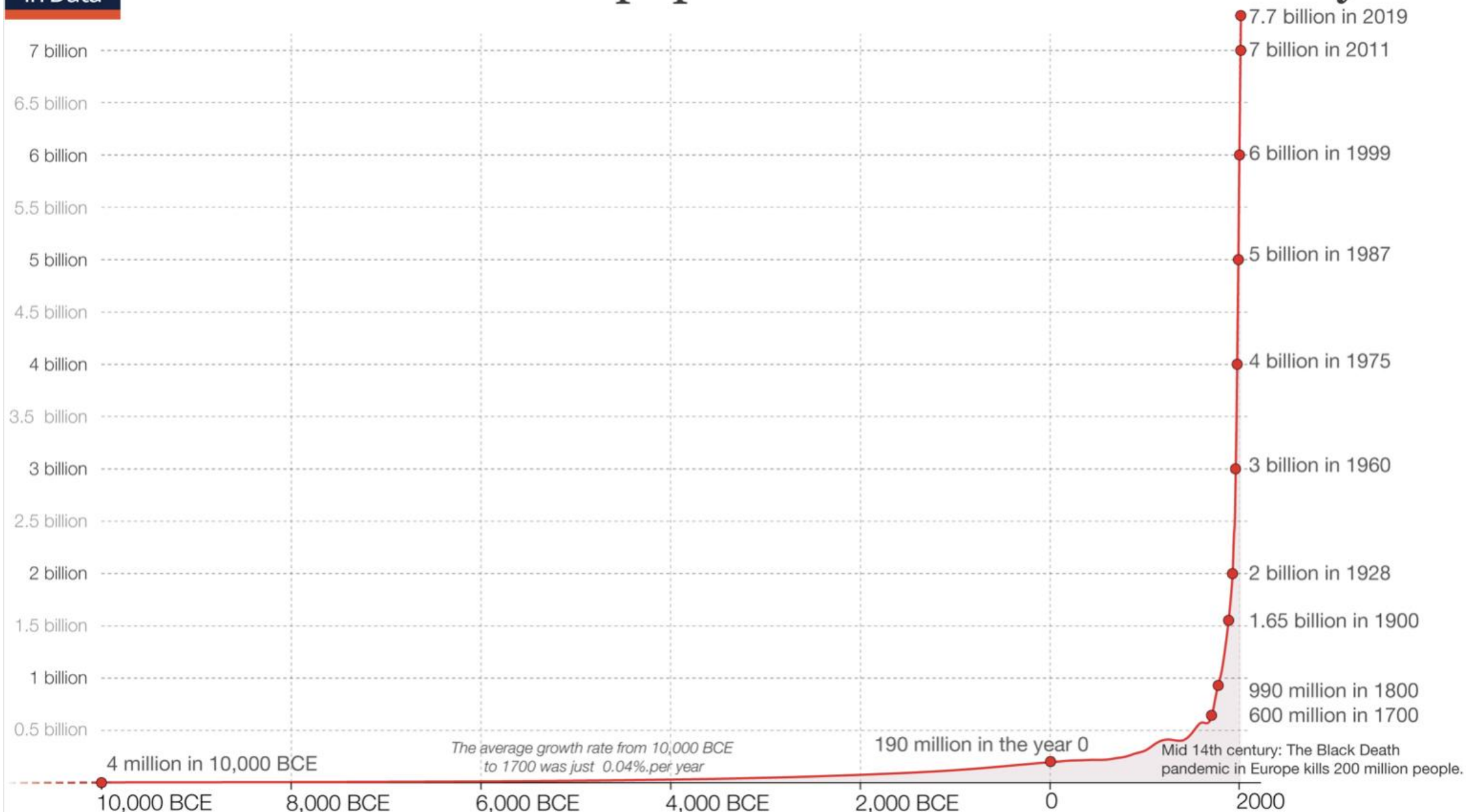


Emil Rindler 1898





# The size of the world population over the last 12.000 years



Based on estimates by the *History Database of the Global Environment* (HYDE) and the United Nations. On [OurWorldinData.org](https://ourworldindata.org) you can download the annual data.

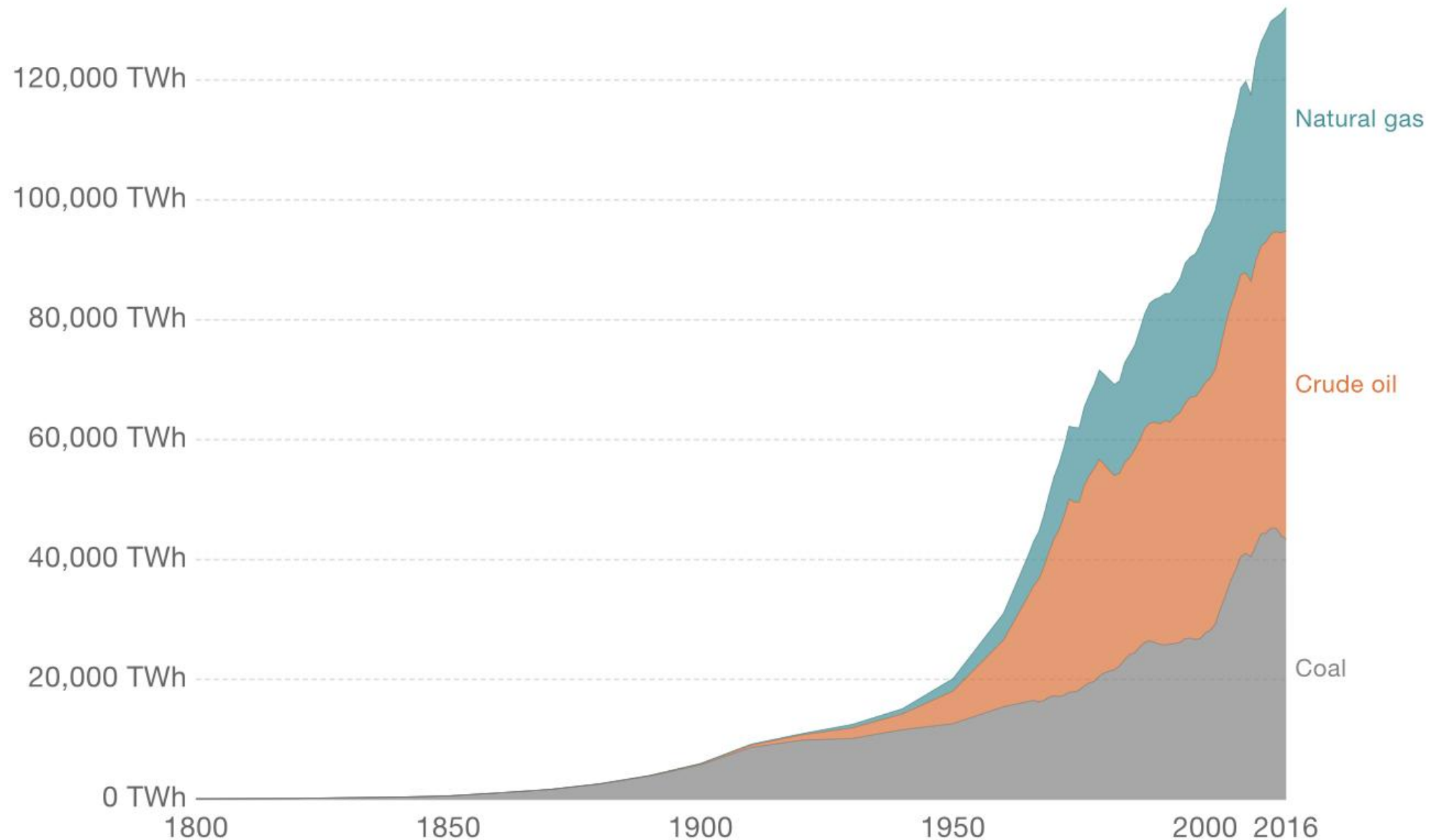
This is a visualization from [OurWorldinData.org](https://ourworldindata.org), where you find data and research on how the world is changing.

Licensed under [CC-BY-SA](https://creativecommons.org/licenses/by-sa/4.0/) by the author Max Roser.



# Global fossil fuel consumption

Global primary energy consumption by fossil fuel source, measured in terawatt-hours (TWh).



Source: Vaclav Smil (2017). Energy Transitions: Global and National Perspective & BP Statistical Review of World Energy  
OurWorldInData.org/fossil-fuels/ • CC BY-SA



# GLOBAL CO<sub>2</sub> LEVELS

Click and drag in the plot area to zoom in



CARBON DIOXIDE (CO<sub>2</sub> PPM)

425

400

375

350

325

300

275

250

1000

1100

1200

1300

1400

1500

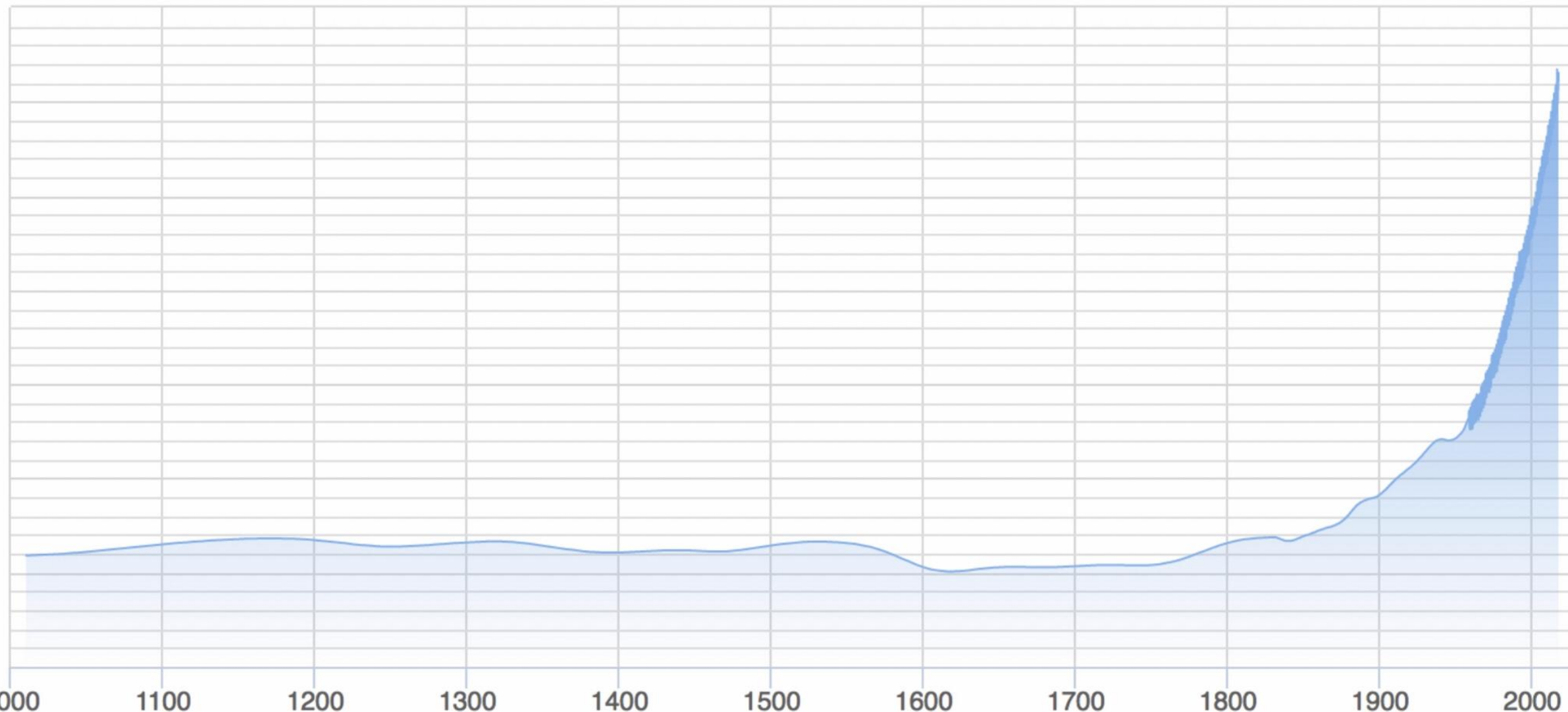
1600

1700

1800

1900

2000





The big WHY  
**Framingen**  
The BIO way  
Eksempler  
Skalering









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Published Jan 18, 2000

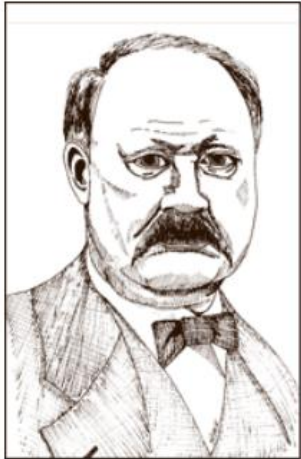
Atmosphere

Heat

Human Presence

## SVANTE ARRHENIUS (1859-1927)

by Steve Graham • January 18, 2000



A hundred years ago, Swedish scientist Svante Arrhenius asked the important question “Is the mean temperature of the ground in any way influenced by the presence of the heat-absorbing gases in the atmosphere?” He went on to become the first person to investigate the effect that doubling atmospheric carbon dioxide would have on global

climate. The question was debated throughout the early part of the 20th century and is still a main concern of Earth scientists today.



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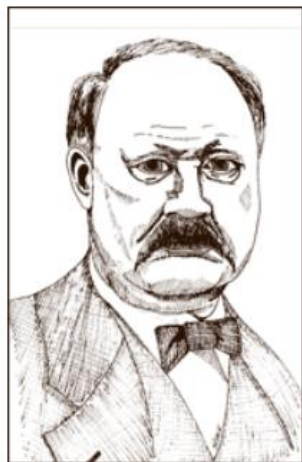
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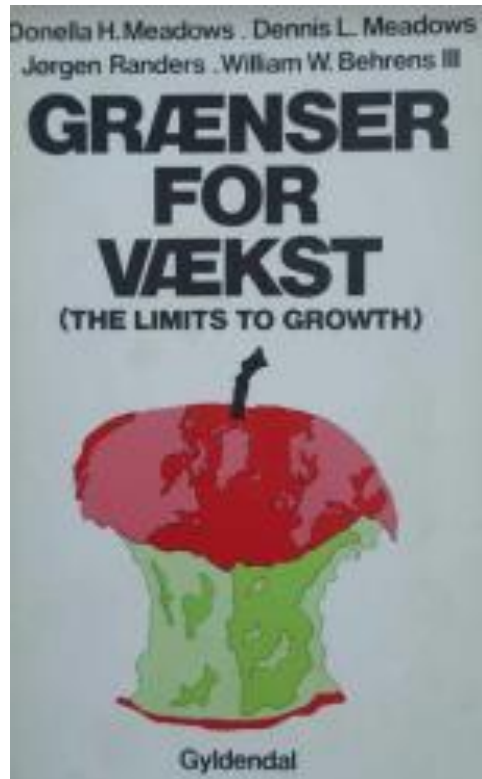
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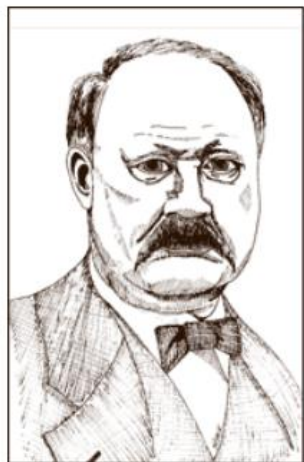
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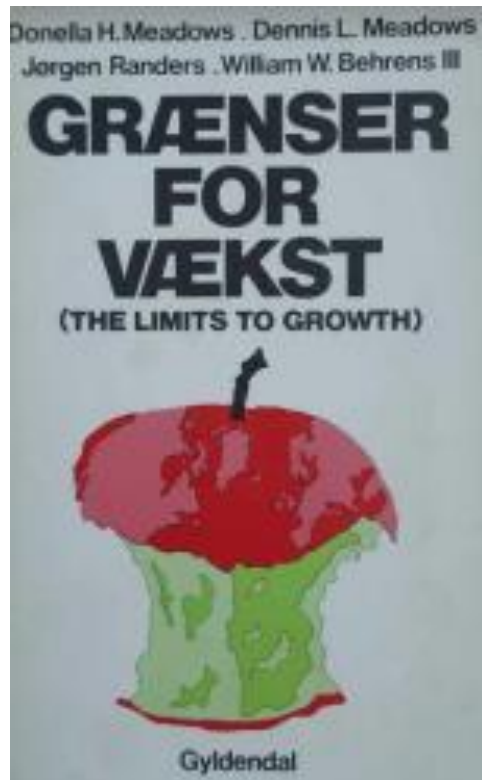
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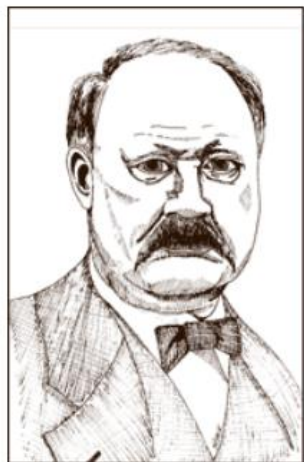
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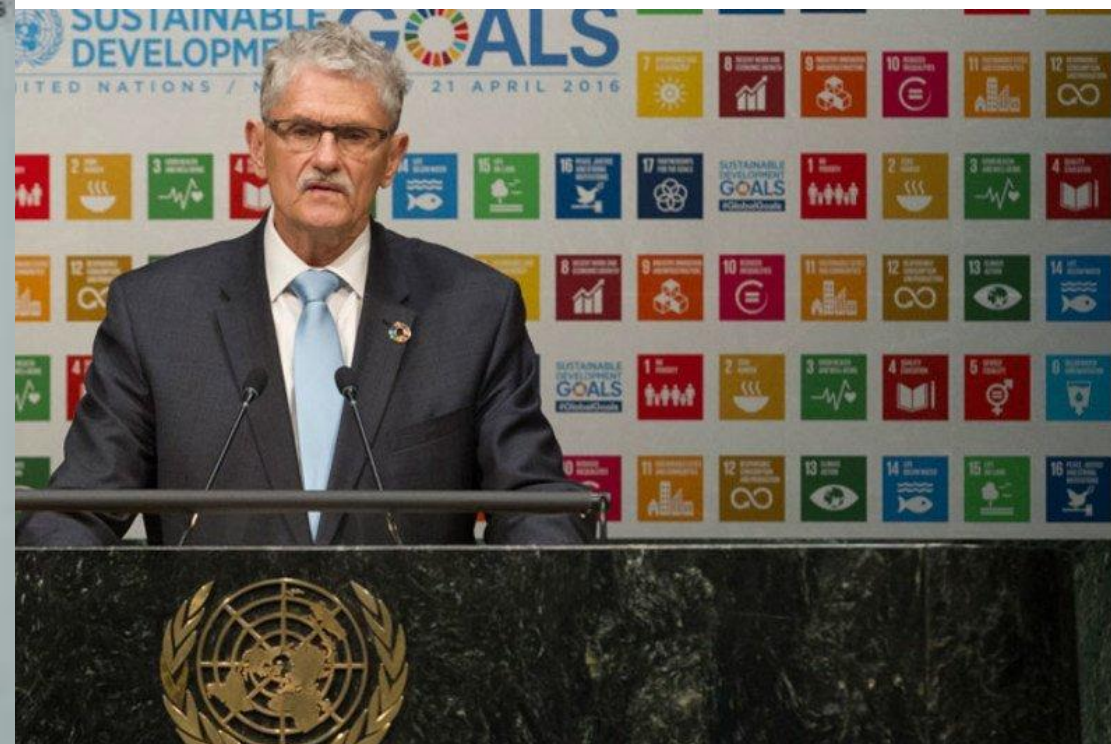
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## GRAENSER FOR VÆKST (THE LIMITS TO GROWTH)



Gyldendal







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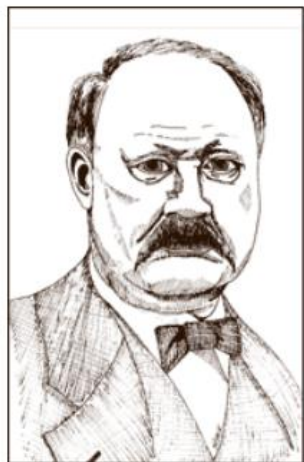
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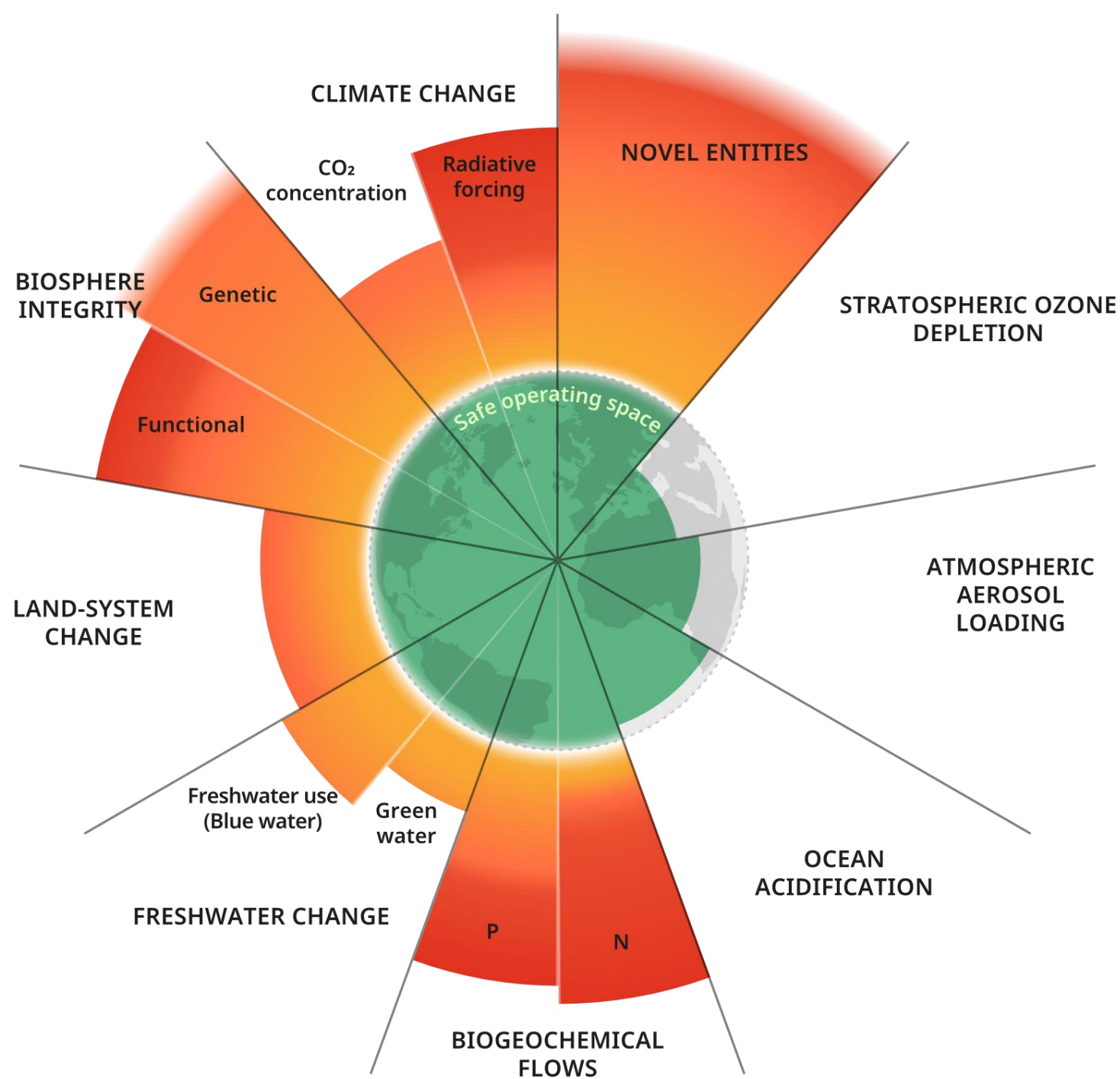


Gyldendal









Klimapåverking = befolkning \* rikdom \* teknologi



# Hvad har den største effekt

Klimapåvirkning = Befolkning \* Rigdom \* Teknologi

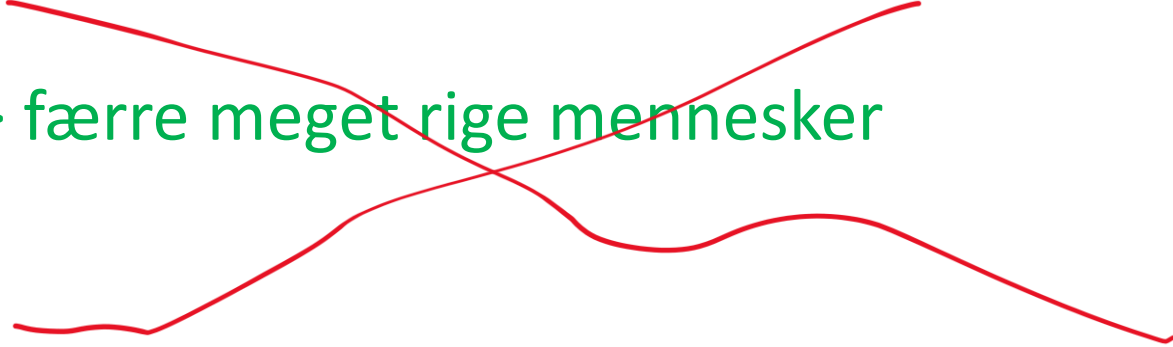
-> færre meget rige mennesker



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Mindre nybyggeri

Transformerings



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Klimapåvirkning = Befolkning \* Rigdom \* Teknologi

Mindre nybyggeri

Transformerering

Nybyggeri -> biogene materialer

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Transformering

Nybyggeri -> biogene materialer





Mindre nybyggeri

Transformerings

Nybyggeri -> biogene materialer

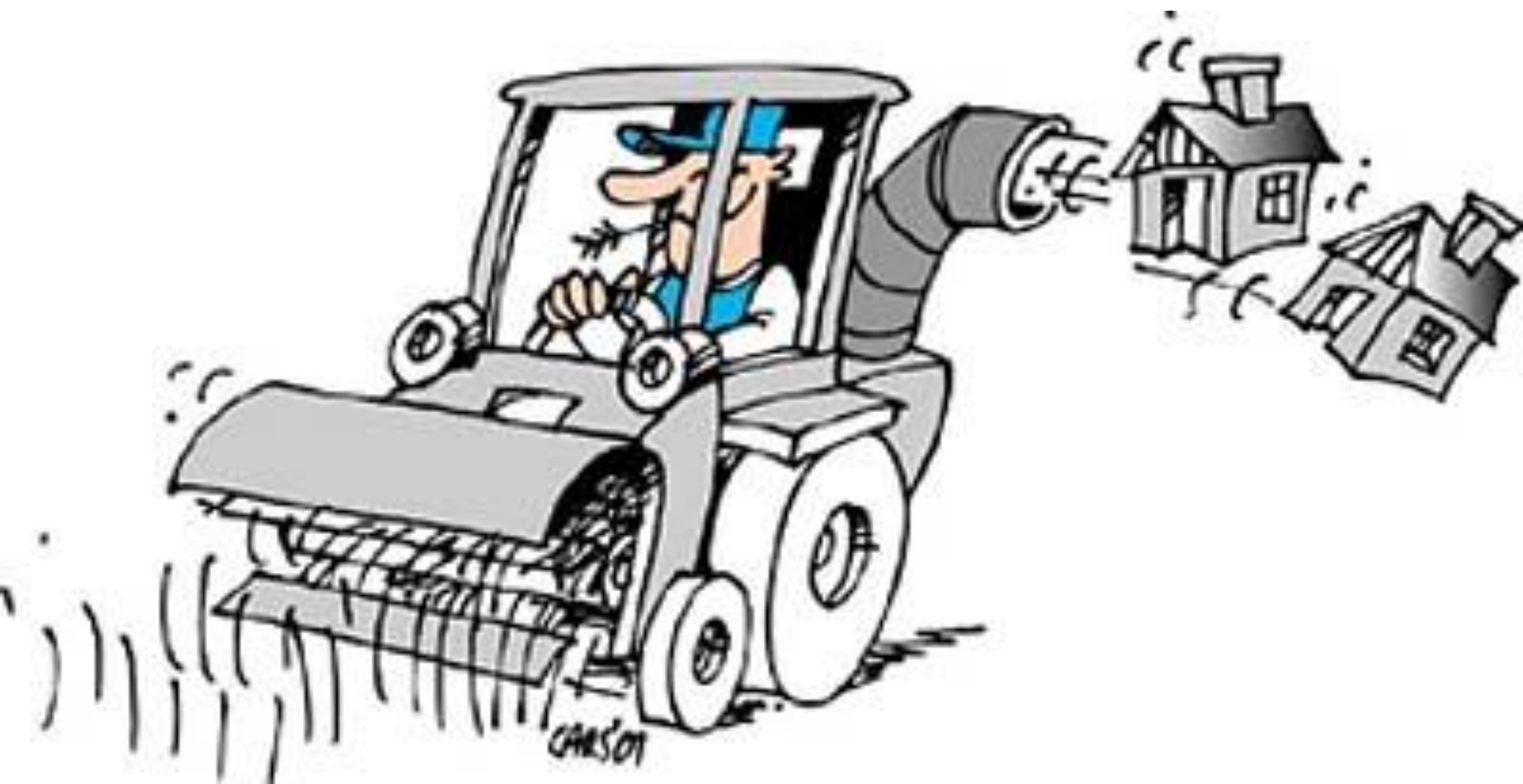


Mindre nybyggeri

Transformerings

Nybyggeri -> biogene materialer









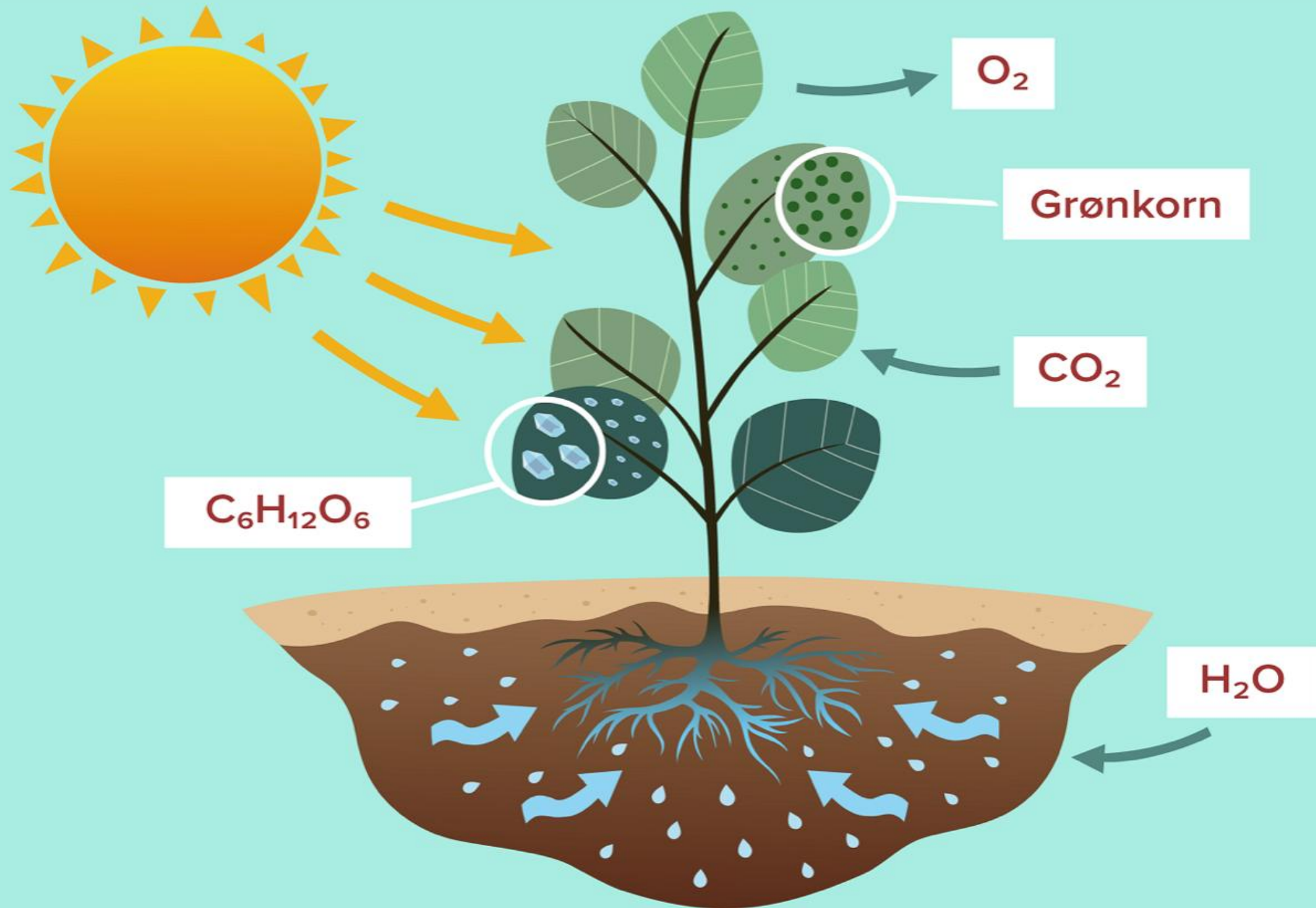
Hvad er  
biogent byggeri ?













# BYGGERIETS MATERIALEPYRAMIDE

## TÆNK PÅ MÆNGDER

om  
pyramiden

valg miljøpåvirkning

Global Warming Potential (GWP)

valg enhed

kg

valg materialegruppe

ingen filter

valg "funktionel enhed"

jf. enhed

| GWP [kg CO<sub>2</sub> eq / kg ]

| modul A1-A3

↓ scroll ned til  
"BEREGNEREN"

vælg materialer i pyramiden (klik) for  
at medtage dem i beregneren.  
Dobbelt-klik på et materiale for at se  
baggrundsdata.

10kg CO<sub>2</sub> eq/kg

1kg CO<sub>2</sub> eq/kg

0kg CO<sub>2</sub> eq/kg







Timber (sustainably harvested)



Wood fiber board



Hemp hurd & fiber



Cork



Rice hulls (& coconut, palm kernel, etc)



Cellulose (waste paper fiber)



Waste textiles



Straw (waste ag fiber)



Bamboo



Wool

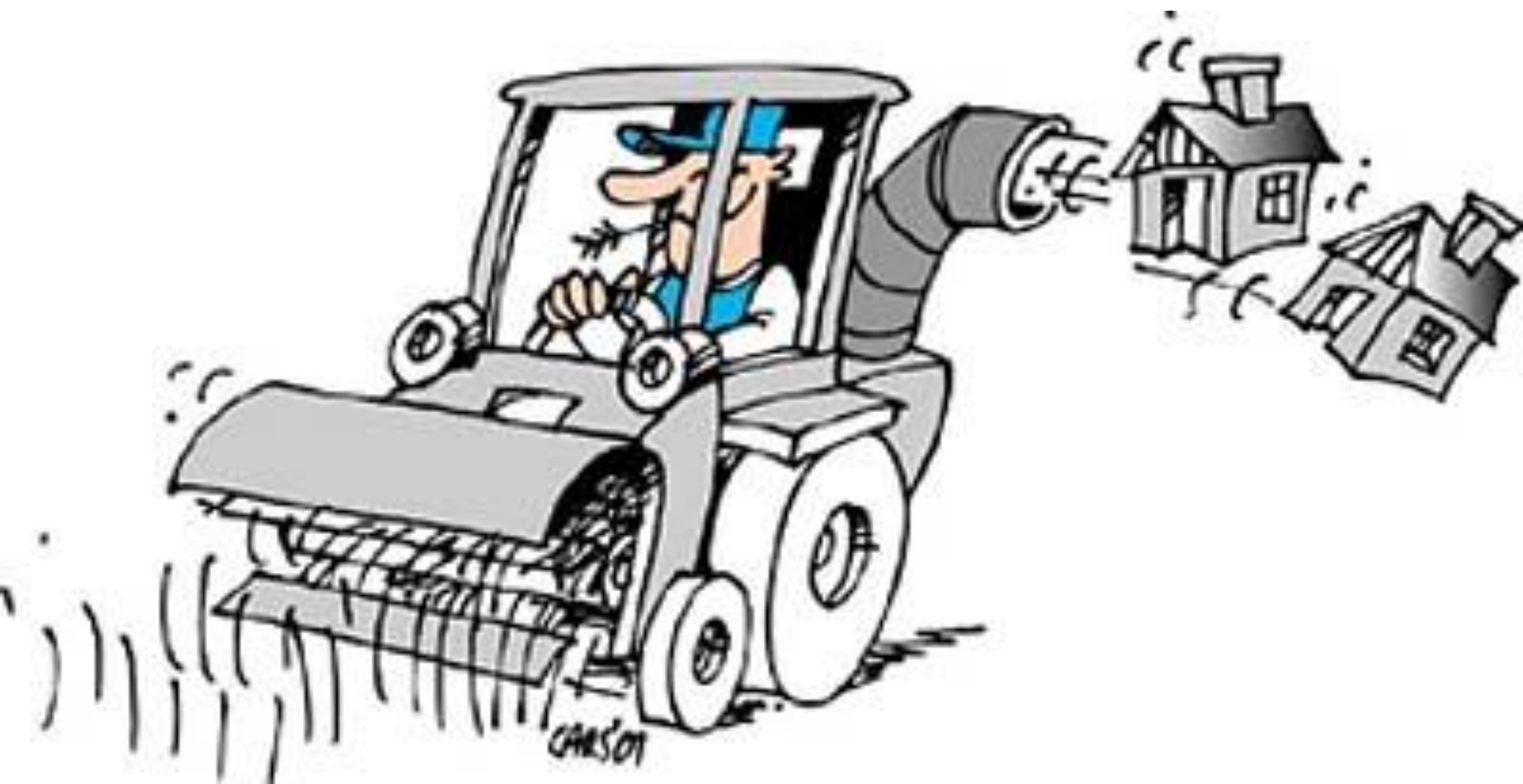
2.16 billion tons of grain straw were grown globally in 2016. That's enough carbon storage to offset all current transportation GHG emissions and more than replace all current insulation materials.











Hvad er potentialet ?

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Med 10-20% af den årlige halm-høst kan vi:



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- \* samme CO2 som betonindustrien udleder. Hvert år.

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- \* dertil den fortrængte CO<sub>2</sub>. Altså dobbelt op.



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Kilde BUILD Aau









Lad os komme igang...



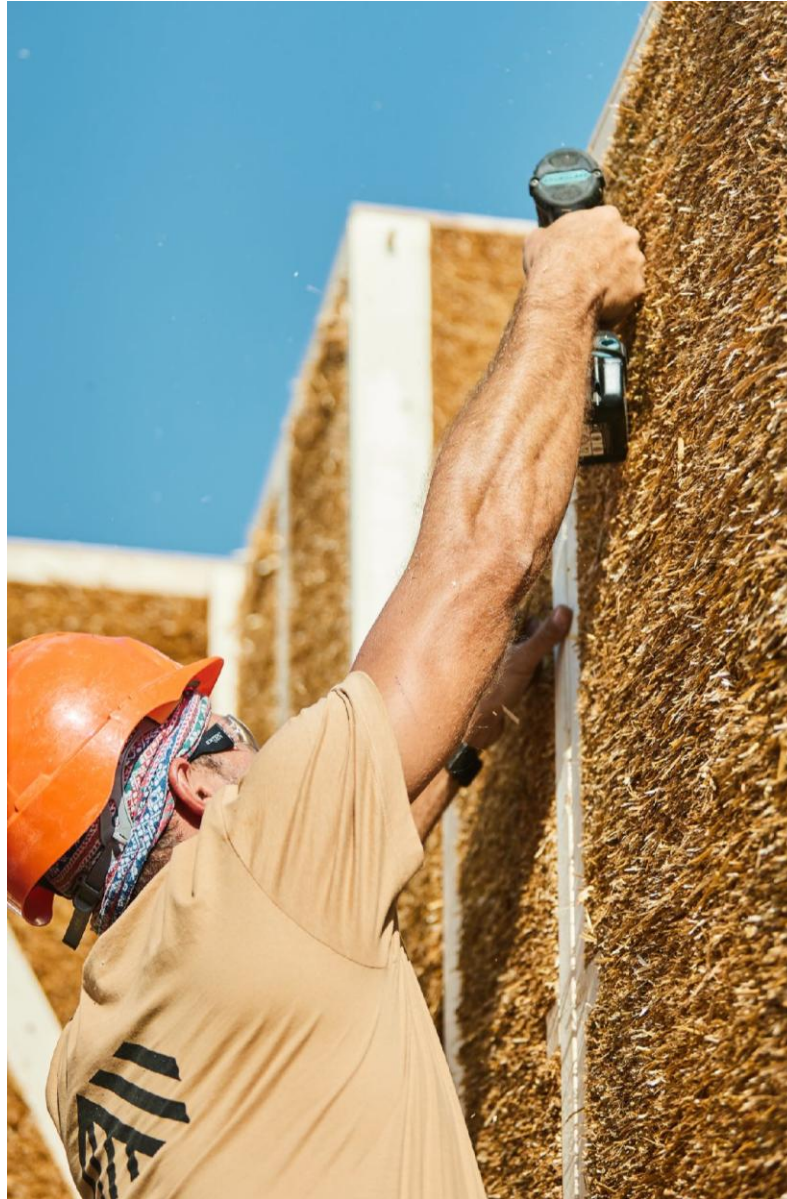
# Byg en bæredygtig fremtid med EcoCocon

EcoCocons halmelementer bidrager til en bæredygtig og sund levevis kombineret med enestående energieffektivitet. Lad dit drømmehus blive virkelighed på ingen tid.

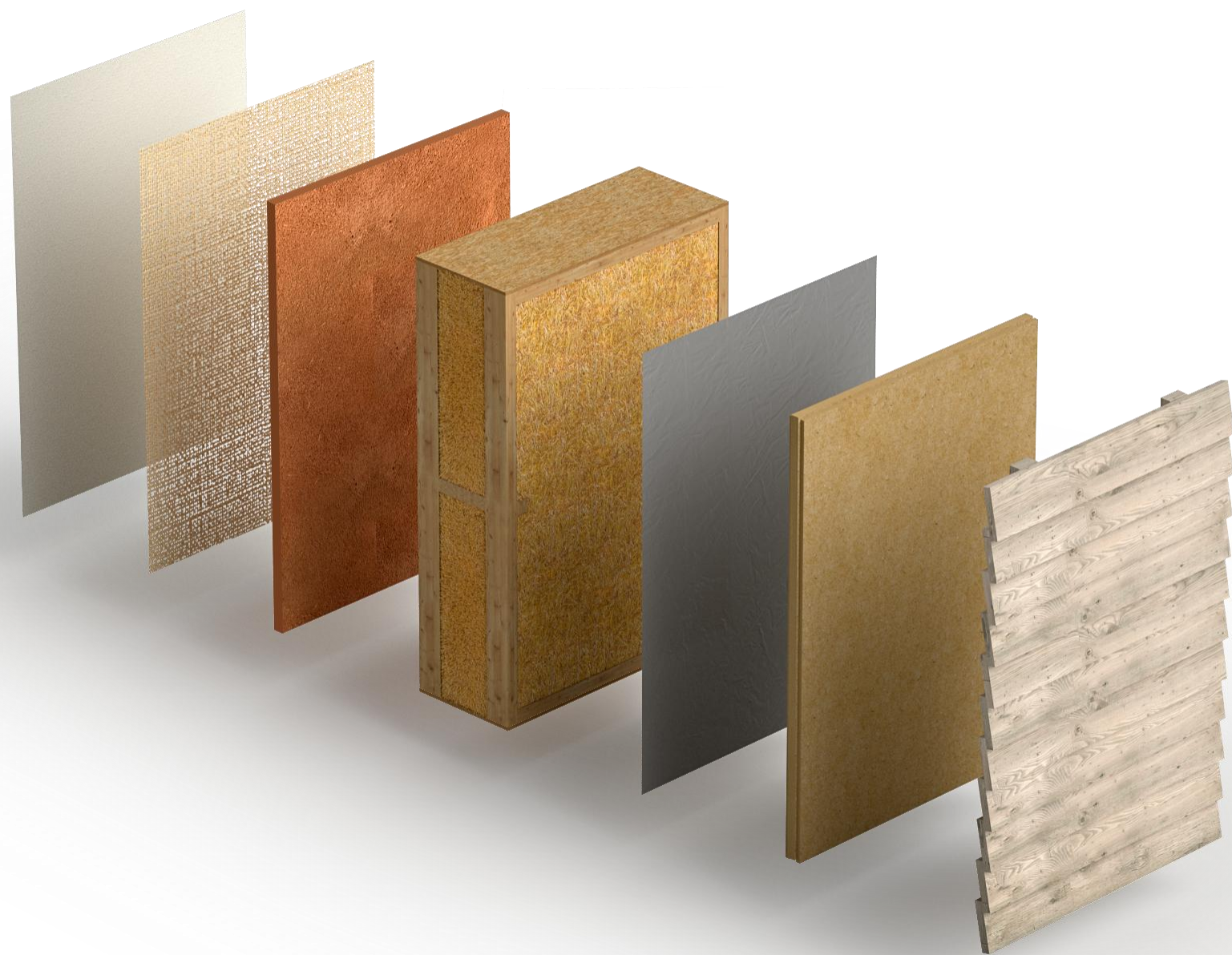


# Velkommen...til en revolution i byggesektoren

Foto: EcoCocon 







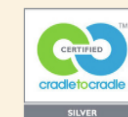




# EcoCocon halmvægssystem

## TEKNISKE EGENSKABER

- 1 Udvendig isoleringsplade af træfiber. Kan tyndpudses eller beklædes med ventileret facade.
- 2 Diffusionsåben vindspærre. Tillige vejrsikring i byggefasen.
- 3 Halmvægselemen. Højdensitets halmisolering. Dobbelt bærende konstruktion lavet af FSC-certificeret træ. Certificeret med fugtregulerende indvendig lerpuds.



## CHARACTERISTIKER



### ISOLERINGSVÆRDI

$U=0.123 \text{ W/m}^2\text{K}$   
 $\lambda=0.0645 \text{ W/mK}$



### BRANDSIKKERHED REI 120 & REI 120EF

B-s1, d0



### PRÆCISION

2 mm per 3000 mm  
Laves i 1 mm spring



### CO<sub>2</sub> OPTAG UNDER VÆKST

97.6 kg/m<sup>2</sup>



### I luft lydisolering

54 dB



### I last evne

Op til 110 kN/m



### halmens densitet

110 kg/m<sup>3</sup>



### montagetid

20-40 min/m<sup>2</sup>

eco  
cocon

[www.ecococon.dk](http://www.ecococon.dk)

The big WHY  
Framingen  
The BIO way  
**Eksempler**  
Skalering



# Onsite vs Præfab





















Arkitekterne  
bestemmer  
Designet











