Where does carbon come from? What are Carbon Sinks?

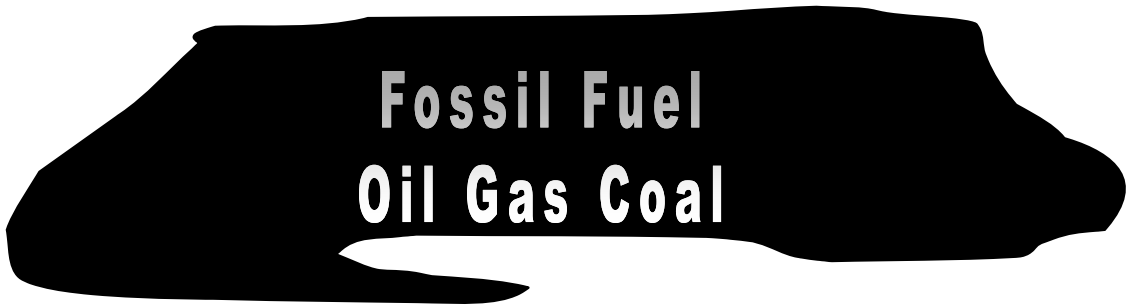
Presentation by
Jutta Kill
SinksWatch
jutta@fern.org
www.sinkswatch.org

Carbon dioxide is a gas that is created when carbon (C) comes in contact with oxygen (0):

CO – Carbon Monoxide
CO2 – Carbon Dioxide

Where carbon is stored

Active Carbon Pool

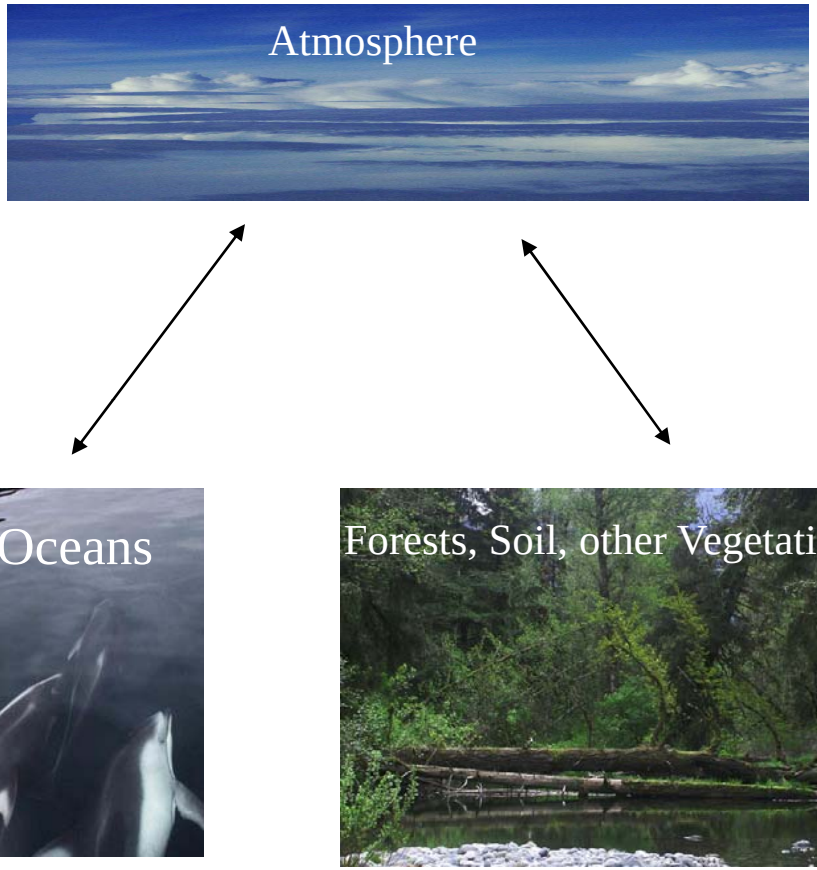


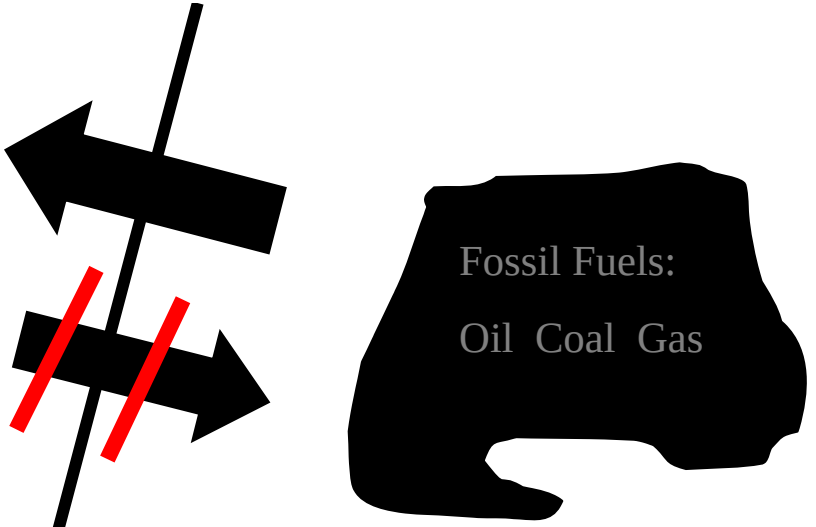
Fossil Carbon Pool

Active Carbon Pool:

Carbon is always moving between the forests, atmosphere and oceans

The overall amount in all three places (‘carbon stores’) together does not increase





Active Carbon Pool:

Carbon is always moving between the forests, atmosphere and oceans

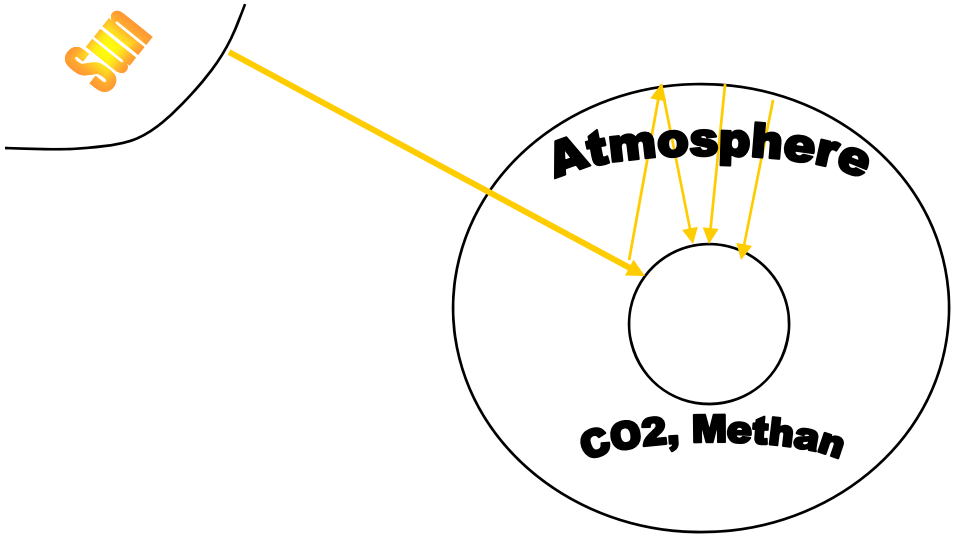
The overall amount in all three carbon stores together does not increase

Fossil Carbon Pool:

Carbon is locked away and does naturally not come in contact with the atmosphere

Fossil carbon is stored permanently in coal, oil and gas ***UNLESS*** humans mine coal, extract oil & gas

Once released, it will not move back into the fossil carbon pool for millennia – the time it takes for fossil carbon to be created



- Since 1750 the concentration of greenhouse gases has increased by 31%
- Two main sources of the increase:
  - Burning of fossil fuels – oil, gas, coal
    - Responsible for 75% of the increase
  - Forest destruction and degradation
    - Responsible for 25% of the increase

Government response to the problem of increased concentration of greenhouse gases in the atmosphere:

UN Framework Convention on Climate Change (**UNFCCC**)
and
Kyoto Protocol

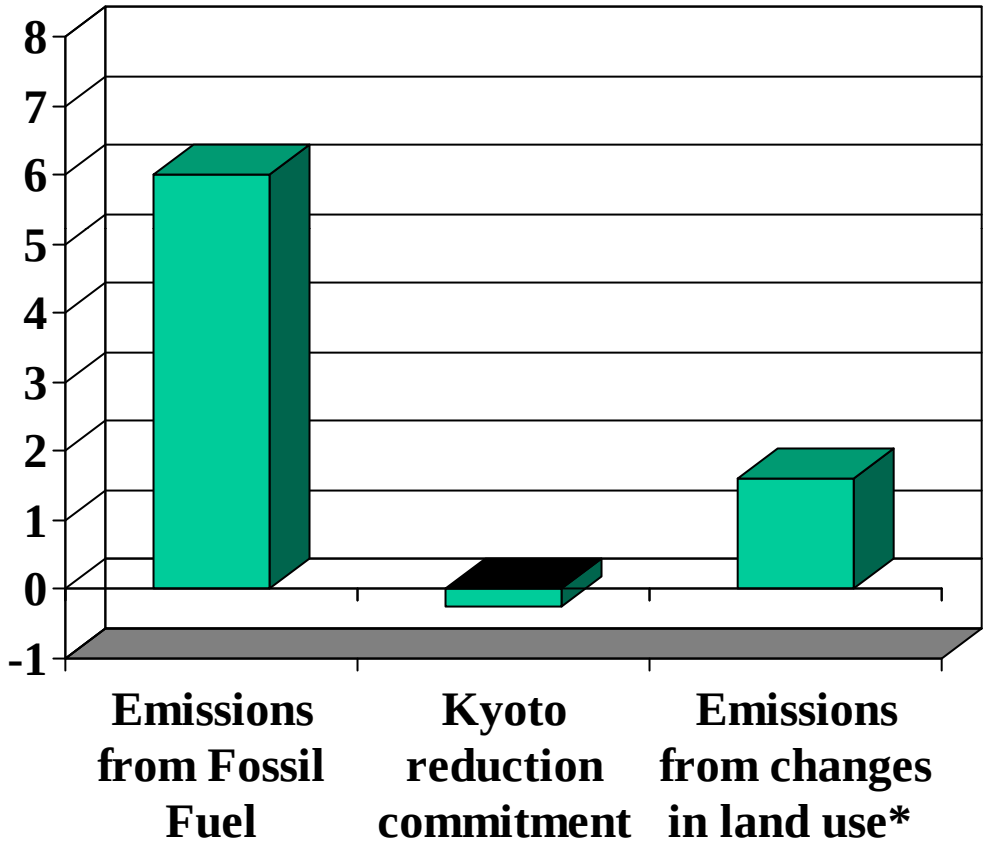
UNFCCC

- Signed in 1992 at Earth Summit in Rio
- Aim was stabilisation of greenhouse gas concentrations in atmosphere at level that avoids dangerous climate change
  - No definition of what constitutes dangerous climate change
  - No binding target to reduce emissions

Kyoto Protocol

- Result of ineffectiveness of UNFCCC to reduce emissions: current emissions are still ***RISING***, in both ‘developed’ and ‘developing’countries
- Kyoto Protocol obliges industrialised countries that ratify the Protocol to reduce emissions by average of 5.2% compared to 1990 emissions by 2012
- South has no emission limits because of historic debt of industrialised countries for excessive emissions

Worldwide annual emissions
in billion tonnes of carbon (giga tonnes)



- Kyoto Protocol:
  - 5.2 % average reduction by 2012

- Scientist estimate that at least **60 % reduction is needed by 2100** to avoid temperature to rise by more than 2°Celsius / dangerous climate change

- Governments and industry demanded ‘flexibility’ in how to achieve 5.2% reduction: Carbon trading and ‘flexible mechanism’ of the Kyoto Protocol

Clean Development Mechanism

- One of these ‘flexible mechanisms’ the industrialised countries insisted on before signing the Kyoto Protocol
- Originated from Brazilian proposal of a ‘Clean Development ***Fund’***
- Fund was unacceptable to industrialised country governments. Compromise: Clean Development ***Mechanism (CDM)***

Principles of the CDM

- Contribute to sustainable development
- Contribute to technology transfer
- Provide flexibility to achieve 5.2% Kyoto reduction target

How the CDM is thought to achieve these aims

- Argument that emissions know no borders and that reducing greenhouse gas emissions in the South will be as good a contribution to avoiding dangerous climate change than reductions in an industrialised country:
- If electricity in India is generated by hydro power or wind or solar panels (no fossil fuel used) instead of with a coal (fossil fuel) power plant, the hydro power will save emissions that would otherwise have been released into the atmosphere

- A company in an industrialised country can then buy the ‘saved’ emissions from the company that built the dam and use these ‘saved’ emissions in its factories in the industrialised country where it would otherwise have to reduce the use of fossil fuels to ensure it will not exceed to limit allowed under the Kyoto Protocol

CDM projects could be:

- Hydro power projects
- Tree plantations, also using genetically modified trees
- Wind farms
- Solar energy projects
- Geothermal energy projects
- Biomass energy projects
- Waste incineration projects
- Projects reducing emissions of other greenhouse gases