

Open seminar on negative emissions: Bridging societal and mitigation needs

Wednesday 2nd September 2015, Hokkaido University, Japan

Global Carbon Project (GCP)

Tsukuba International Office



About GCP

The Global Carbon Project (GCP) was established in 2001 in recognition of the large scientific challenges and critical nature of the carbon cycle for Earth's sustainability.

Diagnostics: Patterns & Vulnerability

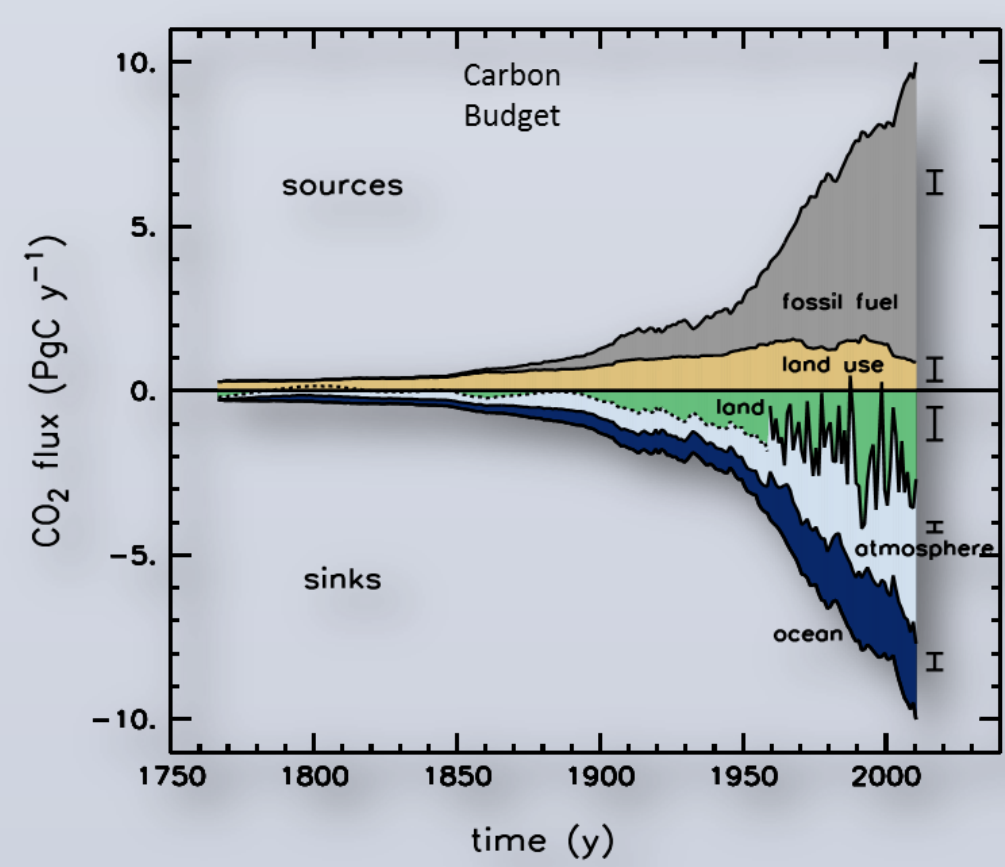
- Carbon Budget
- Methane Budget
- REgional Carbon Cycle Assessment and Processes
- Component Assessments: forests, grasslands

Vulnerability: Processes & Feedbacks

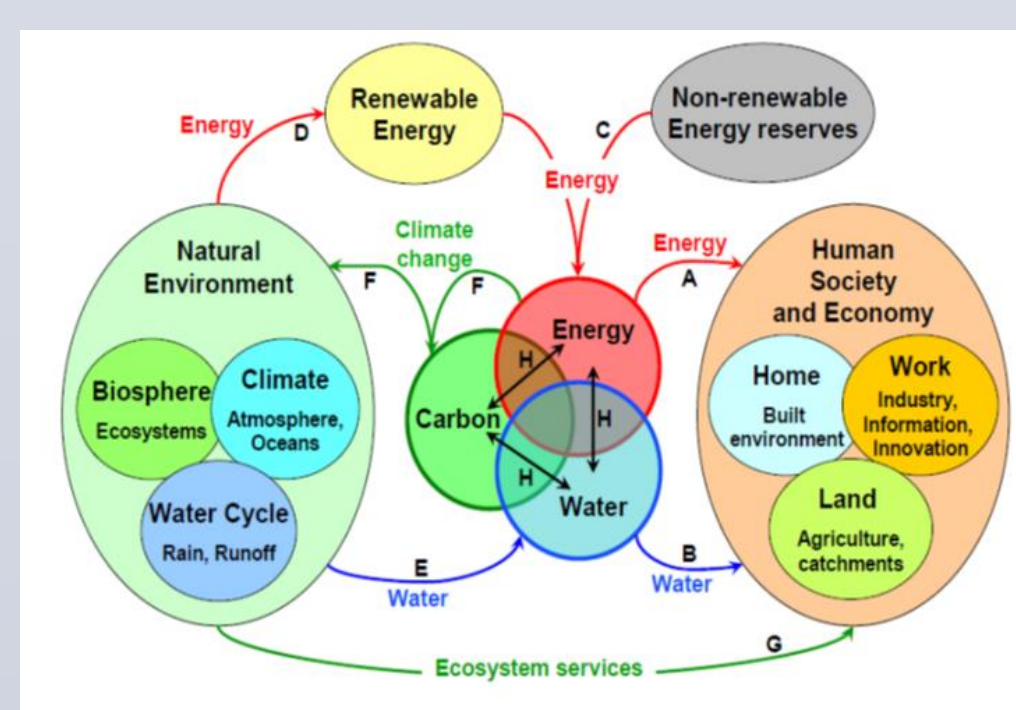
- Carbon pools size and vulnerability (permafrost, methane hydrates, global pools assessment)
- Socio-economic drivers of emissions

Low Carbon: Carbon Manag. & Policy

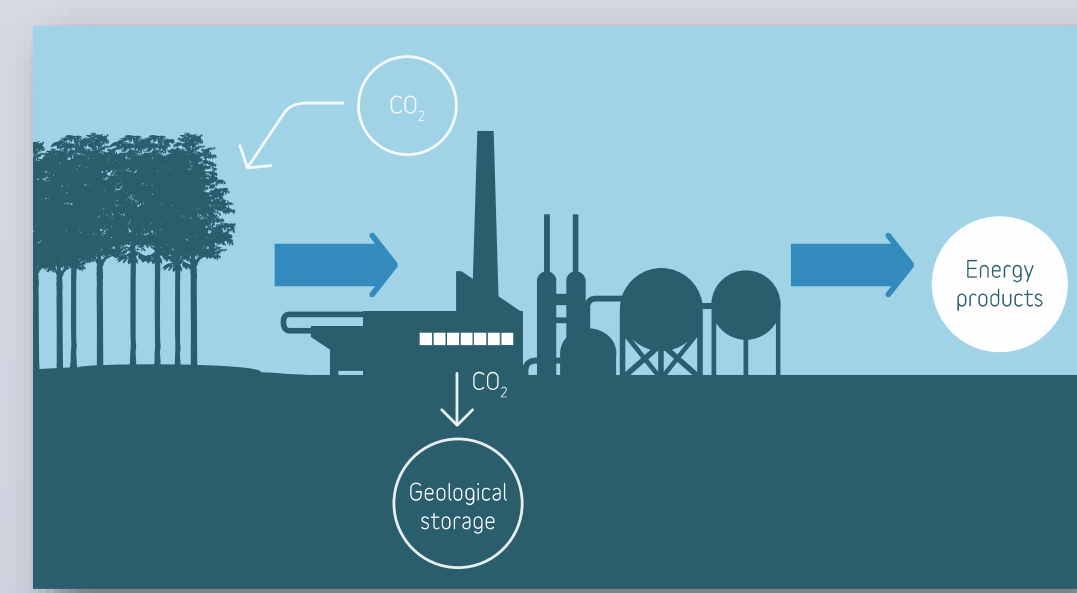
- Future carbon budgets (permissible emissions)
- Urban development
- Energy-carbon-water
- **Negative emissions**



Global Carbon Project 2013; Le Quére et al. 2013, ESSD



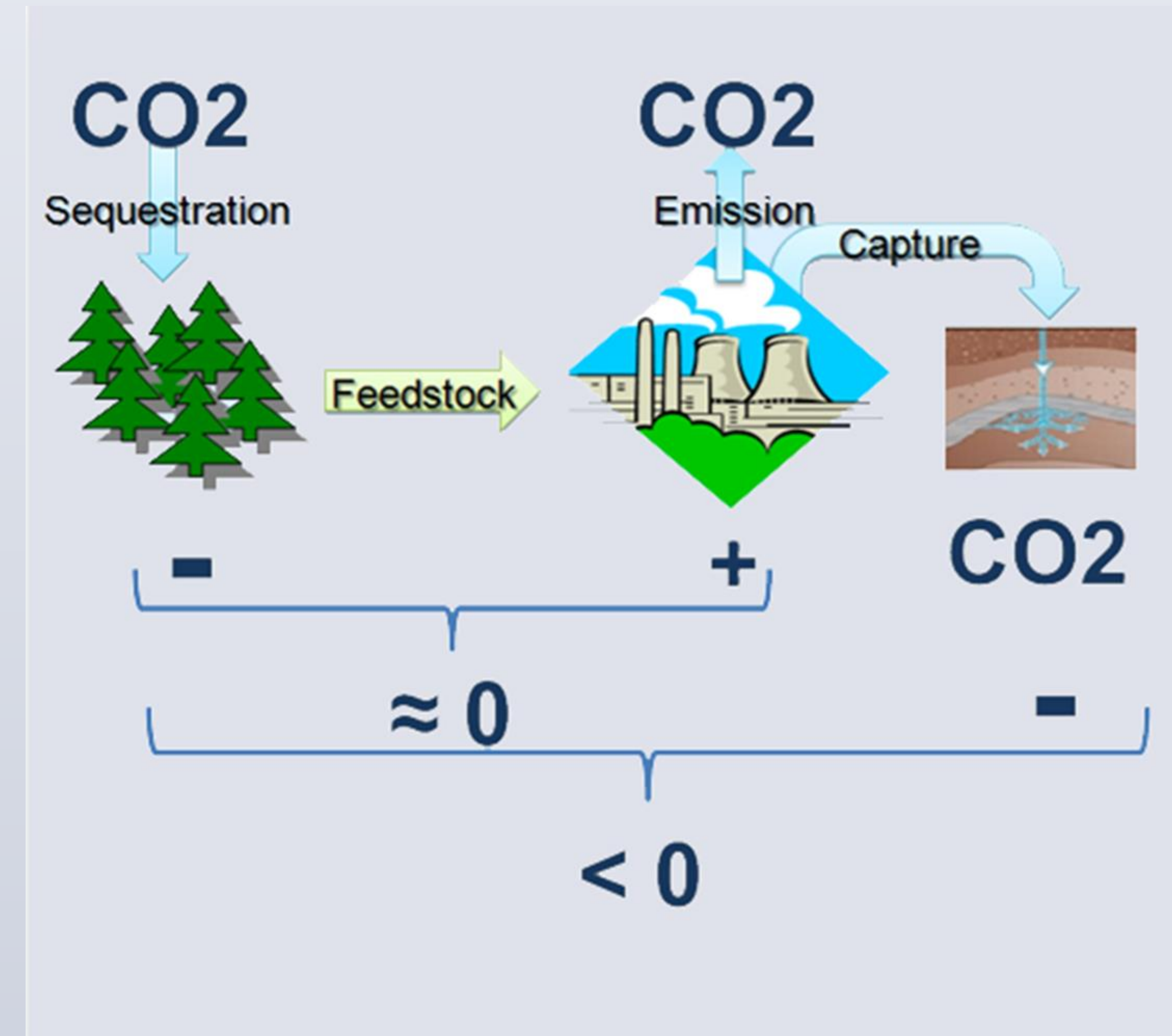
Raupach, 2010



Canadell and Schulze, 2014

MaGNET Initiative: Background

Keeping global warming to no more than 2°C above pre-industrial levels be achieved? One core ingredient in the mitigation mix are negative emissions (NE)—explicitly put forth as an option also by the recent IPCC-AR5—mostly based on carbon-neutral bioenergy (due to the same amount being sequestered by feedstock growth as being emitted when combusting biomass for energy generation) combined with carbon capture and storage (BECCS), which in addition captures CO₂ during the energy production phase. MaGNET explores the opportunities of and limits to BECCS and looks into other ways of achieving sustainable NE as well.



Kraxner et al., 2015

Objectives and Agenda

The main objectives of this half-day seminar of **MaGNET**(Management of Negative Emission Technologies) are **capacity building** (e.g. at universities, research facilities) and **outreach** to possible stakeholders both in terms of policymakers and in terms of those parts of industry that would implement NETs, especially BECCS (Bioenergy & CCS).

Date and Venue

Wednesday, 2 September, 2015

13:30-16:30

Graduate School of Environmental Science, D201

Hokkaido University

N10W5 Sapporo, Hokkaido 060-0810

13:30-13:40	Welcome address and workshop outline/rationale	Hokkaido Univ. / NIES
13:40-14:10	The Need for Negative Emissions	Sabine Fuss and Pete Smith
14:10-14:30	From Global Biomass Issues to the Japanese situation	Florian Kraxner
14:30-14:50	2 nd generation agricultural biomass	Etsushi Kato
14:50-15:00	Coffee break	
15:00-15:20	Current trends and issues in utilizing biomass energy in Hokkaido, Japan	Masahiko Fujii
15:20-15:45	CCS pilot in Tomakomai - Introduction of CCS and negative emissions	Atsushi Kurosawa
15:45-16:00	CCS in Korea	Yowhan Son
16:00-16:30	Panel discussion	Yoshiki Yamagata (chair)

Organizers

- Yoshiki Yamagata, NIES
- Masahiko Fujii, Hokkaido University
- Ayyoob Sharifi, NIES
- Sabine Fuss, MCC, Germany
- Florian Kraxner, IIASA, Austria

References

- Canadell, Josep G., and E. Detlef Schulze. "Global potential of biospheric carbon management for climate mitigation." *Nature communications* 5 (2014).
- Fuss, Sabine, et al. "Betting on negative emissions." *Nature Climate Change* 4.10 (2014). Kraxner, F, et al. (2015). The role of bioenergy with carbon capture and storage (BECCS) for climate policy. In J. Yan (Ed.), *The Handbook of Clean Energy Systems* (Vol. 3, pp. 1466-1483): John Wiley & Sons, Ltd.

Further Information

<http://www.globalcarbonproject.org/>

<http://www.cger.nies.go.jp/gcp/>

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