



Risks, Challenges,  
Opportunities?

SPP 1689 WORKSHOP:

## **Terrestrial CO<sub>2</sub> Removal: Potentials and tradeoffs in the SDG context**

**When:** 22–23 January 2018.

**Where:** Potsdam Institute for Climate Impact Research, Telegrafenberg, Building A56 – Conference Room in basement), 14473 Potsdam.

See here for travel information: <https://www.pik-potsdam.de/contact/where>.

**Scientific Coordination:** Dieter Gerten, Alexander Popp

### **Motivation**

Ambitious climate stabilization targets will – according to the large majority of currently quantified mitigation scenarios – require substantial deployment of Carbon Dioxide Removal (CDR) technologies. Also the Paris Agreement explicitly includes the possibility of such technologies to reach the agreed goals by calling to achieve a “balance between emissions sources and sinks in the second half of the century”. While various CDR technologies are discussed, terrestrial CDR (tCDR) via afforestation and/or bioenergy plantations promise highest potentials. However, large-scale tCDR implementation may violate planetary environmental boundaries and may have severe implications for reaching Sustainable Development Goals (SDGs) other than Climate Action, constraining its effectiveness and necessitating multi-perspective negotiations. Those feedbacks and tradeoffs have to be taken into account for a comprehensive evaluation of potential tCDR techniques.

### **Objective**

This workshop looks into a set of pertinent questions related to potentials of tCDR methods and their interaction with SDGs. It brings together ~40 SPP researchers and external experts to increase our holistic understanding of global and regional potentials and side-effects of tCDR as well as to identify future research priorities.

## AGENDA

### 22 JANUARY, MONDAY

- 12.00–13.00** **Registration and welcome lunch** (light buffet)
- 13.00–15.00** **Plenary I: Setting the Scene** Moderator: J. Strefler
- 13.00–13.15** **Welcome address**  
*Ottmar Edenhofer (Potsdam Institute for Climate Impact Research / Mercator Research Institute on Global Commons and Climate Change)*
- 13.15–13.25** **Introduction to workshop objectives**  
*Andreas Oschlies, Dieter Gerten, Alexander Popp*
- 13.25–13.40** **Bioenergy, tCDR and the integrity of the biosphere: time to think again**  
*Wolfgang Lucht (Potsdam Institute for Climate Impact Research)*
- 13.40–13.55** **(t)CDR use in 1.5°C and 2°C mitigation pathways**  
*Elmar Kriegler (Potsdam Institute for Climate Impact Research)*
- 13.55–14.10** **Climate responses on overshoot and CDR**  
*David Keller (GEOMAR Helmholtz Centre for Ocean Research Kiel)*
- 14.10–14.25** **Robust climate risk management necessitates early carbon sink enhancement**  
*Michael Obersteiner (International Institute for Applied Systems Analysis)*
- 14.25–14.40** **Land-based CDR under the Paris Agreement: country pledges, transparency and credibility**  
*Joanna House (University of Bristol)*
- 14.40–15.10** **Discussion**
- 15.10–15.45** **Break**
- 15.45–17.15** **Plenary II: Sustainability Implications** Moderator: A. Oschlies
- 15.45–16.00** **Role of tCDR in mitigation pathways and SDGs**  
*Alexander Popp (Potsdam Institute for Climate Impact Research)*
- 16.00–16.15** **Reforestation: tCDR potentials and climate effects**  
*Lena Boysen (Max Planck Institute for Meteorology)*
- 16.15–16.30** **tCDR in the context of global water use with a view on planetary boundaries**  
*Dieter Gerten (Potsdam Institute for Climate Impact Research)*
- 16.30–16.45** **Geoengineering and the SDGs – the case for exploration and learning between multilateral agencies and academia**  
*Matthias Honegger (Perspectives Climate Research)*
- 16.45–17.15** **Discussion**
- 17.15–17.30** **Wrap-up**
- 19.00–22.00** **Dinner** at „Fliegender Holländer“, Benkertstr. 5, Potsdam

## 23 JANUARY, TUESDAY

### **9.00–10.30 Panel discussion: How to implement tCDR in the SDG context**

*Moderator: C. Kammann*

*Jan Börner (University of Bonn)*

*Dominic Lenzi (Mercator Research Institute on Global Commons and Climate Change)*

*Hermann Lotze-Campen (Potsdam Institute for Climate Impact Research)*

*Jörg Niewöhner (Humboldt University Berlin)*

*Harald Stelzer (University of Graz)*

### **10.30–11.00 Break**

### **11.00–12.30 Plenary III: Experiences from the Ground** *Moderator: D. Keller*

#### **11.00–11.15 *Miscanthus* as a promising biomass crop for tCDR**

*Moritz Wagner (University of Hohenheim)*

#### **11.15–11.30 Recycling use of atmospheric CO<sub>2</sub> via biochar**

*Claudia Kammann (Geisenheim University)*

#### **11.30–11.45 Producing food, biomass, and ecosystem services in optimized carbon farming systems with biochar**

*Hans-Peter Schmidt (Ithaka Institute for Carbon Strategies)*

#### **11.45–12.00 Enhanced weathering and geogenic nutrient supply for CDR by afforestation and bioenergy production: potentials and limitations**

*Jens Hartmann (University of Hamburg)*

#### **12.00–12.30 Discussion**

### **12.30–13.30 Lunch**

### **13.30–15.00 Discussion of future research needs and possible proposals**

*Moderators: A. Oschlies, D. Gerten, A. Popp*

### **15.00–15.30 Wrap-up, next steps | good-bye coffee**

## Travel information

SPP 1689 WORKSHOP:

### Terrestrial CO<sub>2</sub> Removal: Potentials and tradeoffs in the SDG context

**Workshop Venue:** Potsdam Institute for Climate Impact Research, Telegrafenberg, Building A56 – Conference Room in basement, 14473 Potsdam.

See here for travel information from the main station to the Telegrafenberg: <https://www.pik-potsdam.de/contact/where>.



#### How to get from the B&B hotel to the workshop venue?

Please see the following instructions for [public transport](#) or take a walk – it takes you about half an hour.

#### How to get from the restaurant to the B&B hotel:

Please use the tram 92 or 96, see the instructions [here](#).