The Global Carbon Project

www.GlobalCarbonProject.org

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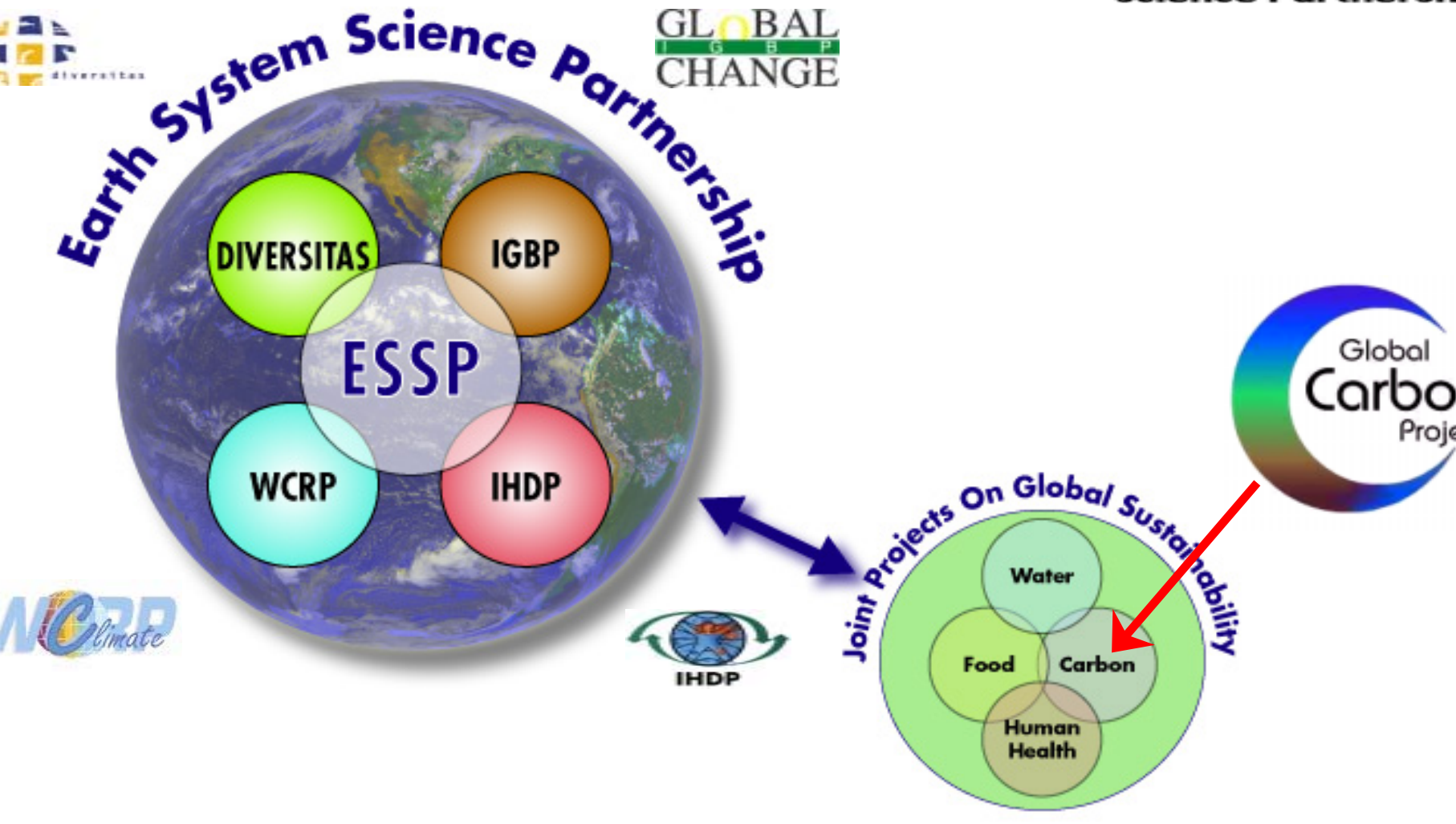
Global Carbon Project (IGBP-IHDP-WCRP-Diversitas)

Earth System Science Partnership



Global Carbon Project

Research Goal

- **To develop comprehensive, policy-relevant understanding of the global carbon cycle, encompassing its natural and human dimensions and their interactions**

Theme 1: Patterns and Variability

- **Carbon budgets**
- Models and Model-Data Fusion
- Enhancing Observations

Theme 2: Processes and Interactions

- **Vulnerabilities**
- Mechanisms and feedbacks
- The carbon-climate-human system

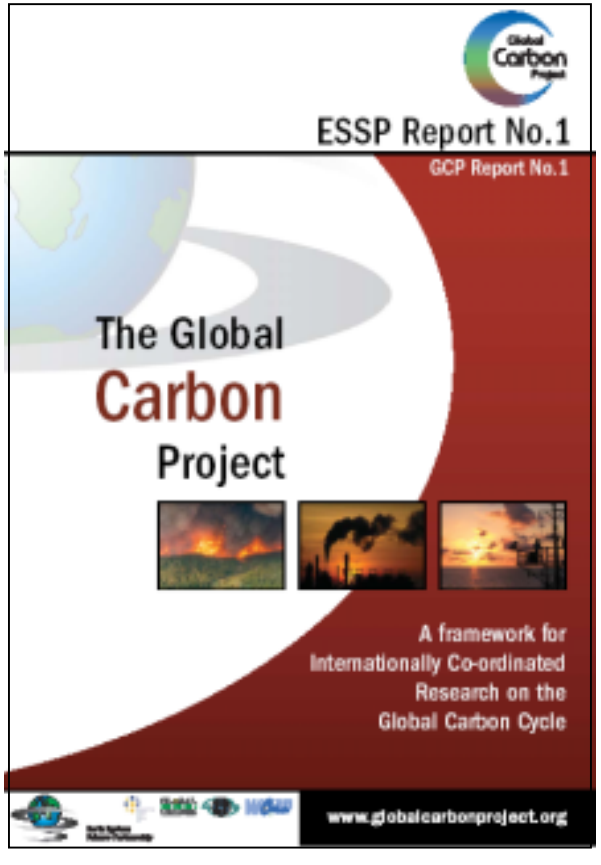
Theme 3: Carbon management

- **Urban and Regional Carbon Management**
- Windows of opportunity for intervention
- Factoring out influences on land GHG sinks

Joint effort on global C research and observations

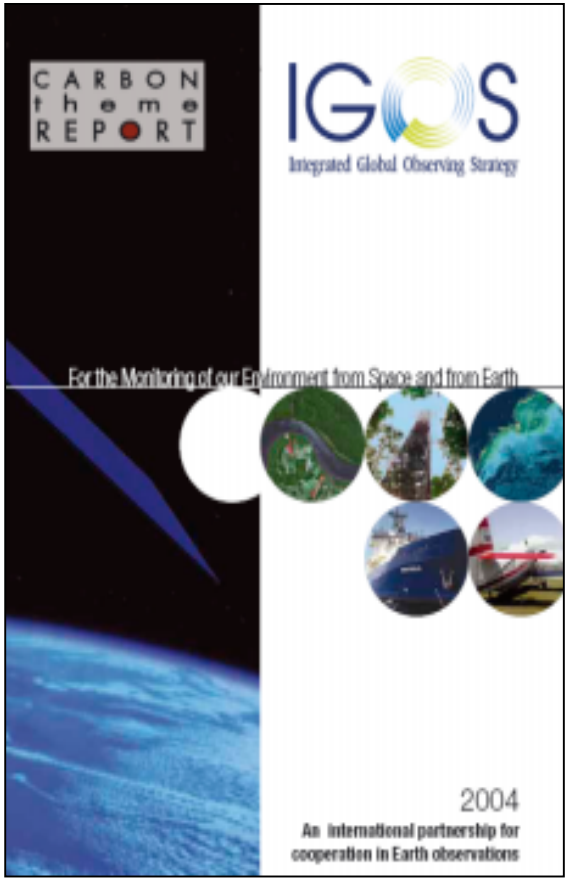
Research: GCP

(Focus on regional integration)



Observations IGCO

(includes GTOS/TCO)



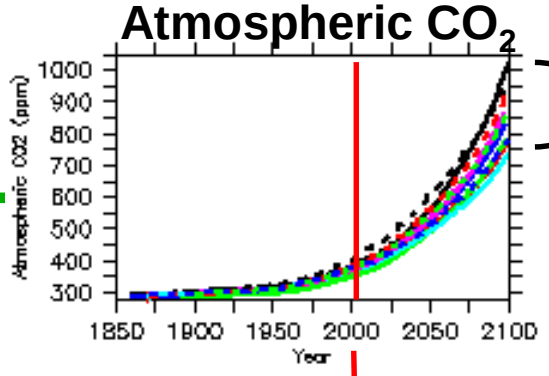
The changing carbon cycle, 1850-2100

The coupled carbon-climate system is vulnerable under climate change

Present carbon sinks may become future carbon sources (especially land)

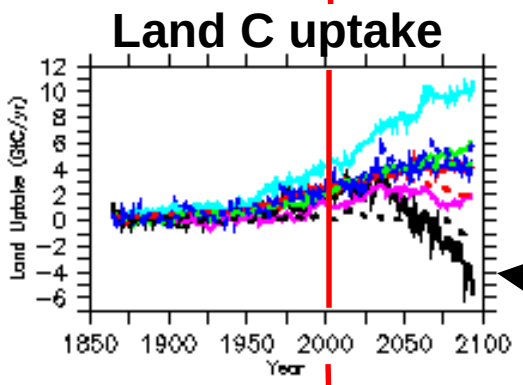
This vulnerability is comparable with uncertainty from physical climate models and emission scenarios

C⁴MIP experiment:
Friedlingstein et al. 2006, in press

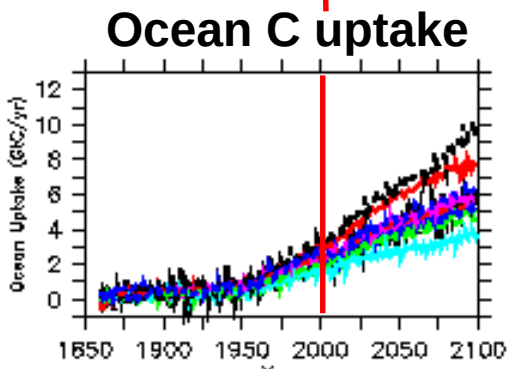


temperature implication: 2 to 3 degC

NOW

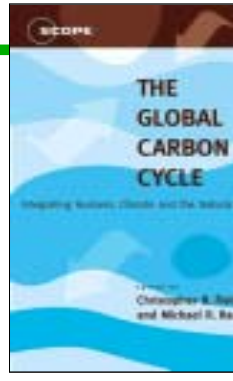


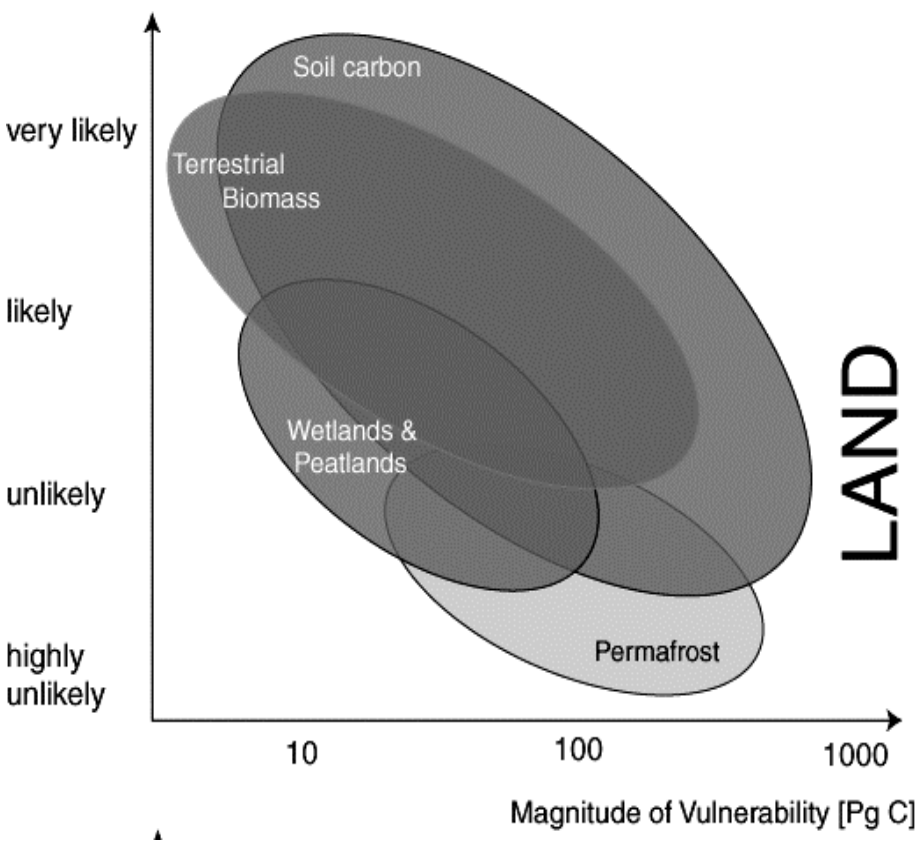
present land sink (2 to 3 GtC/y) becomes a source

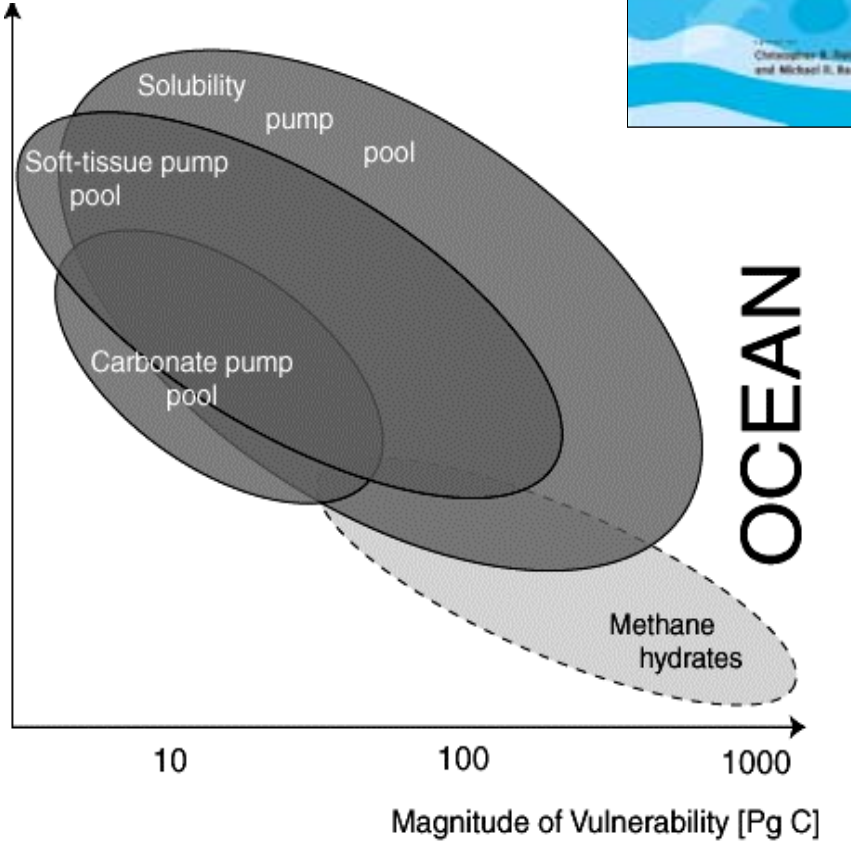


Vulnerable land and ocean carbon pools (2000-2100)

Gruber et al. (2004)
In: Field CB, Raupach MR (eds.) (2004) The Glo
Carbon Cycle: Integrating Humans, Climate and
Natural World. Island Press, Washington D.C. 526







Urban and regional carbon management:

Diagnosis: carbon metabolism, drivers, possible development pathways

Solutions: synergies (energy, transport, water, environmental design)

The response spectrum: Mitigation <-----> Adaptation

- Finding new, sustainable ways of life at urban and regional scales

Urban and Regional Carbon Management

Diagnosis (past, present, future)

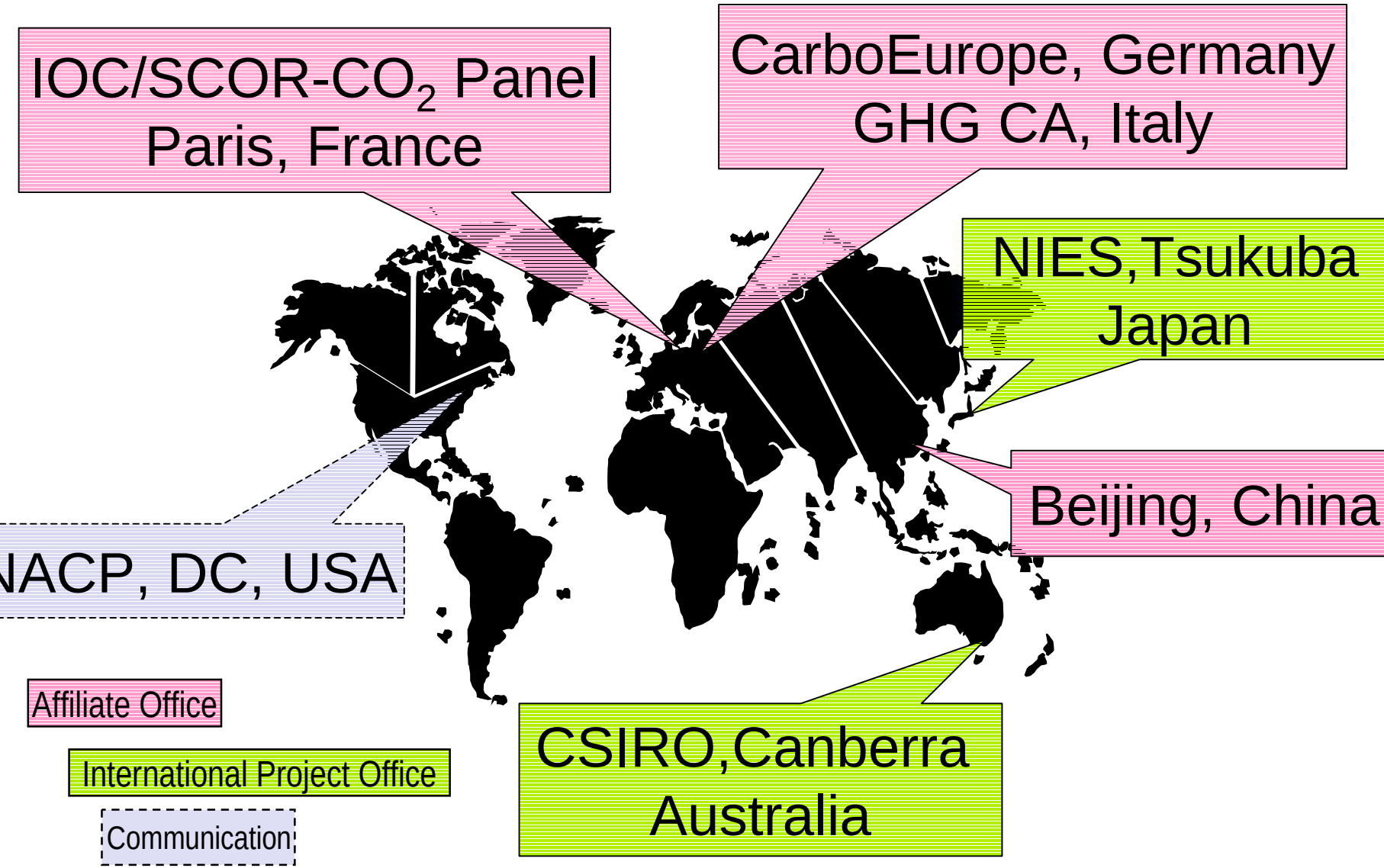
- **Carbon metabolism**
  [Carbon balances, footprints, product cycles]
- **Drivers**
  [Population, Organisation, Environment,
  Technologies, Institutions, Culture]
- **Possible development pathways**
  [Regional and global scales]

Solutions

- **Trade-offs and synergies**
  [Energy, buildings, transport, water, waste, urban environments]
- **Windows of opportunity**
  [Reorienting institutions, incentive systems, cost sharing systems]

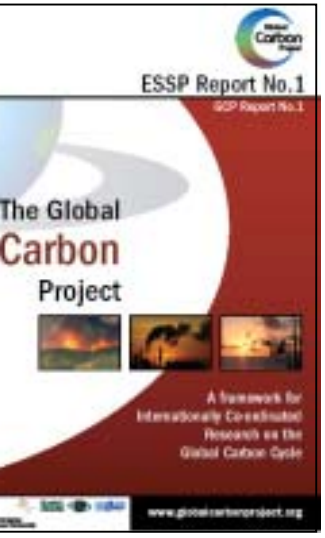
- **The response spectrum: Mitigation <-----> Adaptation**
  [finding new, sustainable ways of life at urban and regional scales]

International Project and Affiliate Offices



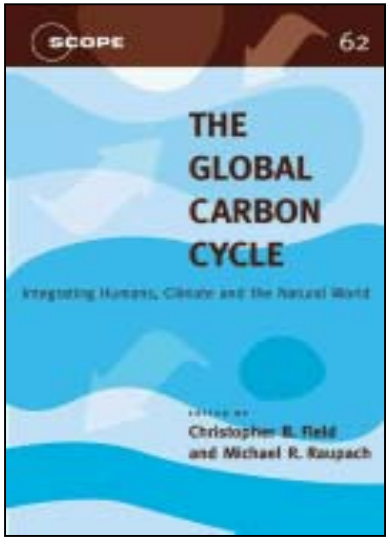
Products (examples) and further information

Framework



CP (2003) Science
mework and
plementation.
nadell JG, Dickinson
Hibbard K, Young O,
upach MR (eds.).
SSP Report No. 1;
CP Report No. 1,
nberra, 69 pp

Synthesis: natural and human dimensions



(with SCOPE)
Field CB, Raupach MR (eds.) (2004) The Global Carbon Cycle: Integrating Humans, Climate and the Natural World.
Island Press, Washington D.C.

...many more... see

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