Carbon and Societies/People

- Carbon cycle/climate change science as usual:

  Global perspective → Global carbon cycle changes → System changes: air, forests, grasslands, permafrost, oceans, soils, arctic areas → Human systems: agriculture, energy, urban areas, water management

Humans—decision support
People and Societies—and Carbon

• Social science perspective

Societies, individuals, and organizations making decisions: living arrangements, food/work/family practices, infrastructure

Systems that support ways-of-life: food production and distribution, cities/building materials and design, energy, transportation, etc.

Embedded carbon

Carbon cycle
Examples of this research perspective include studies of:

- Energy behavior (and carbon)
- Governance (and carbon)
- Scenarios of the future (and carbon)
- Vulnerability (and carbon)
- Social-ecological systems (and carbon)
- Sociotechnical transitions (and carbon)
- Social networks (and carbon)
- Social practices (and carbon).
Key Finding #1

- *Embedded Carbon* — Carbon is embedded in almost all societal activities, from industrial, energy, transportation, urban, and agricultural systems to buildings, governance policies and functions, and business and social practices. Carbon may be an obvious component, such as in fossil fuels used in cooking and automobile fuels, or functionally invisible, such as in industrial processes (e.g., cement manufacture), forests, and cattle production.
Key Finding #2

- *Systems Approach to Embedded Carbon* — Opportunities to reduce emissions and capture carbon can be identified by systems approaches that are centered on people and include coupled technological and ecological systems. Systems approaches account for multiple, rippling, and unintended effects of options to reduce, replace, or store carbon.
Key Finding #3

- *Social Dependence on Carbon* – North American societies are vulnerable to imbalances in the carbon cycle because people depend on ecological and technological networks and systems that have carbon embedded in them.
Key Finding #4

- *Transitions to Low-Carbon Systems* — Canada, the United States, and Mexico could feasibly transition to low-carbon systems. Changes can be initiated and continued from different places in complex systems, e.g., changes in technologies, infrastructure, organization, and human behavior. Approaches, frameworks, and theory must be tailored to social-technological-ecological circumstances. The involvement of stakeholders in creating scenarios, priorities, and feasible interventions improves the effectiveness of such tailoring.
Taking a social science perspective allows us to

- Be more salient (relevant) to people where they live.
- Demonstrate how carbon is embedded in human ways-of-life.
- Tailor decision support to practical, useful ways of including carbon considerations in actual, multiple-factor decisionmaking.