SUSTAINABILITY SCIENCE AS A GROWING FIELD OF SCHOLARSHIP

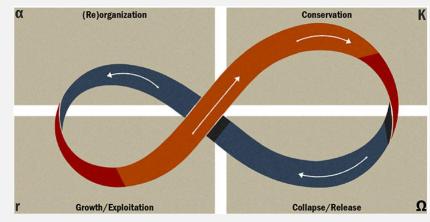
SOCIAL-ENVIRONMENTAL THEORY???

- Systems of explanatory ideas—theory—is critical to understanding and for directing research.
 - SES theory remains weak in construction and testing.
- Recognizing
 - complex adaptive systems
 - linking physical quantity & price
 - locational distinctions = "place based" solutions
- do not negate the existence of common processes & general cause-consequence interactions conducive to theory.
 - Where do we stand?

GENERAL SYSTEMS

General system approaches → broad dynamics of system cycling.

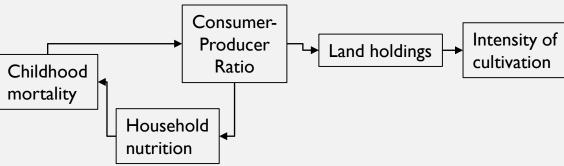
 Do not necessarily explain phenomena, events, and processes operating in SESs central to sustainable development queries.



INDIVIDUAL THEORIES

- Theories explaining specific events, phenomena, or processes theories of the middle range.
- Disciplinary/research field focused.
- Exclusionary in kind, focusing of a few elements (variables) operating in SESs.

Chayanov's explanation of agricultural intensification



SES THEORY MAY DIFFER

- Sustainability science recognizes multiple, interacting social & environmental elements (variables).
- Inclusionary: consider full range of elements at play to move from coupling social & environmental theories to integrative theory.
 - "the range" and complexity so large favors theory sets
 - "level of aggregation" required to integrate theory sets

FOUNDATIONAL RESEARCH

- Select a range of phenomena to be explained.
- Systematically explore which sets of elements & their different formulations provide robust outcomes.
- Elements drawn from extant theories and the various frameworks.
- Dual approach
 - Explore the integration in one subsystem.
 - Integrate the two subsystems.

