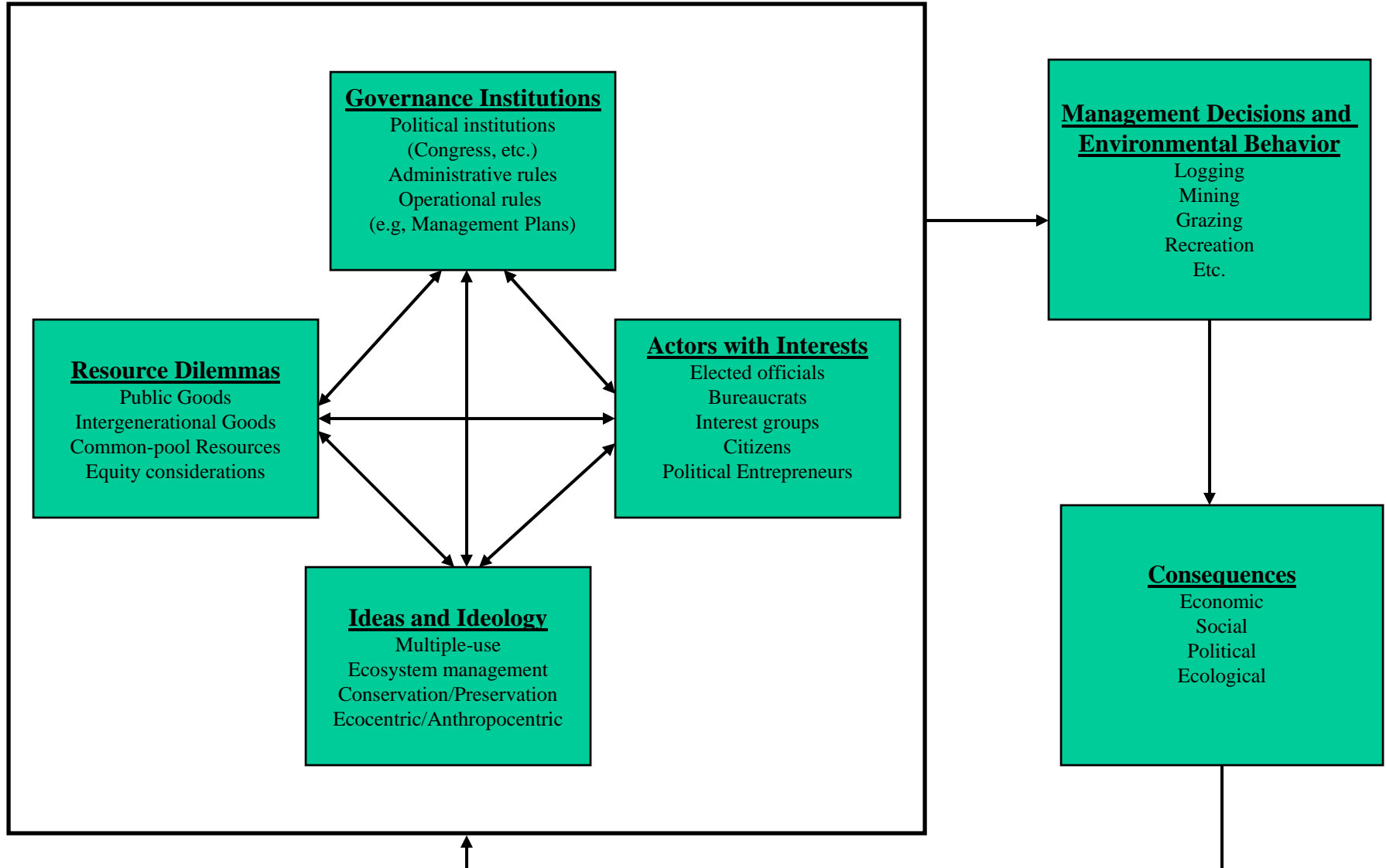# Natural Resource Regimes: A Behavioral Institutions Approach

Overview of Regimes

- Historically specific configuration of policies and institutions that structures the relationships among social interests, the state, and economic sectors

- Four working parts

  1. Resource dilemmas stemming from characteristics of natural resources

  2. Governance institutions

  3. Interests/actors

  4. Ideas/ideologies

Natural Resource Regimes: A Conceptual Framework

Governance Institutions
Political institutions
(Congress, etc.)
Administrative rules
Operational rules
(e.g, Management Plans)

Management Decisions and Environmental Behavior
Logging
Mining
Grazing
Recreation
Etc.

Resource Dilemmas
Public Goods
Intergenerational Goods
Common-pool Resources
Equity considerations

Actors with Interests
Elected officials
Bureaucrats
Interest groups
Citizens
Political Entrepreneurs

Ideas and Ideology
Multiple-use
Ecosystem management
Conservation/Preservation
Ecocentric/Anthropocentric

Consequences
Economic
Social
Political
Ecological

Resource Dilemmas and Public Lands

Overview: Characteristics of Economic Goods

- For economists, public lands are "public goods"
- Private goods are excludable, rivalrous, and uncongested
- Excludability: Some individual can exclude others from use of a good
- Physical excludability: Creating boundaries
- If creating legal or physical boundaries is costly, excludability cannot be achieved
- Rivalrous consumption: What one person consumes cannot be consumed by another
- Congestibility: At some level of demand, consumption of a good by one person raises marginal costs of consumption for others

Public Goods

Pure Public Goods

- Non-rivalrous and non-excludable
- Beneficiaries of public good vary geographically
- National public good: National Park System
- Regional public good: State parks
- Local public good: Greenways
- Private supply of pure public good is unlikely because it is costly to exclude beneficiaries and force them to pay for the good
- Logic of collective action: Beneficiaries prefer to "free ride" on the provision of a good
- Privileged group: One person has very high demand, but others free ride
- Pure public goods may become congested after a certain level of demand; e.g. National Parks

Intergenerational Goods

Characteristics

- Intergenerational goods are goods or services established or created to provide to future generations

- Preserved lands in particular are intergenerational goods, because natural resources are intact for use by future generations

- Markets do not provide intergenerational goods because future demand cannot be measured, and future generations cannot pay current suppliers

- Governments also unlikely to provide them; political incentives are short term, not long-term

- Intergenerational goods undersupplied; future generations as "free riders"

Politics of Provision (Lowry)

- Political supply and demand factors determine level of preservation across nations
- Demand: urban, literate, international coalitions, agricultural industry (environment vs. economy)
- Supply: Strong public agency, GDP
- Probably applies to other units of analysis; e.g., states, and local governments
- Question: What characteristics of a US State make it more likely to supply public/intergenerational goods?

Common-Pool Resources

Characteristics

- Non-excludable, but rivalrous
- Public lands examples: Forests, rangelands, trail systems
- Leads to overconsumption of rivalrous goods
- Private costs of consumption do not reflect total social costs
- Costs of consumption by one individual are spread to the entire group
- These social costs of consumption are what Loomis calls "externalities"
- Externalities can also be downstream externalities, like flooding from poor logging practices

Prisoner's Dilemma Interpretation

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- Nash equilibrium: A pair of strategies is in Nash equilibrium if, given the strategy of the other player, neither player will unilaterally change strategies

- Nash equilibrium of Prisoner's Dilemma is Pareto-inefficient—both actors could do better

- Tragedy of the commons: Rational actors following private incentives lead to Pareto-inefficient overconsumption and eventual resource destruction

- Hardin's solution: Mutual coercion, mutually agreed upon

- Sets of rules to govern resource use; property rights

Prisoners Dilemma
Carrying Capacity =100 Head

	Rancher 2		
Rancher 1		50 Head (Cooperate)	100 Head (Defect)
	50 Head (Cooperate)	$1000, $1000	$600, $1200
	100 Head (Defect)	$1200, $600	$700, $700

Governance Institutions and Public Lands

Functions of Governance Institutions

- Define property rights (operational rules)
- Structure policy process (collective-choice rules)
- Provide context for formulation and implementation of policy
- Shape way knowledge comes to policy
- Shape relationship between agencies, private associations, organized constituencies
- Example: Grazing Advisory Boards, changing to Resource Advisory Councils (1995) changes structure of representation at BLM (enviro, commercial, state/loc gov)

Governance Institutions and Property Rights

Property Rights (Operational Rules)

- "Bundles of sticks", where each stick represents possible resource use

- Property rights define permitted, prohibited, and required uses

- Excludability is the basis for property rights

- In public lands, property rights embodied in resource management plans, permits, etc.

- <u>Hypothesis of this class: All public land management is about defining property rights to the use of natural resources</u>

Governance Institutions and Collective Choice

Collective-choice rules

- Define procedures for making decisions about property rights structure

- Define actors who are allowed to participate

- Includes macroscale institutions like Congress, Courts, and President

- Also includes specific administrative procedures for decision-making, such as Forest Service planning regulations

Four Types of Governance Institutions

Four Basic Structures

- Key distinction: How are decisions about property rights made? Political procedures in place

- Open access (nobody)—Tragedy of the Commons

- Private property (one person)

- Public property (government)

- Common-property (co-owners)

- Historically, common-property institutions have performed well

Complications

- Four types of governance institutions are "ideal types"; reality is always more complex
- For any piece of land, different sticks in the bundle could be owned by different actors
- Example: Powder River Basin, Wyoming
  - ❖ Stock-Raising Homestead Act of 1916
  - ❖ "Split-estate" lands; private surface rights and Federal mineral rights (60 million acres are split-estate)
  - ❖ Development of subsurface mineral reserves requires either an agreement with surface landowner, or bond of at least $1000
- Question: Is Democracy common property writ large?

Ideas

- Political and economic doctrines that provide a lens allowing groups to decipher complex reality
- Shape group perceptions of what is in their self-interest; perceptions of "good" policy
- Examples: Conservation, preservation, multiple-use doctrine, wise-use, deep ecology, ecosystem management, sustainable development, professional norms

Interests

- People form organizations based on common economic or social interests
- Interests vary in capacity for collective action (diffuse enviro., concentrated industry)
- Interests are knit together by common ideas and values
- Ideas and values shape perceptions of environmental issues
- Politicians and administrators often members of "advocacy coalitions"
- Examples: Wise-use movement, radical environmentalists

Regime Change

- Each regime has own institutions, ideas, and interest group configuration
- Roughly speaking:
    1. 1787-1900: Free market disposition
    2. 1900-1950: Progressive efficiency
    3. 1950-1980: Environmental Era
    4. 1980-1992: Economic freedom
    5. 1992-Now: Collaborative policy
- Policy change usually incremental, sometimes drastic
- What stimulates regime/policy change? Resource scarcity, macroeconomics, political changes, crisis, windows of opportunity