

Commons and Common Property

!hereafter

The Noble Commons!

Erling Berge

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3 slides from E. Ostrom, 8 Dec 2009:

Brief Overview of my Journey

- The Earlier World View of Simple Systems
- Efforts to Understand Complex Systems
 - Studies of Polycentric Water and Police Industries
 - Doubling the Types of Goods
 - Developing the Institutional Analysis & Development (IAD) Framework

Are Rational Individuals Helplessly Trapped in Dilemmas?

- Earlier studies recorded settings where humans self-organised to cope with **common-pool dilemmas**
 - Little knowledge accumulation until a US National Resources (NRC) Committee studied common-pool resources across disciplines, sectors, and countries
 - Meta-analysis discovered diversity of locally known property rights to control resource use
- Empirical Studies of Common Pool Resource Dilemmas
 - In the experimental laboratory
 - Irrigation systems in Nepal
 - Forests around the world

Current Theoretical Developments

- Many Scholars are now developing behavioural theories of individual choice
- Central role of trust in coping with dilemmas now seen for its importance
- **Lessons from Studying Complex Systems**
 - Rules need to fit social-ecological context
 - Polycentric systems may enable a fit between human action situations and nested ecological systems
 - Panaceas are potentially dysfunctional

Framing Ostrom's scholarly journey: the political debate on the commons

- One way of looking at her scholarly journey is to see it as driven by policy failures; observing outcomes of policy interventions in natural resource management
 - From her PhD 1965: Public Entrepreneurship: A case study in Ground Water Basin Management
 - To her 1990 book "Governing the Commons"
- Ostrom's scholarly development closely tracks the debate on the tragedy of the commons from Hardin 1968 to Hardin's admission in 1998 "the weightiest mistake in my synthesizing paper was the omission of the modifying adjective "unmanaged""
- Or rather vice versa: her scholarly development profoundly shaped the debate!

The political debates on the commons

- The political debates
 - Basically about the merits of enclosure and its potential as both productive and destructive force for economic and social development
- Not much progress for the past 200 years
 - Language confounds: commons as resource or regime?
- Hardin's metaphor of "tragedy" kicked off a new academic agenda
 - It's post-Hardin form is first to understand why so few instances of the tragedy could be observed
 - This developed into a fundamental rethinking of the foundations for human action the nature of human – nature interactions

The present discussion of the academic study of commons will be structured thus:

- Understanding the tragedy
 - What was Hardin really talking about?
- Repudiating the tragedy
 - Then: under which conditions does the tragedy obtain?
- Rewriting the theory of collective action
 - Rational action and actor models
 - The commons as a laboratory for basic theory
 - The laboratory used to test theory on human actions
- Rewriting the theory of the commons
 - The evolutionary theory of land rights
 - The state, social capital, and equity
- What can be returned as policy advice?

Hardin 1968: “The tragedy of the commons”

- The article was about population growth
- It introduced a metaphor of tragedy
- It led to semantic confusion
- It was interpreted as a model of resource management
- It entered the world of textbooks
- It created a large industry of case studies proving that Hardin was “wrong”

Investigating the tragedy

- Case studies of peasants and pastoralists around the world were hard put to document the tragedy as postulated by policymakers' interpretation of Hardin
- The tragedy of the commons failed as theory
 - was it a metaphor?
- Hardin's metaphor was translated into a game theoretic model
- The model made strong assumptions about behaviour (recall Ostrom: only one type of actor)
- To find real world examples we have to turn to open access resources such as ocean fisheries or the atmosphere as a sink for pollution

Understanding the tragedy

- “Commons” as social dilemmas or social traps:
 - People feel somehow compelled to act singularly in a way that returns less than feasible alternatives requiring cooperation
 - But if most others cooperate the individual egoist will gain even more and become the winner
- Hardin’s tragedy has such a structure; so has the prisoners dilemma, the trust game, and many other game theoretic illustrations

20 years later: Repudiating the tragedy

- Ostrom's book "Governing the Commons" is in a classical sense a synthesis of Hardin's thesis, and the social science antithesis
- She notes the policy response to the tragedy debate:
 - Liberals say "privatize"; socialists say "nationalize" !
- She specifies conditions where Hardin's tragedy likely will obtain (posted price competitive markets), and summarized the results of a whole research community in the proposal of 8 design principles that most well functioning commons seemed to conform to
- Basically she says: given half a chance people holding resources in common will very likely be able to get out of the social dilemma on their own
- Let me just read you a few sentences from the book (p, 8, 14, and 22)

1990 "Governing the Commons"

- “By referring to natural settings as “tragedies of the commons”, “collective action problems”, “prisoner’s dilemmas”, “open-access resources”, or even “common property resources”, the observer frequently wishes to invoke an image of helpless individuals caught in an inexorable process of destroying their own resources.” p.8

1990 "Governing the Commons"

- “Instead of presuming that optimal institutional solutions can be designed easily and imposed at low cost by external authorities, I argue that “getting the institutions rights” is a difficult , time-consuming, conflict-invoking process.”
p.14
- (recall the thesis on panaceas as dysfunctional)

1990 "Governing the Commons"

- “An assertion that the imposition of private property rights is necessary tells us nothing about how that bundle of rights is to be defined, how the various attributes of the goods involved will be measured, who will pay for the costs of excluding non-owners from access, how conflicts over rights will be adjudicated, or how the residual interests of rights holders in the resource system itself will be organised.” p.22

1990: A turning moment

- The book became a fulcrum, bootstrapping the academic debate out of its metaphoric stalemate
- It did not take long before thoughtful neoclassical economists understood that here was something to think about
- Douglass C North, Nobel Laureate in economic sciences in 1993, and keynote speaker at a conference in Bodø in 1995, was not in doubt
- Others took a little longer, as consultations of textbooks from the late 90ies may confirm but by 2000, Ostrom's book was a modern classic

New insights: from 1968 to 1998

- What did we learn in the study of commons?
- Let us take a look at
 - Types of goods
 - Precision of language
 - Roads towards the tragedy
 - The complexity of social-ecological systems
- And then: rewriting the theory of collective action. Where are we going?

- First:
- Distinguishing between the resource and the management regime
 - A commons consists of a common pool resource and a collective management regime

- Second:
Resources defined by intrinsic qualities and exclusion technology

Appropriation is	Appropriators are Excludable	Appropriators are Non-excludable
Competitive/ Rivalry/ /Subtractable	PRIVATE	COMMON POOL
Non-competitive/ Non-rivalry/ Non-subtractable	TOLL (Club)	PUBLIC

Classifying actors, goods and regimes

- Developing a language to avoid conceptual confusion.
 - E.g. the many meanings of the word “private”
 - Actors, goods and regimes can all be called “private” or “public”

TYPE OF ACTOR	TYPE OF GOOD	TYPE OF REGIME
Individual (private)	Private	Private
Collective (private or public)	Common Pool or Club (Toll)	Commons (private or public)
State (public)	Public	State (public)

Roads towards tragedy

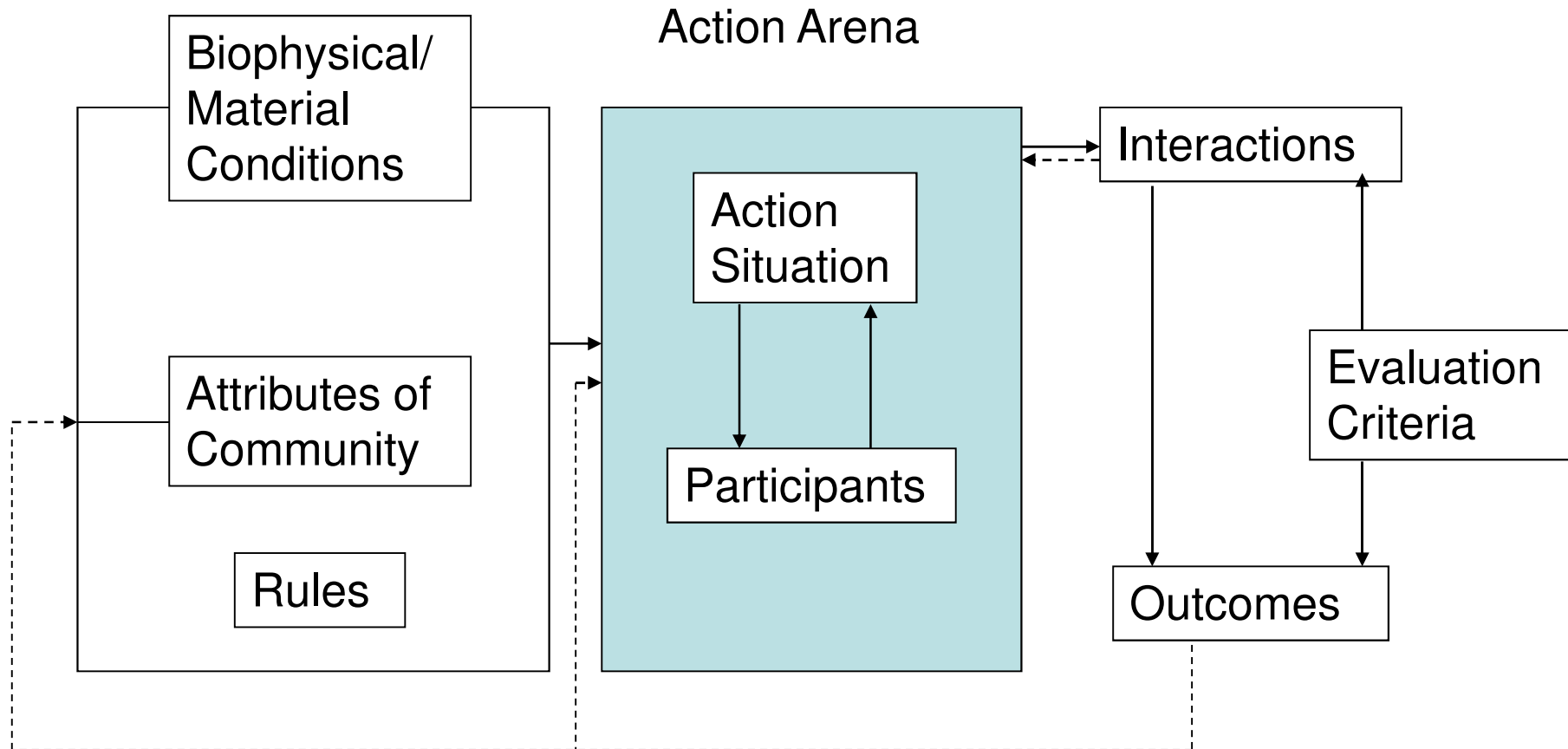
- Market failure (transaction and information costs):
 - property rights give the wrong incentives, collective action fails
- Community failure (missing social capital):
 - Lack of trust and social norms give the wrong incentives, collective action fails
- Government failure (faulty bureaucratic reasoning):
 - Single issue policy goals give the wrong incentives, Resource destruction appears as an unintended consequence

Managing common pool resources in complex social ecological-systems

- Late 1980ies: ecosystems entered the agenda of commons scholars:
 - **Scale issues**: what is the size of a reproductive population?
 - **Interdependencies**: positive and negative externalities across species boundaries?
 - Are these scale dependent?
 - Emergent system characteristics:
 - Thresholds
 - Succession
 - Robustness
 - Resilience
 - Non-ergodicity
- Social-ecological system:
 - Humans recognized as part of the eco-system
 - Creating a new layer of complexity for the problem of governing resources sustainably

Keeping track of the complexity (IAD): The environment of action situations

Exogenous Variables



Design principles 2005 (1)

1. Well defined boundaries (avoids free riding)

- Externally imposed boundaries does not work well compared to locally legitimised
- Boundaries needs to be defensible by the users

Rephrased: “The resource itself and the users of the resources are clearly defined, and the appropriators are able to effectively defend the resource from outsiders”

2. Equivalence of benefits and costs

- As sign of fairness supports participation and rule following among conditional co-operators

3. Collective choice arrangements

- Farmer designed rules work better than village elite designed rules that work better than central government designed rules

Design principles 2005 (2)

4. Monitoring

- Monitoring by locals or on contract with locals work better than external monitoring

5. Graduated sanctions

- Most self-governed groups rely on quasi-voluntary cooperation (the Ulysses technique) rather than voluntary or coercion
- First offences are usually punished lightly, repeats increasingly severely

6. Conflict resolution mechanisms

- May involve levels above the village to counteract elite capture

7. Minimum recognition of rights to organise

- Making rules in the extra legal sector is more difficult (will usually require unanimity) than in the legal sector
- Local rule makers can more efficiently take into account new knowledge

8. Nested enterprises, multiple layers, polycentricity

Rewriting the theory of collective action

In order to improve the theory of the commons the theory of collective action needed improvements:

- From assumptions to investigations of real world actors
- including real world behaviour in social dilemmas
- Designing experiments to test impact of small changes in rules governing behaviour and differences in framing
- Taking the experiments out of classrooms to real commoners in a diversity of cultures

From game theory to laboratory

- Hardin's model
 - Made strong assumptions about motivation of actors: only self-regarding motives allowed
 - Did not allow any history, community or communication
 - It could not predict behaviour in real commons, nor in laboratory tests of CPR problems
 - To become useful as a model, the rationality assumption had to be divorced from pure egoistic behaviour
 - The model had to be expanded

Modelling a diversity of actors

- Different patterns of behaviour
 - The pure **egoists**: cooperate only if to ego's advantage
 - The **saints**: always cooperate
 - The rest: **conditional co-operators**. Reciprocate starting with cooperation
- Formalisation in game theory
 - Homo economicus (pure egoist)
 - Homo equalis (strong preference for equality of outcomes)
 - Homo reciprocans (conditional co-operators)
 - Homo parochius (strong preference for rewarding ego's group)

Testing the model of economic man in experimental studies (1)

Factors that should not affect outcomes but does

1. Allowing **face-to-face communication** before each session of investment
2. Allowing **costly sanctions** increase compliance. Voluntary **sanctioning is chosen even if it is costly to the person proposing it** (sanctioning and fines wipe out gains from better performance)
3. Allowing subjects to covenant to determine investment levels and adopt sanctioning achieve close to optimal results

Communication is in general very important

Testing the model of economic man in experimental studies(2)

Further results

- Crafting rules to solve commons dilemmas is costly (second order dilemma) but do occur frequently. Those who covenant do considerably better than those who do not
- Experiments using real farmers replicate laboratory findings using students

Conclusions about behaviour in social dilemmas

- Results show consistently the importance of
 - Framing of action situation
 - Form of communication
 - Reputation
 - Ability to monitor and sanction
 - Norms and values, in particular related to “trust”
 - Size of reward
- There is no society where experimental results are even roughly consistent with the classical model of economic man (except modern commodity and financial markets)
- The variation between groups and cultures is much larger than expected

The general lessons learned

The importance of

- distinguishing resources and management regimes
- monitoring and sanctioning for management regimes
- matching management system to resource system
- local conditions necessitating monitoring and interpreting complex social-ecological systems
- the contradictory roles played by the state

Current developments in the theory of collective action

Involves modelling

- how participants acquire, process, represent, and use information
- how participants value actions and outcomes
- the processes participants use (maximizing, satisficing, or diverse heuristics) to select particular actions or strategic chains of actions in light of their resources
- evolution of norms for trust, other-regarding preferences
- rules regulating norms: e.g. backing good or counteracting bad reciprocity
- evolution of mechanisms for communicating trustworthiness (language, body language)

Problems in rewriting the theory of commons

- The evolutionary theory of property rights says
 - Scarcity, competitive advantage, and considerations of efficiency will drive development of increasingly well specified property rights
- The theory does not address
 - The role of the state (or rather: it has no role)
 - Variable amounts of social capital (community failure)
 - Equity: Distributional consequences of enclosure are seen as irrelevant
- The role of efficiency as motor for institutional development is problematic - at least for epistemological reasons. The evolutionary dynamic may, or may not, produce a result the survivors will judge as more efficient.

Understanding gained I

- The tragedy of the commons is not a fiction of the mind or a thing of the past
- ToC is a process that may obtain in certain circumstances such as if
 - Management is impossible or considered to be too costly (such as exclusion costs)
 - Shifts in technology of appropriation or access to markets change incentives
 - Social dislocations drive populations into new ecosystems or increase or concentrate the population within a system very rapidly. Besides war, one frequent source of dislocations have been governments trying to reorganise or improve on land use

Understanding gained II

- Commons may be useful if
 - It is morally or politically illegitimate to exclude
 - It is technically or economically infeasible to exclude
 - Resource interactions and interdependencies require collective action among users
 - There are time or space interactions in sustained usage
- Commons may be better than individual ownership or state ownership in overcoming uncertainty in complex resource dynamics and in learning from experience

Some advice on design of management regimes

- Purposes of ownership
 - For the owner's benefit or on behalf of a beneficiary
- Choice of regime type
 - Individual, collective, or state ownership because ...
 - Resource characteristics
 - Resource interactions
 - Distributional priorities
- Preferred interrelations State - Local community
 - Co-management
 - Emphasis on procedures, on substantive goals or (re)distribution mechanisms

Commons and policy

- In hindsight: the most remarkable thing about the ToC is how immediately the metaphor was adopted as a true description of reality by bureaucrats and politicians as well as academics
- Some still believe privatization or state control is the only alternatives
- This raises questions about education and world-views of professionals and reminds us of the need for empirical verification of goal attainment in policy implementation

Thank you for your attention!