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## Opening Address to the conference

# “Joining the Northern Commons: Lessons for the world, Lessons from the world“

## Introduction

The invitation to this conference starts by asking “Who owns the Arctic?” It is an important question, but how do we answer such a question. To me it seems rather difficult. I have occasionally asked the appropriate experts in Norway to answer the question “Who owns Norway?” As yet there is no answer to the question for all of Norway, only for bits and pieces. Recently I was asked to answer the question: “Who owns the mountains of the world?” As far as I have been able to determine it is impossible to give an answer in terms of types of owners and quantities of land owned: for example how many square kilometres are owned by governments, and how many are owned by individuals or groups of citizens.

So how come it is so difficult to answer meaningfully such a simple question? After all, in Britain they made a complete survey of all the owners of lands of England already in 1081-86, and again in 1874-76 (Cahill, Kevin 2001).

Well, maybe the question is not simple at all? Ownership of lands is nothing like owning a car. The records of England from 1086 and Britain from 1876 showing owners and ownership are possible only because they employ a simplified and for most purposes inadequate concept of ownership. It is based on what lawyers would call the dominium plenum concept of land ownership<sup>1</sup>. A modern capitalist society could not function if the dominium plenum conception of land ownership was the dominant way of organising land ownership. The ability of assigning, within the same land area, property rights to some specific resource to different persons is essential.

### Box 1

***An institutional definition of property rights***  
Property rights provide legitimate allocation to particular owners, material or immaterial objects supplying income or satisfaction to the owner. They comprise a detailed specification of rights and duties, liberties and immunities citizens have to observe. These are partly defined by law, partly by cultural conventions, and they are different for owners and non-owners. Property rights are ultimately guaranteed by the legitimate use of power.

The dynamics and performance of economic systems are intimately linked to the kind of property rights a state is able to enforce.

Commons, as a way of organising land ownership, represents in this connection yet another layer of complications. The owner cannot be assumed to be only one decision maker. It is by definition a group of persons, usually with equal say in the decisions about how the land shall be used and managed. This amounts to a double conundrum: what does it mean to own land in common? And how is collective action in land ownership

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<sup>1</sup> “Full ownership, the union of the dominium directum and the dominium utile.” Black (1990:486). For further definitions of legal terms see Black 1990.

possible? These questions lie at the heart of our organisation, “The International Association for the Study of Common Property”.

### **The International Association for the Study of Common Property**

The association was established in 1989, but had its immediate roots in a network of researchers started in 1984 and an important conference organised by the National Research Council of the US in 1985 (Bromley 1992). After the establishment of the association the first conference was held in 1990. At first there were conferences every year except 1994. After 1996 it has been bi-annually. Since 2001 we have been able to supplement the biannual conferences with regional conferences. This year there are three regional conferences.

One of the great and appealing aspects of the association is its multi-disciplinarity. It involves scholars and practitioners from biology, ecology, and forestry on the one hand to anthropology, economics, and political science on the other. The intellectual history of the association is, however, much longer than since 1984. Commons have been studied since ancient times in law and history<sup>2</sup>. In social science it became a big topic in 1968 with the publication of Garrett Hardin’s “The Tragedy of the Commons” This article created space for the commons in the social sciences. It virtually created a whole industry of commons studies around the world.

Some of the conclusions reached are now considered so robust that they may be passed on as advice for resource governors. Other conclusions are more tentative and need further research – of course. For a research organisation to conclude that more research is needed is hardly surprising. But the need for empirical verification of theoretical conjectures is very aptly illustrated in our own intellectual history.

Hardin’s article is about global population growth. But it was interpreted as a model of resource governance. Hardin’s model for resource destruction assumes profit maximising individuals as the only actors of the system, it further assumes that there is no interaction among the users of a resource system that may lead to tacit or organised limits on usage. If these assumptions are true then, admittedly, the tragedy occurs. But quite a few in the social sciences doubted that this was useful assumptions. People do talk to each other, and they tend to cooperate. In most local communities around the world the tragedy was difficult to discover. But some kinds of commons, such as the ocean fisheries of the world, were also obviously tragedies.

In a review article at 30th anniversary of the original article Hardin himself concluded:

“... the weightiest mistake in my synthesizing paper was the omission of the modifying adjective “unmanaged.” In correcting this omission, one can generalize the practical conclusion in this way: “A ‘managed commons’ describes either socialism or the privatism of free enterprise. Either one may work; either one may fail: ‘The devil is in the details.’ But with an unmanaged commons, you can forget about the devil: As overuse of resources reduces carrying capacity, ruin is inevitable.” (1998:682).

But there is also another lesson to learn from the history of the Hardin paper. In hindsight the one of the most remarkable thing about the “Tragedy of the Commons”

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<sup>2</sup> See e.g. Main 1861, 1875, Probyn 1881, Ross 1883; for a recent survey see Grossi 1977

article is how immediately the metaphor was adopted as a true description of reality by bureaucrats and politicians as well as academics more interested in models than in observations. This observation may raise questions about the education and world-views of professionals. In my view the question about the education of professionals both in the various government bureaucracies and in the development aid organisations is one of the most important questions of the contemporary development discussion. But that is not a topic for this paper.

In particular, the widespread acceptance of the metaphor as fact speaks to the need for empirical verification of theoretical conjectures. The across the board application of the metaphor to any and all problems of resource governance may have created more tragedies than it prevented (Bromley 1992:3).

Hardin's model of resource governance has been interpreted as an instance of market failure. Because of inadequately defined property rights to the resource the actors get the wrong incentives for optimal usage. While market failure obviously may be one cause for "tragedy" we can today see at least a couple of other causes as well. Community failure and government failure can also be seen to lead to a "Tragedy of the Commons" (McCay and Jentoft 1998). In the absence of a state and a market we may find a local governing body as responsible manager. But also a local governing body may fail in shaping the incentives and thus initiate a Hardinian tragedy. And the state, even a state with the most benign intentions, may precipitate processes having as outcome a tragedy of the commons. This has been very graphically demonstrated by Sneath (1998) in satellite photos of the borderland between Russia and Mongolia.

One lesson here is about the unintended consequences of large scale government intervention. Public interventions do in general have unintended consequences. Fairly often, also when interventions are guided by the best of intentions, their consequences may be regressive in the sense of leaving the intended beneficiaries worse off than if nothing had been done. It would seem to be a reasonable conjecture that if we try to alleviate the problems created by community failure by the means developed to solve market failure we are likely to create new problems rather than solve existing problems.

It is 35 years since Hardin put the commons on our research agenda. From this research there are now many conclusions worth emphasising. Let me here just list 5 it will be worthwhile to consider by those wanting to avoid the tragedy. But it should also be said that other people might pick entirely different conclusions to emphasise.

**1. The importance of distinguishing between resources and management regimes.**

Common pool resources are resources with certain characteristics originating from intrinsic features, technological capabilities, or economic or moral constraints.

Commons are social institutions for managing and distributing benefits from resources held jointly or in common. The importance of distinguishing resources and regimes were obvious already in 1975 (Ciriacy-Wantrup and Bishop 1975). In 1998 also Hardin recognized this.

**2. The importance of monitoring and sanctioning for management regimes.**

Ostrom (1990) suggested 8 principles which long lasting management systems probably ought to follow. Among these the design of the monitoring and

sanctioning system is very important. Later research has upheld this (see e.g. Fehr and Gächter 2002, Fehr and Rockenback. 2003).

**3. The importance of matching management system to resource system**

For renewable resources suitable boundaries for regeneration of the resource needs to be the point of departure for a discussion of the management system. For many resources the size of the ecological unit is so big that a modern management system will have to encompass two or more levels of governance. One important theoretical development investigating this aspect is referred to as co-management. But matching eco-system and management boundaries (groundwater, fish stocks, wildlife, etc) may also lead to a system of overlapping jurisdictions requiring a system of commons management involving the various bodies managing specific resources. Then of course there is the social and political problem of matching incentives to outcomes, benefits to costs, rights to duties, etc.

**4. The importance of variable local conditions**

As research has accumulated on the diversity of conditions, a new appreciation of the role of diversity in ecosystems is entering the discussion of institutional design. Variable local conditions affects the cost of getting appropriate and timely information, the utility of uniform regulations of substantive matters, and the balance of power between central and local actors. How can we encompass variation in the design of institutions?

**5. The contradictory roles played by the state**

The state has always played a variety of roles in relation to resource use and management. They are at times contradictory. For example: the position as landlord may at times be difficult to disentangle from the role of provision and production of public goods such as being the ultimate enforcer of property rights. How to factor a theory of the state into a theory of resource governance is a problem not yet solved.

**Resources and their characteristics**

To understand a bit of the conclusions we should also take note of some of the theoretical concepts developed.

One important development was the realisation that resources have intrinsic and socially defined characteristics that have to be translated into the rules of management. The particular characteristics of **Common Pool Resources** were identified by Vincent and Elinor Ostrom already in 1977. Understanding the implications of the non-excludability characteristic in cases where there also was competition among appropriators became crucial for the discussion of the commons.

**Table 1 Resource characteristics<sup>3</sup>**

Appropriators are Appropriation is	Excludable	Non-excludable
Competitive/ Rivalry (subtractable)	PRIVATE GOODS	COMMON POOL GOODS
Non-competitive/ Non-rivalry (non-subtractable)	CLUB GOODS	PUBLIC GOODS

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<sup>3</sup> Source of table: Ostrom, Vincent, and Elinor Ostrom 1977 "Public Goods and Public Choices", pp. 7-49 in "Alternatives for Delivering Public Services: Toward Improved Performance", ed. E.S. Savas,; Boulder, Colo., Westview

But it must be stressed that these are analytical and abstract categories. Few of the specific well defined resources we find around the world can be characterised as being exclusively one or the other of these types.

Just consider a simple good like taking a “Walk in the wood”. You appropriate it by actually walking in the wood. But what kind of good is it? It is technically excludable, but it may in many cases be very costly to exclude, like it is for many common pool resources. It is in general non-subtractable, but will be affected by crowding. Thus it may be either a club good or a public good with utility modified by crowding. Can we a priori from these characteristics say anything about who will hold – or who ought to hold - the right to walk in a particular wood? I think not. The differences between the Scandinavian formalisation of access rights to the non-arable lands in the “All Persons Rights” and the efforts of Common law to enforce a no trespass rule also for non-arable lands are not caused by technical characteristics of the good in question.

The technical details in the specifications of property rights are many and important to the dynamic of the economy. They are changing through time and across space, and are in general moving towards greater diversity and more detail. For management purposes, legal reasoning will divide resources into 3 types:

- **The Ground** (sometimes called the soil) meaning the abstract bounded area,
- **The Specific Material Resources** embedded in the ground, attached to the ground, or flowing over the ground (in general there are limits on how far into the ground and how far above the ground the rights reach), and
- **The Remainder** meaning the future interest in resources not yet discovered or not yet capable of being exploited.

These three types of resources are usually included in discussions of who owns what, and are routinely recognized by mature legal institutions. Landlords are, at a minimum, owners of the ground and are then entitled to the ground rent.

It must be emphasized that in principle there may be different owners to the ground, to every single well specified resource, and to the remainder. This is the usual situation in “traditional” or “customary” resource use systems.

The European inclosure<sup>4</sup> processes did not only inclose the land physically, but more important: usually they also unified the bundle of resources embedded in the ground, attached to the ground, or flowing over the ground with the ground and remainder, giving the owner of the ground the title to the land. This was an effort to implement the dominium plenum concept of ownership. It was simple and neat for the bureaucracy, but it did not last. How and why it had to fail in the long run we see an example of in the modern development of regulations of nature. Since different resources often are interdependent in their eco-systems, and since use of some resource may entail externalities, the dominium plenum system of owning needs a system of regulations. In effect one may observe the reintroduction of public ownership to some specific resources located on private lands. The situation of split ownership returns.

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<sup>4</sup> “In old English law, act of freeing land from rights of common, commonable rights, and generally all rights which obstruct cultivation and the productive employment of labor on the soil.” Black 1990:763.

Box 2 *The New Commons: emerging collectively owned resources*

Environmental legislation is at the outset independent of ownership, but is increasingly seen to change the meaning and content of ownership by defining and taking control over two additional types of resources that can be seen as emerging from the remainder:

- **Eco-system services** such as water control, disaster mitigation, local climate control, biodiversity, etc., and
- **Socio-cultural symbols** vested in a landscape (often attached to amenity and heritage sites).

Eco-system services are usually managed through government regulations. Socio-cultural symbols are created and sustained by the local culture but now increasingly taken over by national and international bureaucracies.

Eco-systems will produce more than marketable commodities such as timber, cattle, and wildlife, or localities for enjoyment of life. They produce valuable services, or they serve as sinks for pollution. They may also be localities for socio-cultural symbols and identities. Consequences of use and misuse are in theory usually labelled externalities. As the interdependence of usages and externalities became apparent states recognized that eco-system services and socio-cultural symbols are resources and legitimate objects of management. One may say that they emerged as new resources from the remainder.

However, these resources are not usually discussed in the terminology of property rights even though they clearly interact with and affect the stream of benefits

from established property rights. As this process continues it would seem a reasonable guess that we will arrive at a system of interlinked management resembling in many ways some variant of the traditional commons.

Resources are identified as resources by their necessity for providing benefits to humans. This makes resources into social facts. Eco-systems exist independently of humans. But resources do not. Resources are social constructions defined in relation to ways of making a living. Technological change may “create” new resources as well as “destroy” old. Resources always have a distribution among members of a society creating problems of collective action. The various solutions to these collective action problems are the various property rights we enforce.

The significant point about property rights is that they award the owner the maximum of protection a society can give for secure long term enjoyment of the benefits flowing from ownership. In most of the world this does not amount to much. At best, the rights amount to possession and locally acknowledged security of possession. However, in the capitalist societies of the Western world property rights mean a lot more. The way property rights are defined and protected are presumed to be essential to the economic and social developmental dynamic of these societies and one explanation for lack of economic development is often said to be deficiencies in the definition of property rights (North 1990, Soto 2000).

Let us here briefly return to the question of who owns the mountains of the world and why this is a complicated question.

### **Property rights to mountains**

Most mountains around the world outside Western Europe will be owned by the state in the sense of having a legal title to the land (*de jure* ownership). But they will also be covered with customary use rights for local communities (*de facto* ownership).

One of the major problems for resource governance in many parts of the world are for governments to acknowledge the existence of customary rights and for the legal bureaucracy to find ways of recording and enforcing such rights. The particular problems of resource governance will usually require legislation and policy designs tailored to the particular conditions of the mountains.

Property rights to mountains are often poorly defined because mountain areas for most of our history have been seen to contain from none to small and dispersed resources. The early modern state claimed ownership of all lands without a well defined citizen in possession (with seisin<sup>5</sup>). This doctrine has been adopted by most states around the world and introduces an assumption that the state will own most of the mountains around the world.

Indigenous (or non-capitalist) cultures will usually develop customary law rules similar to property rights for specific material resources. Also socio-cultural symbols may be the objects of property rights rules to the extent that a symbol may be appropriated by individuals or subgroups for their advantage (Godelier 1984). However, symbolic values will usually have higher importance as collective identity markers than as individual assets. Also in modern societies “the commons” are sometimes highly charged with symbolic values (Olwig 2002).

The early modern states tended in their legal systems to bundle “ground”, “remainder”, and the specific resources into one owner unit. This “dominium plenum” position on ownership and its assumed beneficial economic consequences led to the process of inclosure. But even in the dominium plenum tradition many states enacted specific rules for example for certain kinds of timber, minerals with specific weight above some threshold, or more recently: for oil. Applied to mountains and other areas where the local people only were interested in specific resources and socio-cultural symbols this practice tended to create conflicts: most notably for timber and other resources where social and technological change introduced access to markets with new and larger profit margins.

Social and technological change creates new specific resources usually seen to belong to the owner of the remainder (e.g. generation of hydro-electric power), and it also leads to new regulations of eco-system services. Such developments are often conflicting with customary use rights. Thus the conflict potential is rising. But the level of conflict is for most of the mountain areas low since the effort by states to enforce their claim to property rights range from small to none except for timber, hydroelectric power and mining rights. The result is that local communities and customary uses have continued uninterrupted. For many reasons, such as usage by nomads or pastoralists, for transhumance, or for collective, extensive and infrequent usage, as well as lack of political power, it has often proved hard for mountain communities or individual households to get recognition of their de facto and customary property rights.

Current trends in international law put greater emphasis on de facto rights as these are expressed in customary uses of an area (in developed countries e.g. ILO Convention 169).

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<sup>5</sup> Possession of lands under claim of freehold.

## **Concluding remarks**

The study of commons has taken us to a point where some good advice can be given to those who want to change existing management systems.

Clearly, the tragedy of the commons is not a fiction of the mind or a thing of the past. It is a process that may obtain in certain circumstances such as if

- Management is impossible or considered to be too costly, or
- Incentives are changed by shifts in technology of appropriation or access to markets, or if
- Social dislocations drive populations into new ecosystems or increase or concentrate the population within an eco-system very rapidly

Besides war, one frequent source of dislocations has been governments trying to reorganise land use or improve on land use. Improving on land use usually means changes in the management system. But changing a management system means changing the property rights. Even just introducing regulations of environmental services change property rights. If, and when, governments want to change property rights there are some issues that need to be considered.

One that needs to be considered carefully is the purpose of the ownership. Acting as a trustee, as most public ownership is about, requires a different institutional environment than ordinary ownership.

Another issue is the choice between individual and collective ownership. There are often good arguments for preferring collective ownership if for example

1. Resource characteristics imply that it is impossible, difficult or too costly to exclude appropriators, or if
2. Resource interactions may imply a necessity for appropriators to coordinate activities. Common property will provide a setting for solving their collective action problems, or if
3. In a commons the problems of distribution of goods and equity in access to vital resources may be easier to solve. The commons may provide a safety net for the poor and for new generations.

In a choice between “resource” and “community” based management there seems today to be good arguments favouring the community approach. Both resource interactions and distributional problems within the community would suggest so. Also the role of uncertainty about dynamics of the local resource system and the importance of early information about changes in the resource conditions will favour a responsible local level governing body. In structuring the relation between the central state and local communities an approach where procedures and justice are emphasised by the state and local power of substantive decisions are exercised by the community might be recommended in many cases. In particular one should think about how the legal framework might be shaped or changed from below without losing consistency with important global goals about human rights and welfare distribution.

The commons as a management regime is of course necessary for a “real” common pool resource, but it is also the best management regime in several other situations, such as if moral and political choice dictates that all persons within a group shall have a minimum level of access to a resource system.

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We must also recognise that in many resource systems, such as forests, the number and variety of useful resources within a reasonable ecosystem unit are so large that the size of a workforce for optimal use is considerably larger than a single family (even in its extended form). Allocating specific resources to different families may be done but usually one will find that resources are interdependent in ways that require collective action to organise use and maintenance.

We must also recognise that the internal dynamic of some resources, or their spatial requirements require management systems spanning more time and space than individual humans can be expected to handle in a reasonable fashion.

Finally we must understand that the dynamics of complex resource systems is unpredictable in ways that make central or state management difficult if not impossible with ordinary bureaucratic technology. A traditional commons organisation may be better than individual ownership in overcoming the inherent uncertainty of the resource dynamic, and transforming experiences into practical management decisions.

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**Literature**

- Black, H C 1990 "Black's Law Dictionary: Sixth Edition", West Publishing, St.Paul, Minn.
- Bromley, Daniel W 1992 "Making the Commons Work. Theory, Practice, and Policy", San Francisco, ICS Press
- Cahill, Kevin 2001 "Who Owns Britain. The Hidden Facts Behind Land Ownership in the UK and Ireland", Edinburgh, Canongate
- Ciriacy-Wantrup, S V and Richard C Bishop 1975 "Common Property as a Concept in Natural Resources Policy", *Natural Resources Journal*, Vol. 15:713-727,
- Fehr, Ernst and Simon Gächter 2002 "Altruistic punishment in humans", *Nature*, Vol. 415:137-140
- Fehr, Ernst and Bettina Rockenback 2003 "Detrimental effects of sanctions on human altruism", *Nature* Vol. 422:137-140
- Godelier, Maurice 1986 "The Mental and the Material", London, Verso
- Grossi, Paolo 1977 "An Alternative to Private Property", Chicago, The University of Chicago Press, 1981
- Hardin, Garrett 1968 "The Tragedy of the Commons", *Science* 162(3859), pp 1243-1248
- Hardin, Garrett 1998 "The Tragedy of the Commons", *Science* 280(5364), pp 682,
- Maine, Henry Sumner 1861 "Ancient Law. Its Connection With the Early History of Society, and Its Relation to Modern Ideas", Tucson, University of Arizona Press, 1986
- Maine, Henry Sumner 1875 "Lectures on the Early History of Institutions", Buffalo, William S Hein & Company, 1987
- McCay, Bonnie J and Svein Jentoft 1998 "Market or Community Failure? Critical Perspectives on Common Property research", *Human Organization* Vol. 57(1):21-29
- North Douglass C 1990 "Institutions, Institutional Change, and Economic Performance", Cambridge, Cambridge University Press
- Olwig, Kenneth Robert 2002 "Landscape, Nature, and the Body Politic. From Britain's Renaissance to America's New World", Madison, The University of Wisconsin Press,
- Ostrom, Elinor 1990 "Governing the Commons. The Evolution of Institutions for Collective Action", Cambridge, Cambridge University Press
- Ostrom, Vincent, and Elinor Ostrom 1977 "Public Goods and Public Choices", pp. 7-49 in E.S. Savas (ed.) "Alternatives for Delivering Public Services: Toward Improved Performance", Boulder, Col., Westview
- Probyn, J W (ed.) 1881 "Systems of Land Tenure in Various Countries" New Edition, Revised and Corrected, London, Cassel, Petter, Galpin & Co
- Ross, Denman W 1883 "The Early History of Land-Holding among the Germans", New York, Burt Franklin, 1971
- Sneath, David 1998 "State Policy and Pasture Degradation in Inner Asia", *Science*, 281(5380):1147-48
- Soto, Hernando de 2000 "The Mystery of Capital", New York, Basic Book