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Enclosed Solutions for Common Problems? Uncertainty, Precaution and Collective Learning in Environmental Law

Embeddedness sounds like one of those ideas nobody really would want to object to. Some time ago, I told someone-I-know about Polanyi and the theory of "Embeddedness" and he said: "Ok, that is probably something like Ludwig Erhard's Ordnungsrahmen, right?" "No, not exactly", I answered hesitant, "it rather has to do with fictitious commodities: Polanyi was the opinion that land can not be commodified and sold on the market." "Why?", he said plainly. For me, the conversation started to get a little annoying and so I casually changed the subject.

Afterwards in my office I was glad to find in the JSTOR-database a text by Jens Beckert, the famous economic sociologist and now Director of the Max-Planck-Institute for Social Research in Köln. The subtitle of the article read "Uncertainty and the Embeddedness of Economic Action" and it was published in a journal called "Theory and Society" in 1996. I started to read thoroughly more than 30 pages of very sophisticated economic and sociological theory only to find that in the whole article there was no second mentioning of the term "embeddedness". It was just in the subtitle.

I think it was then that I decided to start up from scratch. It seems necessary to develop the basic ideas more slowly and cautiously, before applying it to standard-setting on transnational markets. Surprisingly, the relevance of Polanyi for post-modern, globalised conceptions of law might lie in his high esteem for pre-modern and local institutions. Polanyi wrote about the commons long before they became a fashionable subject for social research. Also his perspective on nature and society as intangible productive processes rather than available resources is ambiguous: should this be dismissed as old-fashioned romanticism or hailed as a precursor of complex systems theory?

I will therefore start with two rather rural stories. The story of the herders and the story of the hedgerows. Both circle around the problem of enclosure. The aim of telling these stories is to show how environmental problems can be framed rather differently.

There are different versions of the first story about the herders. I will start with the most famous version - with Garrett Hardin's "Tragedy of the Commons".

Picture a pasture open to all. It is to be expected that each herdsman will try to keep as many cattle as possible on the commons. Such an arrangement may work reasonably satisfactorily for centuries because tribal wars, poaching, and disease keep the numbers of both man and beast well below the carrying capacity of the land. Finally, however comes the day of the reckoning, that is, the day when the long-desired goal of social stability becomes a reality. At this point, the inherent logic of the commons remorselessly generates tragedy.¹

¹ G. Hardin: The Tragedy of the Commons, *Science* 162 (1968), p. 1243, 1244.

Being rational actors, Hardin's herdsmen try to maximise their gain. They individually reap the benefit of every additional animal, while the price for overgrazed pasture is paid by the whole community. Consequently, nothing stops them from overstocking:

Each man is locked into a system that compels him to increase his herd without limit - in a world that is limited. Ruin is the destination toward which all men rush, each pursuing his own best interest in a society that believes in the freedom of the commons. Freedom in a commons brings ruin to all.

Few ideas have been as influential for environmental policy and the use of natural resources.² And few have been so disputed. Empirical studies have shown that Garrett Hardin's assumptions are unrealistic in many respects: It could be shown by Elinor Ostrom and many other authors that commons are often successfully managed on the community level. Examples include alpine meadows (so-called "Allmendweiden") in the Alps, Spanish irrigation systems or forests in Switzerland and Japan. Bottom-up solutions on a local level seem to be possible.

Hardin's model has been cited abundantly in environmental law and development planning. But often, policy measures directed by the model had devastating results. Why is this so? In many cases, the specifics of the resource and its use have not been thoroughly considered.

A good example is the case of nomadic pastoralism. This could perhaps be called the second version of the story of the herders. In the sahel-zone and big parts of Central Asia desertification is a big issue. Desertification has often been attributed to overgrazing by nomadic pastoralists. From the mid 1960s to the 1980s the policy of the World Bank was the transfer of western ranching technology. This included fencing and water development, but also the establishment of a proper institutional frame of grazing and land rights adjudication. Often, Hardin's critique of the commons was used as an argument against traditional forms of tenure without formally defined property rights. According to a World Bank livestock advisor, these early projects "produced generally disappointing results", which was due the "(o)verly rigid imposition of grazing and land rights".³

New theories about rangeland ecology stress the importance of livestock mobility and therefore flexibility of tenure systems. The productivity of rangelands in arid climates is characterized by strong fluctuations. These result from extreme seasonal and inter-annual climate variations. Therefore, large scale movements of livestock to seasonal pastures seems to be a well-adapted strategy. Rather than preventing desertification, fencing and sedentarization may lead to degradation: low productivity pasture allows only periodical use. Satellite images from Mongolia, southern Siberia and northern China suggest that socialism and privatization are both associated with more degradation than traditional group-property regimes.

² At least about the influence there seems to be agreement: while for Hardin's followers the Tragedy of the Commons "has proven a useful concept for understanding how we have come to be at the brink of numerous environmental catastrophes"; for critiques like anthropologist G. N. Appell, it "has been embraced as a sacred text by scholars and professionals in the practice of designing futures for others and imposing their own economic and environmental rationality on other social systems of which they have incomplete understanding and knowledge", *G. N. Appell: Hardin's Myth of the Commons: The Tragedy of Conceptual Confusions*, in. (Social Transformation and Adaptation Research Institute, 1993), p. 35 f.

³ *C. d. Haan: An Overview of the World Bank's Involvement in Pastoral Development*, in. (Paris: UN Sudano-Sahelian Office, 1993), p. 2 f.

However, having said that, a main problem in the story of the herders is still open access. There has been much critique of Hardin's story and much of the critique was well-founded, but it is important to stress that Hardin had a good point there.

Still two problems with Hardin's story remain:

First, to the problem an alternative solution exists, which Hardin did not consider, namely group-property regimes. Often, Hardin's argument is understood as an argument for privatization. But Hardin was definitely no proponent of laissez-faire. He did not believe in bottom-up solutions to the problem of collective action. He could only conceive of a solution that was imposed by an external authority.

Second, not *all* environmental problems are problems of open-access to resources! This leads us to the second story, the story of the hedgerows. The main problem there is not *open* access, but *restriction* of access. It is the problem that various owners can mutually exclude each other from the effective use of a natural resource.

The hedgerow as an essential feature of rural England is to large parts a product of enclosure. It is estimated that between 1750 and 1850 200.000 miles of hedge was planted.⁴ That was just when the process of enclosure in rural England reached a peak. But what enclosure gave, enclosure is about to take: after abolition of rotational farming, hedgerows are no longer necessary to prevent livestock straying onto crops. Large farm machinery and the increased use of pesticides pose a threat to hedgerows; subsidies set incentives to use every square inch to produce large quantities of low quality agricultural output. Consequently the grubbing out of hedges has been considered beneficial for agriculture from an economic point of view. Until 1992 the Ministry of Agriculture gave grant aid to farmers to remove their hedges. However, since then the benefits of hedgerows have been reconsidered. After their removal, the resultant open landscape was much more vulnerable to wind and water erosion. Also, the removal of hedges caused a loss of species. Hedges could prevent the spreading of pests in large monocultures and contribute to biological pest control. Finally, the state intervened with the Hedgerows Regulations 1997 to secure protection for hedges. Not all hedges are protected by these regulations, but certain hedges that are deemed to be important according to a defined set of criteria.

Just as in the case of the herders the removal of hedgerows could be framed as a collective action problem. I am proposing a model, which is probably not much more realistic than "The Tragedy of the Commons". The aim of the model is just to make plausible that not all environmental problems have the same "Tragedy of the Commons"-structure.

The ecological benefits of a hedge are not restricted to its owner. Rather, it could be said that the benefits of hedges in terms of erosion and biological pest control emerge on an aggregated level: between certain physical features and biological entities strong interdependencies exist, which justify to speak of an eco-system.

Picture a village with two small farms with hedges. The hedgerows of the village protect from erosion and improve biological pest control. Let's say, the maintenance and opportunity costs of every farm's hedges are € 50 and on the aggregate level, the hedges improve productivity of the whole village by € 120. Still, from the perspective of the individual farmer, the benefit from his own hedges might be less than his expenses. Of the € 60 benefit each farmer's

⁴ J. Holder: Law and Landscape: The Legal Construction and Protection of Hedgerows, *The Modern Law Review* 62 (1999), p. 100, 104 f. (with reference to O. Rackham 1996).

hedges produce, the productivity of his own land might only be improved by € 40, while he contributes to the productivity of his neighbour by € 20. Without coordination, *homo economicus* would try to maximize his profits by saving the € 50 for the maintenance of his own hedges - with the possible result that he would still get € 20 from his neighbour, if he continues with his maintenance. But tragically, being both rational actors, each of the neighbours will have the same idea. They individually pay the prize for hedgerow maintenance, while the benefit of the hedgerow is reaped by the whole community. Consequently, nothing stops them from grubbing out their hedges.

While this phenomenon is often framed in environmental economics as a problem of externalities (of positive externalities to be precise), it could also be described as a “Tragedy of the Anti-Commons”. In an anti-commons as defined by Michael A. Heller, multiple owners are each endowed with the right to exclude others from a scarce resource, and no one has the effective potential of use.⁵

What both stories show, the full story about the herders and the story about the hedgerows, is that there is no one-size-fits-all solution to environmental problems. Rather, it has to be stressed that the characteristics of a natural resource and their use do matter. The best solution is neither always privatisation, nor always state intervention, nor always common property. But there is also some kind of meta-message: in both stories a learning process has occurred, which has not been captured in the economic models.

In the story of the herders it was first assumed that rangelands are a discrete resource. They can therefore be parcelled out into private property for sedentary ranching. New approaches to rangeland ecology have shown that traditional forms of nomadic pastoralism are an adaptive strategy to climatic uncertainty. Typically, rangelands are fragile environments with great variations on the productivity of any particular section of the resource system.⁶ The location of productive sections cannot easily be predicted from year to year. Accordingly, the whole approach of rangeland development has changed. The new approach encourages opportunistic strategies of traditional nomadic pastoralism that require flexibility and life-stock mobility.

In the case of the hedgerows it was first assumed that hedges only serve the function of preventing life-stock from trespassing on crops. Therefore, until 1992 the Ministry of Agriculture encouraged to remove hedges. Only five years later, a new policy of hedgerow protection was adopted. In economic models costs and benefits often appear as fixed and given. However, the use of natural resources is characterised by uncertainty and affected by learning processes and cultural change. While the use of resources by human actors appears to be a zero-sum game in Hardin’s model, it is rather a collective learning process with potential cooperative gains.

It has sometimes been remarked that under conditions of uncertainty and precaution, law should be transformed such as to enable rather than to prevent learning and scientific progress. This aspect of learning may also be reflected in different types of property-rights systems.

Property-rights systems are often divided into four different types: open access, group property, individual and government property. According to this typology, open access is characterised by an absence of property rights, group or individual property allow the

⁵ M. A. Heller: The Tragedy of the Anticommons: Property in the Transition from Marx to Markets, *Harv. L. Rev.* 111 (1998), p. 624.

⁶ M. McKean/E. Ostrom: Common Property Forest Resource Management: Just a Relic from the Past?, *Unasylva* 45 (1995)

exclusion of other users, and government property is characterised by regulation or subsidies of use.⁷

The merits of individual property have often been highlighted by economists. According to Friedrich Hayek, in face of uncertainty, a centralised planning agency does not have the necessary knowledge to organise the production process.⁸ Rather the price-signal serves as the rational mechanism to coordinate separate actions on the basis of dispersed knowledge.

But as has been shown in many cases-studies of tenure systems, private property does not always work sufficiently for the management of resources. To explore the specific reasons why in local settings communal property may enable better adapted strategies for the management of natural resources is subject of a recent debate on the so-called community-based management of natural resources.⁹ It would require a separate article to evaluate the results of this debate.¹⁰ In the context of this conference it may be taken at face value that the atomisation of economic actors in market exchange is no solid basis for learning processes that can cope with uncertainty. Even if dispersed knowledge can be coordinated on the basis of price signals, a framework of competition will enable only limited exchange of information. Against the backdrop of interrelated and complex ecosystems, “the interrelatedness of economic actors in distinct social, political and cultural environments”¹¹ seems to be a better foundation for collective learning and cooperation.

This may sound nice and cosy, but still it seems to be desperately old-fashioned. What has the whole case for embeddedness and communal property to do with environmental standards for transnational markets? According to widespread opinion, commons seem highly improbable on the global level.¹² In globalisation processes, the interests of many, increasingly mobile actors with diverse cultural backgrounds have to be coordinated. For proponents of sociological systems theory and functional differentiation the case of a consensus model of global rule-making is entirely hopeless. According to Luhmann’s famous article “Die Weltgesellschaft” from 1971 for the foundation of social order normative expectations will largely be replaced by cognitive expectation.¹³

But perhaps Luhmann had been too hasty. At least in “Recht der Gesellschaft” he took a more optimistic view concerning the future of normativity.¹⁴

At least, it can not be dismissed from the start that “global commons” might work in one way or other. There are several factors that might contribute to the emergence of something like a virtual “global village”, where the relevant economic actors can be effectively sanctioned for the breaking of rules.

⁷ E. Ostrom et al.: Revisiting the Commons: Local Lessons, Global Challenges, *Science* 284 (1999), p. 279.

⁸ Cit after J. Beckert: What Is Sociological about Economic Sociology? Uncertainty and the Embeddedness of Economic Action, *Theory and Society* 25 (1996), p. 807.

⁹ J.-M. Baland/J.-P. Platteau: Halting Degradation of Natural Resources: Is There a Role for Rural Communities? (Oxford: FAO/Clarendon Press, 1996); E. Ostrom et al.: Revisiting the Commons: Local Lessons, Global Challenges, *Science* 284 (1999); for a critical review of the debate see M. Leach/R. Mearns/I. Scoones: Environmental Entitlements: Dynamics and Institutions in Community-Based Natural Resource Management, *World Development* 27 (1999)

¹⁰ For criteria of evaluation see A. Conley/M. A. Moote: Evaluating Collaborative Natural Resource Management, *Society and Natural Resources* 16 (2003)

¹¹ A. Ebner: Governance and Public Policy (Erfurt: 2008), p. 13.

¹² See e.g. E. Ostrom et al.: Revisiting the Commons: Local Lessons, Global Challenges, *Science* 284 (1999), p. 281 f.

¹³ N. Luhmann: Die Weltgesellschaft, *ARSP* 57 (1971)

¹⁴ N. Luhmann: Das Recht der Gesellschaft, 2. Aufl. (Frankfurt am Main: Suhrkamp, 1997), pp. 581 ff.

These factors include:

- the emergence of a global public sphere with globally operating environmental NGOs;
 - a general consciousness of increased interdependency;
 - the importance of brand reputations and corporate networks for the global economy.
- Additionally, information technology such as satellite surveillance and the internet offer new and more effective possibility of monitoring and sanctioning behaviour.¹⁵

However, the idea of community-based governance would be completely misunderstood, if it all amounts to an Orwellian vision of centralised command and control of the global common-pool resources.

For a more democratic, decentralised and participatory vision of the globalisation of the commons the strict separation of different types of property-right system has to be overcome. "Mixing property"¹⁶ or the multi-level "co-management"¹⁷ of resources may also shed new light on Karl Polanyi's idea of embeddedness. A survey of property theories shows that the Blackstonian conception of property as the "sole and despotic dominion" is contested in different contexts. This concerns both the discussion on ancient forms of tenure in legal anthropology as well as the debate about the latest developments in intellectual property rights, such as the patenting of the DNA. Paradoxically, the last remnants of traditional use and the most advanced developments of technology seem to coincide. As in Heinrich von Kleist's parable "we must journey around the world and see whether perhaps the back door to paradise is open".¹⁸

In accord with the Blackstonian conception, new institutional economics are often closely tied to ideal-type property rights regimes, which are seen as mutually exclusive.¹⁹

In development studies a conception of "co-management" has been developed, which leads to a "sharing of responsibilities for natural resource management between national and local governments, civic organizations and local communities".²⁰ Private property (much like "new sovereignty") is seen as a "bundle of rights" that can be disaggregated and distributed between different levels of governance.²¹ Individual property is not completely replaced by common property, but embedded in a multi-level regime.

Potential examples for such mixed regimes of multi-level co-management of natural resources could be fisheries and forestry. For fisheries it has been argued that individually transferable quotas (ITQs) restrict open access and might pose opportunities for "bottom up, collaborative

¹⁵ E. Ostrom et al.: Revisiting the Commons: Local Lessons, Global Challenges, *Science* 284 (1999), p. 279.

¹⁶ A. Lehari: Mixing Property, *Seton Hall Law Review* 38 (2008)

¹⁷ L. Carlsson/F. Berkes: Co-management Across Levels of Organization: Concepts and Methodological Implications, in: (The International Association for the Study of Common Property, 2003)

¹⁸ „Doch das Paradies ist verriegelt und der Cherub hinter uns; wir müssen die Reise um die Welt machen, und sehen ob es vielleicht von hinten irgendwo wieder offen ist.“, Heinrich von Kleist, „Über das Marionettentheater“.

¹⁹ T. Banks: Property Rights Reform in Rangeland China: Dilemmas On the Road to the Household Ranch, *World Development* 31 (2003), p. 2130; for recent discussions of the Blackstonian conception see D. B. Schorr: How Blackstone Became a Blackstonian, *Theoretical Inquiries in Law* 10 (2008), p. 103 ff. with a comment by Roy Kreitner.

²⁰ T. Banks: Property Rights Reform in Rangeland China: Dilemmas On the Road to the Household Ranch, *World Development* 31 (2003), p. 2130.

²¹ For the bundle of rights perspective see e.g. M. A. Heller: The Boundaries of Private Property, *Yale Law Journal* 108 (1999), pp. 1191 f.; from an anthropological point of view see F. v. Benda-Beckmann/K. v. Benda-Beckmann/M. G. Wiber: The Properties of Property, in: *Changing Properties of Property*, F. v. Benda-Beckmann, K. v. Benda-Beckmann und M. G. Wiber (Hg.) (New York Oxford: Berghahn Books, 2006), p. 21.

initiatives and partnerships in science and research”.²² Privatisation must not always be the wrong solution. Especially if it can serve as a basis for cooperation, it may be re-embedded in social relations. However concerning fisheries, new models of limiting open-access have been introduced too recently for a conclusive evaluation.²³

The case of forest certification probably the most developed example of a transnational governance system with a multi-level approach.²⁴ It tries to link the knowledge of local communities with a holistic perspective of the global commons. The Forest Stewardship Council (FSC) was founded in 1993 as a reaction to the failure of establishing a forest certification scheme via the ITTO (the International Tropical Timber Organization).²⁵ The FSC develops standards for sustainable forestry. According to these standards forest owners or managers can be certified on a voluntary basis. Community-managed forests are explicitly included. The goal is, according the Principles and Criteria, “to promote environmentally responsible, socially beneficial and economically viable management of the world’s forests, by establishing a worldwide standard of recognized and respected Principles of Forest Stewardship”.²⁶

For a certification body existing only for 15 years, the FSC has already had astonishing publicity in academia. The most interesting aspects are perhaps the multi-stakeholder involvement and the federal structure of the FSC. The central decision making body, the general assembly is organised into three chambers for environmental (NGOs), social and economic stakeholders with equal voting power. Each chamber is subdivided into a Northern subchamber for developed countries and a Southern subchamber for developing countries. Although the effectiveness of this North-South parity is sometimes disputed, it is acknowledged that these problems (which consistently appear in issues of global governance) are mitigated by the federal structure.²⁷ The FSC uses a “a multilevel system of standard setting in which national and regional standards are used to specify the meaning of globally developed principles and criteria.”²⁸

This multi-level system of global and regional standard setting could perhaps be also complemented by the local levels: which include a level of private and communal property: According to the Principles and Criteria, “(l)ocal communities with legal or customary tenure or use rights shall maintain control . . . over forest operations” (2.2), as well as indigenous peoples with customary or legal rights (3). According to (3.4) “(i)ndigenous peoples shall be compensated for the application of their traditional knowledge regarding the use of forest species or management systems in forest operations”. (4) “Forest management operations shall maintain or enhance the long-term social and economic well-being of forest workers and local communities”.

²² B. J. McCay: Resistance to Changes in Property Rights or, why not ITQs?, in: *Property Rights in Fisheries Management*, FAO (Hg.) (Rome: FAO, 2000)

²³ Ibidem

²⁴ See in general E. Meidinger: Multi-Interest Self-Governance through Global Product Certification Programmes, in: *Responsible Business. Self-Governance and Law in Transnational Business Transactions*, O. Dilling, M. Herberg und G. Winter (Hg.) (Oxford: Hart Publishing, 2008); E. Meidinger: Competitive Supragovernmental Regulation: How Could It Be Democratic?, *Chicago Journal of International Law* 8 (2008);

²⁵ E. Meidinger: Beyond Westphalia: Competitive Legalization in Emerging Transnational Regulatory Systems, in: Legal Studies Research Paper Series herausgegeben von T. S. U. o. N. Y. University at Buffalo Law School. (Buffalo: 2006), p. 4.

²⁶ FSC International Standard: Principles and Criteria for Forest Stewardship, Introduction.

²⁷ K. Dingwerth: North-South Parity in Global Governance: The Affirmative Procedures of the Forest Stewardship Council, *Global Governance* 14 (2008)

²⁸ Ibidem, p. 54.

But from the multilevel perspective these international Principles and Criteria have to be complemented and 'fleshed out' by national initiatives of standard setting. Consequently the multilevel standard-setting process provides for considerable flexibility in the interpretation an application of the global Principles and Criteria by national stakeholders.²⁹ The embedding of local individual or collective property into global standards could thus be considered as a process of interlegality with mutual evolution of open principles on the international level and collective learning processes on the local level.

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²⁹ Ibidem, p. 65.

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