Do not Miss the Forest for all the Trees

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Abstract

In the 1960s environmental issues became analysed in a global context. 1992 sustainable development was made the overall policy. 2010 the biosphere is in a worse state than in the 1960s, and the world human population is higher than ever. For sustainability, human behaviour must be kept within biospherical carrying capacity. This presents enormous social and human scientific challenges. However, main social scientific schools generally overlook what basically makes democratic systems tick, namely Rule of Law. Most social scientific input has been hampered by pre-environmental sectoral paradigms missing the holistic prerequisites. Modern environmental law methodology has on the other hand analysed old law and developed theory for sustainable law capable of i.a. handling non-linearity, complexity and what makes societies tick – Rule of Law. Thanks to this, some of what other social sciences have brought forward can be reinterpreted for inclusion in an adequate sustainability theory, while much of the rest can be explained as ineffective.

This paper brings this into broader environmental science. It will (1) rely upon the still degrading biosphere and that no country has so far established effective control for sustainability; (2) explain why such control cannot be achieved in a democracy without recognising the Rule of Law and adapting the law to sustainability; (3) explain why mainstream social and human sciences yet have not contributed more effectively; (4) present a fundamental theoretical holistic structure essential for social environmental science, and (5) based on this demonstrate why it is impossible to solve the global unsustainability problems without full understanding of the Rule of Law.

Keywords: sustainable development, Rule of Law, social scientific environmental theory, ecological sustainability, scientific compatibility.

1 Introduction

The equation for the ecological dilemma of mankind is simply put an increasing population and resource

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use overshoot in a finite world with no other verdant planet as a back-up system (e.g. FAO:a 2009, Millennium Ecosystem Assessment:a 2005, Meadows et. al.1992, 2004; Daly & Cobb 1989). This dilemma has during centuries been propounded in different ways. The worry expressed in the 18th century regarding the fragile relationship between population growth and food-supply (Malthus 1798), was followed by concern for bad health conditions – foremost water and air related, e.g., the Health Act 1848 in England. Geographically this was perhaps mostly a European question (Carlman 2002). Since the 1950s population growth was once again highlightened and then on so called developing countries (e.g. Borgström 1953 & 1973; Boserup 1965 & 1981; Holdren & Ehrlich 1974, and Ehrlich & Ehrlich1990).

In the 1960s and 70s, knowledge about effects on ecological systems was integrated into the problem picture, which was analysed in a global context. The urgency to react to the constant environmental deterioration was in focus, manifested in e.g. the Stockholm conference (1972). In the 1980s the continuing severe environmental situation was, together with poverty around the world and the urge to cope with these problems, tackled in the WCED report (1987). The concept of sustainable development became after that solidly established. Poverty and mismanagement of resources once again underlined the population growth problem.

The most prominent outcomes of the Rio summit in 1992 were the principles of the Rio declaration and the Agenda 21 blueprint, together with the Convention on Biological Diversity, the Convention on Climate Change, the Statement of Forest Principles and the Convention to Combat Desertification, all pinning down the *overall* policy of sustainable development for the international community. In Johannesburg, 2002, the commitment to the Rio declaration and Agenda 21 was reaffirmed (Johannesburg Declaration 2002).

The evolution that societies have undergone since the beginning of the industrial era, often stated as the starting point of the severe environmental problems, has to an overwhelmingly degree been the result of technological development coupled with economical dogmas, designed when the world was understood quite differently from now. The more complex and wealthier the societies have become, the more intricate and diaphanous social scientific theories have become. The evolution of Adam Smith´s idea of an invisible hand (Smith 1776), the free market principle, the economic man theory etc. are examples of how nature´s carrying capacity and peoples´ health have been either set aside, or considered automatically to benefit society.

However, the environment is today also effected by legal principles formulated long before the industrial era. One prominent example is the international law Mare Liberum – The Free Sea – written by the Dutch jurist Hugo Grotius in 1609. He cited Placentinus (an Italian jurist in 12th century) saying"the sea is a thing so clearly common to all" and he concluded that "A nation can take possession of a river, as it is closed within their boundaries, with the sea, they cannot do so." (Grotius 1609, p 28).

Economic growth and trade are today social mantras and controlling forces behind the development of both dominating values and legal systems and other steering mechanisms. The underlying purpose of environmental laws has so far, to quote Decleris, merely been to "just prevent extremes of ruthless development, without in other respects intervening in economic policy" (Decleris 2000). Berman, who takes a wider grip on this, says that law during the 20th century has been less and less treated as a coherent whole, leading to fragmentation and conflicting rules (Berman 1983). This is also an explanation why most environmental degradation has been, and still is, legal and also why we have counterproductive and unsustainable laws.

From a scientific point of view, the academic "journey" depicted above started in theories/models based on linear reasoning, incorporating along the way knowledge of non-linear dynamic complex systems and chaos – but not really adapting to it. Most of the scientific work, linked to environmental problems and how to solve these, has in a historic perspective to a major part been performed by natural scientists and technologists resulting in deeper problem insights and ideas of how to solve them technically. These scientists have also many a time undertaken the role of social scientists giving advice on how to steer society, although seldom

with a social scientific understanding. Their approach has been rather schematic, putting forward adaptation and/or mitigation, rather than prevention and proaction. (IPCC:a & IPCC:b 2008).

In 2010, the biosphere as a whole is in a worse state than in the 1960s (Millennium Ecosystem Assessment:b 2005). The world´s population is higher than ever, 6,8 billion (US census Bureau 2010). Newly presented data state that starvation is increasing (973 million) and that the food-supply has to double at the latest in year 2050 (FAO:b 2009). In order to take responsibility for future generations, human behaviour must be kept within the biospherical carrying capacity. This presents enormous social and human scientific challenges, a gauntlet that must be picked up.

Between 1992,with the Rio conference and Agenda 21, and today no major steps have been taken. No country is firmly on the way towards sustainable development (Carlman 2007). Social sciences have in general terms not put forward significant or paradigmatic theoretical changes for the sake of sustainability. On the contrary, sustainable development problems are mostly reconstructed so as to fit into older theories, rather than letting the sustainable development problems steer theory building. This situation seemingly explains an alleged need to invent and exploit terms, e.g. weak and strong sustainability, and thin and thick Rule of Law, which I will return to.

However, the core of sustainable development is well known and defined in the WCED- report, as a development which meets the needs of the present generations without compromising the ability of future generations to meet their own needs. *All people*, no matter where and when they live or will live, have the same right to resources for their need. The natural base and a healthy biosphere are indispensable, which makes ecological sustainability a constraining factor. Key physical conditions to sustain human life can be understood from the laws of thermodynamics. Natural laws are therefore paramount.

All modern democracies are under the Rule of Law. This means that without any sufficient legal basis, it will be impossible to achieve sustainable development. Rule of Law is democratic states´ parallel to laws of nature. From this follows that any society, which will not conform to what is necessary and stay within limits of the natural basis, or which has insufficient laws for keeping persons and entrepreneurs within the biosphere, is unsustainable.

The logic of this is that neither laws of nature nor the Rule of Law can be disregarded in democracies.

Having said this, a choice must be made. In this article all solutions based on dictatorship are dismissed. Anarchy is also dismissed, since it does not react to ecological limits being jeopardised. For a similar reason, all economies that do not recognise the significance of ecological limits are dismissed, simply because they cannot really manage finity.

Instead, this article presupposes democracy and Rule of Law. This is fully compatible with the Rio Declaration of 1992. Democracy can have many shapes and still be a democracy. However, any democracy, the criteria of which prescribes anything that counteracts sustainability, is *a priori* dismissed simply because of the overall theme of the article – sustainable development.

Rule of Law is something different than democracy. The basic understanding of this concept is simply that no authority, not even the government, may restrict or command any physical or legal person (like an enterprise) in any way without full justification for this in law.

2 Democracy

Democracy rests on parliamentary sovereignty and is dependent on people exercising their rights to participate in the political power. A democracy is a political system where a government in power can be removed by a majority decision of the citizens, in just and open elections.

Democracy, western style, means that the majority rules by and under the laws, while respecting the rights of the minority. Generally speaking it is a political system, where the power lies with a body of representatives (e.g. parliaments) elected by the citizens entitled to vote.

However, one of democracy´s well known weak links is that it cannot totally prevent a dictator to be elected, which of course can affect the legal system in an adverse way. Hitler coming in to power in Germany (1930s) is probably the most prominent example of this.

After 1945, Rule of Law became more deeply rooted in democratic societies. The second world war most surely influenced that. The preamble of the 1948 Universal Declaration of Human Rights states "it is essential, if man is not to be compelled to have recourse, as a last resort, to rebellion against tyranny and oppression, that human rights should be protected by the rule of law."

Today, Rule of Law is omnipresent in relation to democracies and free market economies and good governance. *If* society is to move towards sustainable development one must understand that business as usual is no – no! The basic responsibility for sustainable development to come true rests with the legislators and hence indirectly with the people.

To adjust a legal order, so as to meet political goals, is in itself not new. The accomplishment of the industrial revolution needed that. Expropriation and water laws, enacted under the 19th and 20th centuries, are examples (Carlman 2000).

3 Rule of Law

Constraining factors for implementation of environmental goals are, apart from the prevailing legal and economic systems, attitudes and lack of knowledge. The fundamental task for social sustainability science is to construct a sufficiently effective system capable of making the collective action of humanity to stay within ecological sustainable boundaries. This will in this article be referred to as a sustainable control system.

Implementing policy goals rests, basically, on three kinds of functions – voluntariness and ethics (*soft instruments*), economic incentives, and legal directions and restrictions (Westerlund 2008). Actions not abandoned voluntarily and/or due to economy reasons will be carried through if they are not outlawed. If they are not outlawed, they are legal. That is the Rule of Law mechanism. In a sustainable control system, the law is ultimately a safety net with the function to catch whatever unsustainable conduct, which is not filtered away in the two previous ones.

This highlights Rule of Law. What the law filter cannot catch (define as illegal) will get through the filter with the blessing of being legal and therefore protected by the courts and the police.

The fact that man as a species has developed civilisations, founded on norms – laws – to solve political and economical conflicts, is elementary. Rule of Law – the principle of legality – has a long history (Aristotle ca 325 BC & Plato ca 360 BC) and is underpinned by interrelated principles.

Rule of Law ensures that no one is above the law, that governmental action must have legitimacy (that laws are established according to a due process) and that law rules the government itself. It implies established judicial systems with enacted laws and organized government institutions – *ruled by* law – and that all must obey the law – *rule under* law.

How e.g. the Nurnberg trials, in 1946 and 1947, corresponded to Rule of Law has been discussed. It has been argued that it is due to violation of both the Rule of Law principle and of the democratic principles that this hideous crime towards humanity could be handled. This reasoning seems to be underpinned by the fact that Nazi Germany abolished the principle of Rule of Law. As Bergman (1983, p. 25) points out "When a statute of National Socialist Germany made punishable as a crime any act that `deserves punishment according to sound popular feeling (gesundes Volksgefühl),´ this was viewed as a violation of the traditional Western concept of legality. This is also reflected in an article by Robert H. Jackson (the Chef of Counsel for the United States International Military Tribunal at Nurnberg), who said" Jurists' will find admonition in the way the rule of law was set aside, an independent judiciary destroyed and party and class use of the courts as instruments of political policy was established." (Jackson 1946). However, these trials have also been criticised, because they violated the principle "nullum crimen sine lege" – the principle of non retroactivity – and hence contradicted the Rule of Law principle (Safferling 2005).

Nevertheless, Rule of Law is central for good gover-

nance combatting abuse and corruption. Enforcing the Rule of Law is also vital for governance to guarantee conformity with internationally accepted norms, conventions and other agreements. Whereas market systems relay on promptly enforceable property rights sanctioned/warranted by the Rule of Law, a control system requires the full Rule of Law. Effective law enforcement.

In order to ensure the operationalisation of sustainable development, principles and environmental objectives need to have legal status, i.e. to be mandatory. The operationalisation must be legal. When principles and goals are legally binding, they are also covered by Rule of Law (Decleris 2000). Effectiveness furthermore requires that the governing capacity is sufficient, e.g. by enacted operative laws and established mechanisms to ensure the enforcement, including means to check the efficacy (Carlman 2007).

Having said this we must not forget what was said above regarding operationalisation of environmental goals and the control system. The legal function in the control system is *one function, constituting the last safety-net*, should the other two – the ethical and the economic functions – fail to reach a goal. One also has to bear in mind that all economical steering instruments such as tax have to be legally underpinned. So, all three functions within the control system play a role and the legal function is dormant as long as the legally binding goals can be reached with ethical and economic instruments.

Rule of Law is also consequently to blame, when an inadequate legal system leads to unclear situations. In unclear cases, Rule of Law tends to allow persons to act according to their desire. This has of course bearings on i.a. the free rider problem.

A free rider, generally defined as someone who avoids the cost and expense of finding the best course of action, is a main problem for a sustainable control system and well known within i.a. economics, political science and psychology. He consumes or destroys more than his fair share of a resource but does not carry an equivalent share of the burden. Free riding, which can be linked to the concepts of economic man and rules of profit maximizing, is a prominent sustainable problem, when it extends to excessive use of common property resources. From a public good perspective, free riders take advantage of collected-funded benefits without fully contributing to it. Hardin´s tragedy of the commons highlights this (Hardin 1968).

We know that some people are willing to, and do, act voluntary so as to help limit environmental negative impact. We also know that such noble actions are not sufficient. Furthermore it is well known that free riders are apt to relate to law, if that should meet their interests (Carlman 1993). The free rider problem is therefore a problem for the parliament/government to cope with. Rule of Law and constructing a sustainable and functional legal order is therefore of utmost importance.

The Rule of Law concept has been discussed among economists and developers. This was e.g. mirrored in the Economist where two authors were said to "tackle the question of what economists mean by the rule of law. They accept that the rule of law is necessarily tied to the success of development, although they propose a set of procedural values to enlighten this institutional approach."

These two authors bring forward "thick" and "thin" definitions of Rule of Law (The Economist 2008). Central to the thick definition is that Rule of Law is the core of a just society, linked to liberty and democracy, where the state's power is restricted and basic freedoms are guaranteed.

Thin Rule of Law is more formal. Important things here are that laws provide stability, property rights and efficient administration of justice, rather than democracy and morality (Trebilcock & Daniels 2008).

Just like weak and strong sustainability, expropriating and undermining a definition can be a sign of flaws in a theory´s capacity to tackle a problem or a question. Competing definitions also tend to undermine its usefulness.

To sum it up. The principle of Rule of Law is a very old fundamental cornerstone in Western legal tradition. It is closely tied to liberty and rights of the person and that similar cases be treated similarly, something that e.g. Rawls in Theory of Justice (1971) bases much of his reasoning on. It is a mechanism, with a function to set limits to political power. Is says nothing about the

legal system as such. It accentuates the assurance of individual rights, by restricting the power of the government. Therefore the independent authority of law overrides governments´ and agencies´ power to interfere.

4 Social science and sustainable development

The sustainability concept has, like the Rule of Law, been questioned and contested by academics, seemingly predominantly within economy and geography, and said to be unclear, lacking substance and/or difficult to pin down. This has led to ideas of concepts such as strong and weak sustainability. Since it relates to the perception of the very problem behind sustainable development, I will just mention what the difference between the two versions boils down to.

Strong sustainability denotes that trade-offs between environmental, social and economic dimensions of sustainability are not allowed or are restricted. Weak sustainability denotes that trade-offs between these factors are permissible (IUCN-report 2006). Another formulation of the difference is that weak sustainability implies that discounting and present values are central, whereas strong implies that discounting is discouraged and focus is on intergenerational justice (Moffatt 2007).

This discussion reflects a confusion between goals and means, tensions between different scientific theoretic paradigms and probably elements of ecological denial (Carlman 2007).

The three parts – environment, social and economic – which constitute sustainable development, have an internal but not really equal relation. The environment (nature) is the base, on which the other two totally depend. One simply cannot calculate on that natural capital can be substituted by economic capital. This is most evident in so called ecosystem services, e.g. the climate stabilizing function rainforests and oceans have, the protection provided by the ozone layer, etc. This does not mean that the use of non-renewable sources is banned. It rather stresses two things. Firstly we have always to investigate if a non-renewable source can be substituted for a renewable one. Secondly it implies that non-renewable sources should only be used during a limited period, allowing for a renewable system to be built up. Nuclear power is one example of this in order to face out fossil fuel. Handled correctly, the use of nuclear power should then in its turn be faced out according to a set plan.

There is no doubt that the overall policy of sustainable development entails a drastic paradigm shift, implicating that economic policy – planned or capitalistic – striving to maximize material well-being for present generations has to submit to the responsibility for coming generations (Decleris 2000). Interests promoting development cannot be balanced against the interest for ecological sustainability, without the latter being jeopardized. In a longer perspective development based on natural resources will also be put at risk. However, as long as alternatives are in tune with such sustainability, they can be balanced against each other. This often embraces economic thinking, as when analysing cost effectiveness is vital.

As mentioned above, natural science and technology have, in a historical perspective, been the most conspicuous sciences handling basic issues relating to environment. However, sustainable development belongs, deep down, to the social sciences. The reason is that even if the very nature of problems is a natural scientific one, they are human induced (Thomas 1956). Man is *the actor* and the only one who can take responsibility and steer mankind towards sustainable development. However, social science can never deviate from natural scientific facts, e.g. when setting environmental quality standards. The realisation of sustainable development is therefore dependent both on natural science and social science (Carlman 2008).

Nature, including man as a biological creature, reacts according to natural laws, implicating limits of different kinds. Nature is *the reactor* (Westerlund 1997). The significance of limits follows from the laws of thermodynamics and has implications for e.g. growth, biological diversity, etc. Due to ecosystems being non-linear and to the role of time, limits cannot be fixed once and for all in advance. Another factor is of course available knowledge or rather lack of knowledge. The more we

learn about how nature reacts, the better we can act.

Once again. The prerequisites for sustainable development rest in nature, and depend on the laws of nature. Human actions in modern democracies depend on Rule of Law. If social scientists question this or twist sustainable problems or highjack and reform established terms in order to apply their (old time) theories adequate, instead of letting the sustainability problems steer the problematisation, research thinking and theory, they will be misled, they will mislead, and they will delay urgent implementation.

5 Social environmental science – a theoretical holistic structure

Mankind's *ecological dilemma* puts forward mankind's and society's ultimate dependence on nature and natural resources. This was the basis for the world community's decision concerning sustainable development, and Agenda 21, aiming to avoid mankind's ecological crash, taking innumerable future generations into account. The biosphere, with all its different ecosystems, is very complex. Social systems are also very complex. This fact has of course a bearing on how best to construct a control system in order to achieve set goals.

Systems theory focuses on holism, i.e. how parts within a system are arranged and the relation between them. It is also a well known fact that a control system only can control something if it has sufficient internal variety to represent it. Ashby´s law of Requisite Variety states that the larger the variety of actions available to a control system, the larger the variety of perturbations it is able to compensate. Decleris (2000), with a background in both Science of System and Law, has used Ashby´s Law in order to show flaws in present legal systems and explain and clarify how a sufficient legal system must be constructed in order to meet set environmental goals and cope with e.g. the free rider problem.

Systems thinking regards the sectors and parts as components of the system. This is seemingly a necessary way to approach sustainability issues. Sustainable development relates to ecosystems together forming the biosphere. Man-made systems, interrelationship between them and – ultimately – the human control of these systems must, in order for one kind of system (man-made) to be adequate for the successful management of the biosphere, be compatible.

It should go without saying that the systems approach to sustainable development requires compatibility between the applied theories and methods.

For the academia this implies to explore problems and possibilities with respect to different scientific disciplines. However, most scientific disciplines dealing with sustainable development issues, especially within the sphere of social science, have already developed theories and paradigms without recognition of the ecological dilemma.

Theory of sustainable development/environmental theory, with philosophical, legal, natural scientific, economic, social and political dimensions, is mandatory. Such a theory must recognise the implications of the ecological dilemma. Solutions to such a dilemma dwell within the realm of social science.

In order for sustainability/environmental science to be fruitful, disciplines must produce and communicate theory and knowledge that are compatible with other disciplines. This in turn calls for the theory and knowledge, or rather the results, from one collaborating discipline to be *portable* within e.g. interdisciplinary mega-projects related to sustainable development. One discipline *exports* and another discipline, or a project, *imports* these results. It is in the end a matter of necessary, problem-relevant compatibility.

Each discipline must learn that environmental science is not discipline a+b+c etc., but rather something new, formulating and developing questions. This requires sufficient theoretical frames. Participating disciplines must therefore be prepared to change or adjust their deep-rooted identities to get full compatibility. This will for the participating discipline facilitate for theoretical questions to turning out in new ways. The challenge for social sciences is to grasp and manage not only methods for analysing and synthesising natural scientific theory and information, but also to make *use* of this when dealing with social scientific issues relevant for sustainable development.

In an effort to contribute to this thinking, I developed

a planning theory, adaptive environmental planning, based on modern environmental law theory (Westerlund 2003). It confronts the present mainstream planning approaches against the perspective of ecological sustainability, as relevant for Rule of Law countries (Carlman 2005).

6 Ten scientific pillars

There are scientifically very robust pillars upon which to develop social scientific theory for sustainability. Some of these are the following.

1 Humans are biological creatures but with an exquisite, not to say unique, capacity to think and plan and issue norms etc., – to *act.*
2 Earth with its atmosphere etc. is the Biosphere, a large ecosystem although mainly limited, but the receiver of in the first place solar energy.
3 Neither the laws of thermodynamics nor other natural laws can be changed by humans, only better and better understood.
4 The resilience and carrying capacity concepts, understood together with i.a. the second law of thermodynamics and ecology in general, makes us understand that it is normally more expensive to degrade and later upgrade to the same level as before, than not to degrade.
5 There was a Rio summit in 1992 where sustainable development was adopted as the new overall framework for mankind.
6 Sustainable development à la 1992 (going back to the WCED report 1987) includes intergenerational equity and that each generation shall manage the Biosphere so carefully, so that no future generation will lack of resources for satisfying their needs. From #1, 2 and 3 follows that ecological sustainability is necessary, and cannot be substituted, for sustainable development.
7 The Biosphere normally behaves non-linearly, which makes it impossible to define once and for all how to act within ecological sustainability. From this follows i.a. that future situations in the Biosphere cannot be brought into present day economic balancing.
8 Nature is a complex non-linear system, where subsystems – individual ecosystems – have no fixed boundaries. They can e.g. overlap and form so called transitional ecosystems such as where water meets land. Ashby's Law of Requisite Variety, considered more or less as a cybernetic axiom, falsifies implicitly all solutions based *solely* on decentralisation of control of large(r) scale systems.
9 The human population will continue to grow. There are soon 7 billion people and it is estimated to be more than 9 billion in 2050.
10 Rule of Law is as basic for how modern democratic societies function, as are laws of nature like those of thermodynamics for how nature reacts. Any effort to manage sustainability by means of human conduct, which conflicts with the law, is in the long run in vain (the free-rider problem). Adapting managing efforts to law, or changing the law, or both, is necessary. Law is, however, not necessarily only command and control. Law can also be a framework, within which – but not outside which – other means of control can be applied. This is the law's mirror of nature's sustainability.

None of these pillars seem possible scientifically to disqualify. If this can be agreed on, it is easy to lay down the very basics for social sustainability science. Nothing must be in conflict with any of these pillars. If, however, someone can scientifically prove – beyond reasonable doubt – that any of these pillars is wrong, then social sustainability science will really have taken a giant step forward.

7 Conclusion

Introducing environmental social science as a problem-related discipline (and not only as a discipline studying how people and organisations act with respect to environment), concerns basically three different issues related to sustainable development, represented by three keywords; namely *what*, *whether* and *how*.

One issue is *what* sustainable development is.

Another issue is *whether* sustainable development shall rule.

The third issue is *how* sustainable development shall be implemented in the most appropriate way.

Scholars who claim sustainable development to be "vague" do probably not address the first problem (*what*) but, in most cases, the third (*how*). If so, this implies that they do not know how to achieve sustainability. Some also address the second problem (*whether*). If so, they doubt either whether sustainable development really is decided, or whether sustainable development is something for them to take notice of.

To a large extent, such confusion might originate in how the discipline in question views the world through the discipline's older paradigm and theory. Actually, a very important step towards a higher degree of scientific compatibility within science for sustainable development would be to discuss, and find an agreement, on the need for distinction between *what*, *whether* and *how*.

So, in order to steer humanity towards sustainable development, there is a need to fully understand that Rule of Law implies that all kind of commands and other rules directed toward individuals, or organisations etc., must rest on law. Hence, all restrictions lacking such support are illegal. For researchers this implies that, when they analyse the implementation of environmental goals, it must be supported – directly or indirectly – by law. This is e.g. the case when predicating taxes or other such means for the common good. The same goes for planning e.g. a highway, an industrial area etc. Whenever actions – state actions towards private persons or actions between private persons – affect property, they in one way or the other need to consider Rule of Law.

Are there any researchers (or others for that matter), who disagree on that?

Furthermore, there is a fundamental system principle, which states that for a control system to be effective, it must at least be completely sufficient for the objective it is intended to control (Ashby´s law). This relates to hierarchies and what is best managed and on what administrative level. Setting overall goals, whether e.g. a water body or a habitat shall have a certain environmental standard and what the minimum standard should be, is best done on national/federal level – top down (Carlman 2008). How to effectuate this might very well best be a question for local levels. One implication of this is that any urge for decentralisation, which leads astray from ecological sustainable goals, counteracts the implementation of an environmental policy.

Are there any researchers (or others for that matter), who disagree on that?

If it can be assumed that there is a consensus on this, namely that scientists have to always take Rule of Law into consideration and not deviate from the significance of that. Neither when problematising nor making suggestions for solutions to implement and enforce environmental goals.

For active researchers, this means i.a. the following. Control systems must be ecosustainable, and can include many different subsystems. However, law must in the end support them. Ecosystems, all up to the biosphere, are non-linear. Therefore, controlsystems must include feedback and goal-directed rule mechanisms.

As far as we know today, such a feedback system calls for environmental planning from the top, but with as open frameworks as possible downwards without missing the ecosustainable goal. This environmental planning must be adaptable, never deviating from the goal (Carlman 2005 and 2007). Therefore, plans must be reviewed after a few, legally defined, years.

All this has a very strong bearing on property rights and similar rights issues. The basic mechanism is simple. If all such rights all over the world taken together, if fully applied, go beyond what the world's natural basis can take, all future generations included, then the legal order is unsustainable. If on the other hand such rights are allowed, but restrictions are economically fully compensated for whatever is necessary for ecosustainability, then the landowners and similar right holders are compensated by others for what is needed for sustainability. This is in full conflict with basic environmental principles and it deviates fully from the polluters' or users' pay principle. It means that those

who "own" land and water necessary for generation after generation will be allowed to degrade it, if they are not fully compensated.

Therefore the law must also contain a very good mechanism to redefine property rights in order to fit into eco-sustainability.

References:

Agenda 21 (1992) UNCED, New York.

Aristotle (ca 325 BC).Politics. (Translated by Jowett B., Republished 2007 by Forgotten Books).

Biello D, 2009 Another Inconvenient Truth: The World's Growing Population Poses a Malthusian Dilemma Scientific American Oct 2, 2009.

Berman H.J. (1983). Law and Revolution, Harvard university Press, USA.

Borgström G. (1953). Jorden vårt öde (Earth – our destiny), Stockholm.

Borgström G.(1973). The Food and People Dilemma (1973) Belmont Carifornia.

Boserup E. (1965). The Conditions of Agricultural Growth: The economics of agrarian change under population pressure, London.

Boserup E. (1981). Population and technological change : a study of long-term trends, Chicago.

Calman I (1992) TÄNKOM – studier av konflikter i svenska miljöärenden (RETHINK – studies regarding conflicts in Swedish environmental cases) Åmyra förlag. Uppsala.

Carlman I. (2000). Framtiden i förfädernas händer (The future in the hands of the forefathers) Carlssons förlag. Bjärnum.

Carlman I. (2002). Befolkningsfrågan - från överbefolkning till framtida generationer. (The population issue – from overpopulation to future generations), Iustus Förlag. Uppsala.

Carlman I. (2005) The Rule of Sustainability and Planning Adaptivity, Ambio, Vol 24.

Carlman I. (2007). The Resource Management Act 1991 Through External Eyes, New Zealand Journal of Environmental Law, Vol 11, 2007.

Carlman I. (2008). Control System for Sustainable Development, Computing Anticipatory Systems: CASYS'07; Eighth International Conference. AIP Conference Proceedings, Volume 1051.

Daly H.E. & Cobb J.B (1989). For the common good, Beacon Press, Boston.

Decleris M. (2000). The law of sustainable development. General principles. A report for the European Commission Environmental Directorate-General. Luxenburg. Office for Official Publications of the Communities.

Ehrlich P.R. & Ehrlich A.H. (1990).The population explosion. New York: Simon and Schuster.

FAO:a (2009) Food Insecurity in the World 2009, Economic crises – impacts and lessons learned, ISBN: 978-92-5-106288-3.

FAO:b (2009). Agence France Press, http://www.commondreams. org/head line/ 2009/ 01/ 26-8 (Visited 3rd of April 2010).

Grotius H 1609 Mare Liberum – The Free Sea, Lodewijk Elzevier published by Batoche Books Limited, Kitchener, Ontario, Canada, 2000.

Harding G. (1968). Tragedy of the commons, Science Vol 162 no 3859.

Holdren J.P. & Ehrlich P.R. (1974). Human population and the global environment. American Scientist 62:282-292.

IPCC:a (2008) Climate Change 2007 - Impacts, Adaptation and Vulnerability. Cambridge University Press.

IPCC:b (2008)Climate Change 2007 - Mitigation of Climate Change. Cambridge University Press.

IUCN-report (2006). The Future of Sustainability, Re-thinking Environment and Development, the Twenty-first Century Renowned Thinkers Meeting, 29-31 January 2006.

Jackson H., 1946, Justice Jackson Weighs Nuremberg's Lessons, Closing Argument for Conviction of Nazi War Criminals. http://www.roberthjackson.org/files/thecenter/files/bibliography/1940s/justice-jackson-weighs-nurembergs-lessons.pdf (visited April 2010).

Johannesburg Declaration on Sustainable Development, (2002). South Africa 4 September 2002.

Malthus T. (1798). An Essay on the Principle of Population, London.

Meadows et. al. (1992). Beyond the limits: global collapse or a sustainable future?, Earth Scan, London.

Meadows et. al. (2004) Limits to Growth: The 30-Year Update, Chelsea Green Publishing Company.

Millenium Ecosystem Assessment Board:a (2005). Living Beyond our Means: Natural Assests and Human Well-being. http://www.millenniumassessment.org/documents/document.429.aspx.pdf (visited 3rd of April 2010).

Millennium Ecosystem Assessment:b (2005) Ecosystems and Human Well-being: Biodiversity Synthesis. World Resources Institute, Washington, DC.

Moffatt I. (2007). Environmental space, material flow analysis and ecologial footprinting, in Eds: Atkinson et.al., Handbook of Sustainable Development, Edward Elgar, UK.

Plato (ca 360 BC). Laws ((Translated by Jowett B. Kessinger Publishing Llc, Dover Publication 2004).

Rawls, J. (1971) Theory of Justice, Massachusetts.

Safferling C. J.M., 2005, German Perspective on Nuremberg and its Legacy, speach held at the conference 60 Years after the Nuremberg Trials – crimes Against Humanity & Peace. (http://www.roberthjackson.org/contact/our-people/60-years-after-the-nuremberg-trials/; visited April 2010).

Smith A. (1776). Wealth of Nations, London. The Economist (2008 March 13).

The Stockholm Conference (1972). Report of the united nations conference on the human environment.

Thomas W.L., Ed. (1956). Man´s Role in Changing the Face of the Earth, University Chicago Press.

Trebilcock M. & Daniels R. (2008). Rule Of Law Reform And Development: Charting the Fragile Path of Progress, Edward Elgar,UK.

US Census Bureau(2010), http://www.census. gov/ipc/www/idb/ world pop info. html (Visited 3rd April 2010).

WCED -World Commission on Environment and Development (1987). Our common future, General Assembly Resolution 42/187, 11 December 1987.

Westerlund S. (1997). En hållbar rättsordning (A sustainable legal order), Iustus Förlag, Uppsala.

Westerlund S. (2003). Miljörättsliga grundfrågor 2.0 (Environmental legal basic issues 2.0) Åmyra förlag, Uppsala.

Westerlund S. (2008) Fundamentals of Environmental Law Methodology. In manuscript.