

# On the Feasibility of “Twofold Transformation”. Can Institutions of Sustainability Evolve in Transition Countries?

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### Abstract

This paper aims at explaining the role and importance of the evolution of institutions for sustainable agri-environments during the transition process by referring to agri-environmental problems faced in Central and Eastern European countries. A central question therefore is whether the required institutional arrangements for achieving sustainability in the area of agri-environmental resource management can be built more easily in periods of transition as they fill institutional gaps, or whether processes of transition make institution building a more difficult and far more time consuming task than previously thought. Above all, we want to find out, how these two processes of institution building at different scales affect the sustainable management of resources such as water and biodiversity in agriculture. It will become clear that the agri-environmental problem areas faced during transition are complex and dynamic and require adequate institutions both by political design and from the grassroots, to be developed by the respective actors involved. Transition from centrally planned to pluralistic systems has to be considered as a particular and in some respect non-typical process of institutional change. Popular theories of institutional change do not necessarily apply. The privatisation experience from many CEE countries will serve as an example. Finally, we will emphasize the problem of missing or insufficient interaction between political actors or agencies and people in CEE countries. Substantial investments into social and human capital, particularly regarding informal institutions are needed for institutions of sustainability to evolve.

### 1 Introduction

Institutions are sets of interrelated rules governing many aspects of social life which are acknowledged (or even sanctioned) by the members of society. Institutions co-ordinate relationships among individuals, i.e. they determine rights and duties as well as costs and benefits of actions. This equally applies to human relationships affected by interactions between the social and the ecological system, and therefore institutions also form the essential linkage between these systems (Goglio, 1997; Ostrom et al., 1993; Gatzweiler et al., 2001). Following these ideas, this paper is based on an institutional framework focussing on the **interaction of social and ecological systems**. The notion of evolution and co-evolution refers to the characteristics of the process of (intentional) institutional design or (non-intentional) institutional change as a process which is dynamic, complex and a result of **co-adapting social and ecological systems**.

Our understanding of sustainability refers to the ways social systems interact with and relate to ecological systems by means of their institutions. Sustainable social or ecological systems are systems which can persist their integrity and functionality over time, and this dynamic process is accompanied by the establishment of institutions which facilitate co-adaptive change. A special attribute of sustainability is that both systems are interlinked and therefore need to sustain each other in order to sustain themselves. From a biological point of view sustainability means that the resource avoids extinction. In economic terms it means that humans avoid major disruptions and can hedge against instabilities. Causes for the mismanagement of natural resources tend to be associated with absent institutions or with mismatches among institutions. Often institutions do not exist at the appropriate scale, or they are ineffective because they fail to control ecosystem stocks and flows properly. Other reasons for scale mismatches are ineffective decision making linkages or that decisions are based on information aggregated at the wrong scale, even though information at the appropriate scale may exist. There is considerable information on ecosystems at the small scale. However, large-scale systems are not simply small-scale systems grown large. Management systems that work well in handling traditional resource problems at local level can produce destructive results when applied to global system scales. Similarly, if local

resource management systems are superseded by national or international regulations, local ecosystems frequently suffer mismanagement (Costanza et al., 2001).

Only to a certain degree we are able to intentionally design both social and ecological systems due to the complexity of the desired outcomes. Institutional framing conditions supporting and allowing for the evolution of local resource management institutions belong to this type of institutions which can (and should) be designed intentionally. However, as the nature of ecosystem characteristics is also stochastic and unpredictable (to a certain degree), the final match between ecosystem structures and appropriate governance structures will only occur, if at least some of these institutional innovations are given adequate scope of action to evolve spontaneously and unintentionally. Some institutions regulating human action evolve without conscious human design and maintain themselves without any formal 'machinery' for enforcing them (Sugden, 1989). 'People do things in a certain way because that's what they have been always doing and it has proven to be the right way to do things'. The evolution of such institutions as a response to ecosystem specificity consists of processes of co-adaptation whereby structures are progressively modified to give better performance. These evolutionary processes of co-adaptation can only work along the lines of communication, information, feedback and response. For these processes of co-adaptation to be successful political actors should care for both reliable framing conditions by some basic rules and arrangements and sufficient scope for learning-by-doing and self-governance.

The paper is organised as follows (see also Gatzweiler and Hagedorn, 2002): By presenting a framework for the analysis of institutions of sustainability in agriculture, we will explain some basic characteristics of institution building. Thereafter, we will show some important particularities and problems which become evident if we understand the process of change in transition countries as a special process of institutional design or change, by providing examples from the privatisation experience in some CEE countries. Then we will point out some essential problems which are likely to occur when both institutional innovation towards sustainability and the fundamental institutional changes typical for transition countries are supposed to take place at the same time. Finally, this leads us to a brief discussion on the role of public participation in transition countries.

## **2 Property Rights Regimes and Governance Structures for Agri-environmental Sustainability**

Of course, institutions focussing on agri-environmental sustainability are a part of the system of ecological-economic co-evolution with mutual adjustment mechanisms. The forces driving their (non-intentional) evolution or the criteria relevant for their (intentional) design can be derived from the framework developed above. Accordingly, institutional change regarding agri-environmental co-ordination, i.e. mainly the property rights regimes and governance structures in this area, can be understood as a response to technological, ecological and economic factors, on the one hand, and societal, behavioural and political influences, on the other (Table 1). For structuring and analysing the relationships and the interplay between these factors, an explorative concept is necessary. Institutional change in the area of resource protection and agri-environmental co-ordination is related on the following **groups of phenomena** (see, for a more comprehensive description, Hagedorn, 2000a; Hagedorn, et al., 2002a):

- (1) Which institutional arrangements arise, that depends on the *features and implications of the transactions* related to nature and the ecosystem (Box 1). This is mainly influenced by the physical properties and material transformations with which environmental goods and bads, benefits and damages are associated (example: leaching of nitrates into the groundwater on sandy soils). Technological innovation and structural change lead to permanent changes of these properties and transformations.

**Box 1: Features of Transactions Affecting the Natural Environment and Ecological Systems**

- (1) **Excludability** of actors from access to environmental goods and exclusion costs
- (2) **Rivalry** among the users of environmental, goods, i.e. “*subtractability*” in common-pool resources
- (3) **Asset specificity** induces *opportunistic behaviour*:  
*site specificity, capital specificity, specific knowledge*
- (4) **Separability** is often low due to *jointness of production* of environmental goods
- (5) **Frequency of transactions**: *specialised governance structures, economies of scale and learning by doing*
- (6) **Uncertainty** causes *transaction costs* for measuring and monitoring and gathering adequate information
- (7) **Complexity**, combined with insufficient scientific knowledge, provokes *opportunistic behaviour*
- (8) **Heterogeneity** and *variability*, i.e. “site and situation specificity” makes standardised regulation inefficient
- (9) **Legitimacy** refers to compatibility with the normative views of the actors and groups concerned

- (2) Simultaneously, institutional change depends on the ***characteristics and objectives of the actors involved*** (Box 2) in those transactions. This is not only true for individual actors whose *values, interests and resources* to exert influence (power) are very different, but also for groups of individuals like communities using *organisations and networks* to shape institutions according to their objectives (example: farmers who cause nitrate leaching by high nitrogen fertilisation and unfavourable crop rotation without catch crops).
- (3) The changes in institutions, which result from the two main categories of driving forces mentioned above, affect the ***design and distribution of property rights on ecosystem functions*** (DeGroot, 1992) (Box 3), or more precisely, on those cost and benefit streams which can be attributed to natural capital and ecosystem services (example: trade-offs between reducing nitrogen balances by means of lower fertilisation and intercropping and decline in gross margins). The property rights can be defined for numerous ecological properties of a physical piece of nature, each of them related to particular costs and benefits (and for each of these differentiated rights components, the institutional design of the right or duty can differ: private, collective and state property regimes or open access). They tend to become more and more differentiated, because they do not only apply to physical goods like land, but also to *various dimensions and many details* of land use relevant to environmental protection and sustainable agriculture, e.g., the right to decide on crop rotation.
- (4) Necessarily, such changes in property rights on nature components are accompanied by corresponding ***changes in governance structures*** (Box 4), mainly for two reasons: first, property rights on nature components, like other property rights, must be supervised and

sanctioned to become effective instead of only being formal in nature; and secondly, the actors can only make use of their rights and entitlements and will only fulfil their duties and obligations, if transactions are organised and co-ordinated (example: farmers will only comply with fertilising restrictions and cropping prescriptions if a adequately working system of measuring and monitoring activities, information and administration, positive and/or negative incentives, i.e. of subsidies and/or penalties, exists).

**Box 2: Characteristics of Actors Involved in Agri-environmental Co-ordination**

- (1) *Values and beliefs* of the actors and their particular *attitudes and perceptions of agri-environmental issues*
- (2) *Reputations for reliability and trustworthiness* are important for the *credibility of their commitments*
- (3) *Resources* for influencing agri-environmental strategies at the regional and local levels, i.e. by *direct participation*
- (4) *Resources* for influencing *political decision making* at higher than the regional level, in which land users *cannot participate directly*
- (5) *Information and knowledge*, and *capacities for acquiring, processing, retaining and using knowledge and information; asymmetric information*
- (6) *“Actor’s method of action selection”*: maximising homines oeconomici, constrained maximisers with bounded rationality, or fallible learners
- (7) *Social environment and embeddedness* of actors in communities and cultures

- (5) Similar to the property rights regimes mentioned above, governance structures are also very differentiated (markets, e.g., tradable pollution quotas, hierarchies such as environmental bureaucracies, hybrid forms like contractual relations, e.g., stewardship contracts, horizontal non-market co-ordination, i.e. co-operation and participation, knowledge and information systems, formal and informal networks, methods and infrastructure for measuring, monitoring and evaluating environmental damages and benefits, e.g., systems of laboratories, rules and procedures for conflict resolution, regulation of liability, incentives to promote innovation and learning, etc.). They may include self-organised co-ordination (e.g., environmental co-operatives) and governmental regulations (e.g., environmental bureaucracies), and they are not only related to the implementation of environmental instruments, but also to decision making on environmental policies which takes place on the different levels of co-operative federalism (community, region, province, national, EU, international).

For the last point mentioned above, the *political economy* behind the process of joint implementation and decision making in a federal system has to be taken into account. This may produce *scale problems* similar to those emphasised by Constanza et al. (2001): Self-interested or insufficiently informed political actors may be reluctant or unable to create missing linkages between scales and to gather information at appropriate scales.

For exploring and explaining these four groups of variables in more detail, we surely can make use of approaches like New Institutional Economics and the Institutional Analysis of Natural Resources (e.g., Richter and Furobotn, 1996; North, 1992; Williamson, 1996; Ostrom, 1990; 1998; 1999; Bromley, 1991; 1996; 1998; Loehmann and Kilgour, 1998; Berkes and Folke, 1998). Studies available on environmental co-operation and participation are available as an additional source of theoretical concepts and empirical information (see, e.g., OECD, 1998; Bahner, 1996; Zimmer, 1991; 1994a,b; Campbell, 1998; Fisk, Hesterman and Thorborn; 1998; van Woerkum and Aarts, 1998; Woodhill and Roeling, 1998; and the contributions to the 64<sup>th</sup> EAAE Seminar published in Hagedorn, 2002). However, detailed empirical research of this sort is still in an initial phase, and much has to be done: The number of characteristics of the human actor, features of transactions and types of rules affecting organisational arrangements which affect the capacity of human actors to manage environmental resources is very large, and we are far from complete knowledge about these characteristics and their effects.

**Box 3: Property Rights on Ecosystem Functions  
Related to Agriculture**

- (1) *Benefit streams* or *cost components* connected with physical goods: differentiated “property rights on nature components”
- (2) Property rights separately defined for *numerous ecological properties* of a physical piece of nature: private, collective, state property regimes, open access
- (3) *Transaction costs* for defining and establishing property rights can be prohibitively high, but may change, for example, by technological progress
- (4) *Structure of property rights*: selecting the most efficient right holder, the “residual claimant”, deciding on control rights, “bundling of rights” or “divided property”
- (5) *Bundling property rights* on nature components favours *decentralisation*, *dividing rights* results in *centralisation* and affects motivation and participation
- (6) Rights cannot be used and duties cannot be fulfilled in an *isolated way in ecological systems*, rights and duties are *conditional* upon the use and fulfilment of other rights and duties respectively

In spite of this, we can draw the conclusion that the property rights regimes and governance structures necessary for achieving sustainability will not be simple. As they need to evolve in response to the complex, diverse and dynamic nature of the characteristics of the social and ecological system, it appears logical that there can be no single type of rules, norms, rights and governance which would guarantee sustainable development. Bowels and Gintis (2000) support this view by stating that well-designed institutions make different governance structures (e.g., markets, states, communities and co-operative structures) compliments, not substitutes.

How can we adjust our research concepts to the fact that both property rights regimes and governance structures are in a process of change that makes them more complex and diverse? As far as governance structures are concerned, the **concept of polycentricity** may contribute to an adequate solution. Polycentricity is created by those who participate in it. It is an order which allows communities to organise different kinds of public goods at different scales of aggregation with different and overlapping jurisdictions. It cannot be sustained unless the

relevant actors make use of their full range of alternatives. Polycentric order must be grounded in mutually supportive institutional arrangements in the economic, legal, constitutional and political realms. Markets for private goods are needed to provide incentives for efficient production. The producers and providers of public goods and services must have some assurance that their efforts to provide those goods and services to various communities are legally and economically recognised. For polycentric orders to operate there must be correspondence between the beneficiaries of public goods and services and those who pay for/provide them (McGinnis, 1999). Polycentricity provides an ideal setting for the co-production and co-management of public goods and services by members of communities. It offers an alternative to the passive expectations people have towards political authorities. Polycentricity may be a helpful concept for solving the agri-environmental problems faced during transition as it enables to connect the loose ends of the requirements for sustainable agri-environments identified later in this paper. This means to establish a link between self-governance of citizens and their decentralised institutional choice to the decision-making procedures and implementation capacities of national and EU policy makers.

**Box 4: Governance Structures for Regional or Local  
Agri-environmental Co-ordination**

**“New Institutional Economics”:**

- Markets
- Hierarchies
- Hybrid forms

**“Institutions of Sustainability”:**

- Strategies to improve *reflexivity*
- *Self-organisation* and participation
- Interest harmonisation and *conflict regulation*
- Concepts for *innovation and learning*

**“Agri-environmental governance structures”:**

- (1) *Market solutions* like auctions or tradable quotas
- (2) Organisations like *environmental bureaucracies*
- (3) *Contractual relations*, e.g. stewardship contracts
- (4) *Horizontal non-market co-ordination*, particularly co-operation and participation
- (5) *Knowledge and information systems*, formal and informal networks
- (6) Methods and infrastructure for *measuring, monitoring and evaluation*, e.g. laboratories
- (7) Rules and procedures for *conflict resolution*, distribution of costs and benefits, liability
- (8) Incentives and opportunities to promote *innovation and learning*, establishing a knowledge system

### **3 Particularities of Institutional Change in Transition Countries**

As a matter of fact, the process of institution building for sustainable resource use is affected by the particular procedures and problems arising from the process of transforming the

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political and economic system. Findings from in three CEE Countries presented by the KATO privatisation studies (Milczarek, 2000; Hanisch, 2000; Schlüter, 2000) have led to the following results (see also Hagedorn, 2000b):

1. “Efficiency and competition” as compared to “distribution and conflict resolution” and “ideology and mental models” are not the main driving forces of privatisation.
2. The process of privatisation should no longer be conceived of as “privatisation” according to its theoretical understanding as establishing merely private property rights.
3. Shared mental models, innovation concepts, learning processes and access to networks, to human and to social capital are important mechanisms for institutional change.

*Efficiency* could be a driving force of privatisation, because this does not necessarily mean inventing new institutions but just implementing a transfer of institutions. As a consequence, the Theory of Exchange and Competitive Selection as an efficiency-oriented explanation for institutional change might be applicable (Knight, 1992: 106). This approach includes competitive pressure as a selection mechanism for efficient institutions. However, the KATO privatisation studies (Milczarek, 2000; Hanisch, 2000; Schlüter, 2000) provide only little support for this approach. In contrast, the Theory of Bargaining and Distribution considers social institutions “as a by-product of strategic conflict over substantive social outcomes” (Knight, 1992: 107). As pointed out in detail by Hanisch (2000) and Schlüter (2000), this theory focuses on social interaction between actors seeking to achieve their distributional objectives. This is influenced by resource asymmetries of actors, credibility of their commitment, individual risk aversion, time preferences, etc. This approach has primarily been applied to decentralised institutional change, but most of its components also seem to be relevant to institutions which are centrally designed and are also treated by the Public Choice Theory of Institutional Change (Weimer, 1997; Hagedorn, 1991; 1996a,b; 1999).

However, these observations also show that the process of privatisation driven by the desire of groups of actors having unequal power resources to appropriate “a piece of the cake” often took place in a way that cannot be considered “efficient” for society. This contradicts a conception popular in economics that associates efficiency with private property rights and analogously suggests that “privatisation” in the sense of merely establishing private property rights is equivalent to increasing efficiency.

Property rights theory is often misunderstood as an approach explaining the definition and distribution of disposition rights focussing on physical entities (Hagedorn, 2000a; Hagedorn et al., 2002). Strictly speaking, actors only attribute (positive or negative) values to a physical good because the right holder is favoured by *benefit streams* or in case of a duty is burdened by *cost components* which are connected with the physical good. A natural good, like soil, is usually considered to carry only one homogeneous property title. However, categories of property rights can be separately defined for **numerous economic or ecological properties** connected with the physical piece of nature, each of them related to particular costs and benefits. For each of these differentiated rights components, the *institutional design* of the right or duty can differ: private, collective and state property regimes are imaginable (or others, more differentiated ones), and also the absence of property rights definition and delineation in the sense of open access (Bromley, 1991; Ostrom, 1990). In addition, property rights on such attributes of natural or physical capital require adequate *governance structures*, because they must be supervised and sanctioned to become effective instead of only remaining formal in nature.

In other words, concepts of privatisation are only complete and consistent if

- all main attributes of a physical or natural object are subjected either to private property rights or other property rights regimes (or combinations) if these are superior, and

- governance structures covering each component of this bundle of rights are developed, not neglecting the required societal, political and administrative structures for decision making, participation and implementation.

The KATO privatisation studies (Milczarek, 2000; Hanisch, 2000; Schlüter, 2000) provide many examples for the problems which arise if decision makers follow the above-mentioned *misconception of privatisation* neglecting property rights regimes and governance structures that are not private. For example, in the Czech Republic private farmers are sanctioned in order to keep their competitiveness and their reputation on the land market low, in Bulgaria land, machine services and the processing industry is monopolised by some actors, and the social situation of former state farm workers in Poland deteriorated. The nature of this problem may be even better illustrated by the experience that privatisation concepts usually neglect environmental protection and ecological sustainability (Lütteken and Hagedorn, 1999). Exploitation of soil fertility and destruction of irrigation equipment as well as degradation of drainage systems during the process of restitution, privatising large livestock units without regulating pollution by manure, etc. show that property rights on nature attributes or ecosystem functions and corresponding governance structures are given low priority in institutional reforms.

When the centrally planned economies collapsed, the *shared mental models* which had been developed during the socialist system could no longer fulfil its tasks. Individuals and groups depend on meaningful mental models for the purpose of reducing complexity (North, 1990: 24). As a consequence, people were seeking for new cognitive schemata to understand and to explain the world which had changed very much for them. In particular at the beginning of the transformation period, when the system in transition was characterized by a high degree of insecurity, reduction of complexity was urgently needed. Since this basic function of shared mental models is of major relevance in this confusing situation, ideologies have played an important role in transition countries. Although in early stages of the transformation process society as a whole may not have arrived at sufficiently stable shared mental models yet, they may already exist within certain groups, which then can make use of their common understanding of problems for lowering transaction costs of decision making and for facilitating achievement of their particular group objectives. As communication and consensus building is easier and requires less resources within such groups, they become more powerful than others. Another source of gaining power in the privatisation process was the ability of some actors to shape people's shared mental models in the bargaining process regarding new institutional arrangements.

The above-mentioned privatisation studies have shown that there obviously is a variety of institutional choices for problems of institutional change in general and for transition in particular. However, if actors and groups do not know about the solutions, lack creativity for finding them, do not have sufficient resources to develop and to discuss innovations, cannot communicate new institutional concepts in order to arrive at joint conceptions of the problems, and are not able to organise collective action and participation of stakeholders, *then the pure fact that such solutions might exist is of little practical use*. Collective learning processes combined with the evolution of new shared mental models seem to play a fundamental role for institutional innovation.

The empirical evidence from privatisation in post socialist countries mentioned in the previous paragraphs, e.g., the misconception of what 'privatisation' should be, show the importance of the wider social context of property regulations. There is particular evidence of what Hann (2000) calls the 'tragedy of the privates' in post-socialist countries privatisation was often carried out under consultation of Western advisers with a rather narrow economic understanding of private property and with a strategy of 'privatise now and then let market competition prevail'. Neo-liberalism and privatisation have been prominent in the recipes

offered to the ex-socialist countries. This ethnocentric understanding of property relations (the ‘European dichotomy’, either private or collective) continues to dominate popular academic thinking about property in the ages of the cold war and after the collapse of the Soviet Union (Hann, 2000).

How helpful is this ‘mental model’ of privatisation in explaining the new social patterns of the first post-socialist decade? Probably it played an important role shortly after the collapse of the centrally planned economies for reducing insecurity and uncertainty but presumably it does not help very much. In their contrasting ways, the simplifications of the liberal models (privileging economic performance and private ownership) and the socialist models (privileging politic, social justice and collective ownership) cannot do justice to the actually prevailing complexity and social, legal, political and economical embeddedness of property relations in all social systems. Studying the change of institutions in countries in transition must therefore include the enhanced rights and entitlements of not only private, but all types of property rights regimes in these wider domains. The same applies to the heterogeneity of governance structures.

For these reasons, regardless the framing conditions of the political system, governments should provide sufficient scope of action and adequate incentives for institutional diversity to evolve instead of imposing organisational structures which may not match local circumstances, because the diversity of ecological functions, which require a very specific response from the people involved, are not adequately predictable at other levels of society than at the local level. This does not mean that institution building for sustainable resource use can evolve without favourable framing conditions at the policy level. However, transition and accession policies too often neglect the potentials of institutions outside of state bureaucracy (e.g., networks, co-operatives, new forms of associations, mechanisms of learning, monitoring and communication). If successful strategies are to be put into practice, political instruments will hardly be adequate and useful if the institutional choices made by the people are overlooked (Hagedorn, 2002; Hagedorn et al., 2002).

#### **4 Special Problems of Building Institutions of Sustainability in Transition Countries**

The previous sections have given some explanations why institutional innovation towards sustainability is a very special, complex and not completely predictable process (section 2), and that the fundamental institutional changes taking place in the transition countries also have its own particularities (section 3). As a consequence, the question arises as to what happens if we want to achieve both simultaneously. Is it reasonable to organise such a “double transformation” at the same time? Let us assume that it is feasible provided that we take into account the following problems that are likely to arise:

- In the transformation situation, the actors, e.g., farm managers or agricultural bureaucrats, seek opportunities to secure their living and to prepare for a new or continued carrier. To achieve this objective, acquisition of private property rights which provide access to high individual benefits from entitlements and cause only low costs from duties is given priority. Privatised land, machines or cattle belong to this category of assets powerful actors aim at and are able to appropriate, as pointed out in the previous section. In other words, there is a high *incentive intensity* for institutional change regarding the distribution of private property rights.
- The next aspect refers to the *effectiveness of property rights*. Developing appropriate governance structures for the profitable use of private property rights is in many cases easier than it is for non-private property rights. Admittedly, establishing markets, e.g., for meat or vegetables, requires considerable innovation and investment, for example, in marketing co-operatives and processing factories, but this is driven by private interests.

- In contrast, *governance structures for making effective non-private property rights related to sustainable resource use and agri-environmental sustainability* is much more difficult and costly. The first, general reason for this is that the political and administrative system is in a stage of fundamental reform<sup>1</sup> and still has to develop those capacities of decision making and implementation which democratic societies need to work properly. Secondly, and this may be even more important, these governance structures are every costly in terms of social capital (e.g., for consensus building), human capital (e.g., for sustainable farming practices), and physical capital (e.g., for building laboratories to control environmental standards). Probably, these investments in all three types of capital imply a large proportion of dedicated assets with a high degree of specificity.
- Due to these obstacles of implementation and enforcement, including requirements such as monitoring, information, communication, participation, etc., the incentive intensity for non-private property rights is much lower than for private property rights which are more attractive because they will be more or sooner effective in the transition phase. However, there is a second reason for this. Property rights on ecological attributes of the nature components are often *duties causing negative income effects*, for example, if nitrogen inputs have to be reduced. People in transition countries whose income are often low (and sometimes have even declined in the nineteenth) refuse to accept this, and limited state budgets do not allow for paying compensation for income losses from environmental measures.
- In addition, it appears not only less attractive, but also less necessary to care for institutions of sustainability in the transition period. After 1990, the abolition of input subsidies and the drop of demand for agricultural products (domestic and external) resulted in an unfavourable ratio of input and output prices. As a consequence, both the use of chemical inputs and the production output were declining. Thus, the political changes in 1989/90 and the collapse of the economy reduced the pressure on the environment and gave nature a “chance to rest”. However, the low use of potentially harmful inputs also reduces the motivation to design institutions and policies for sustainability. After agriculture will have been restructured, the level of input use is likely to increase again leading to growing environmental pollution. In other words, rules for sustainability and corresponding environmental policies appear to be unnecessary in the short run, although they will be urgently needed in the long run. They may find themselves in a “*transformation trap*”. After the main period of institutional innovation has passed, it may be very difficult to change the rules and arrangements again in favour of sustainability.
- The importance of this lack of motivation may be reinforced by the fact that the preferences of people and politicians are not very much oriented towards environmental protection and sustainable resource use. They *simply ‘have other problems’* in the difficult phase of transition such as low incomes, declining social security, lack of political stability, threats to social peace, ethnic unrest, etc.
- Since environmental protection was not given high priority in socialist societies, *values and attitudes* are not primarily oriented towards sustainability. The *cognitive schemata or mental models* of citizens and politicians are still in a process of integrating these aspects. The same is true for the knowledge system. Given the outstanding relevance of cognitive schemata or mental models for real institutional change, as substantiated by the results of the above-mentioned KATO Studies, this may be one of the most important obstacle against institutional change towards sustainability.

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<sup>1</sup> This may offer some ‘windows of opportunity’ for environmental and conservation policies (for example, in Eastern Germany government and parliament agreed on new and rather large nature conservation areas which would not have been accepted in regular times). However, such phenomena were rather limited.

### **Box 5: Agri-environmental Problems and Institutions in Countries in Transition**

**Bulgaria:** The amount of water used for irrigation in the Plovdiv region has declined sharply over the past decade. The decline has been attributed to the general decline in agricultural production and decollectivisation. Decollectivisation has led to uncertainty about the organisations in charge of managing local-level irrigation works, which remained under communal property. Decollectivisation has also implied that the state-owned irrigation company deals with a large number and different types of agricultural producers, instead of the agricultural co-operatives in the past. As a consequence, irrigation canals were not maintained and deteriorated, the amount and efficiency of water use declined precipitously, and cropping structures underwent drastic changes.

**Czech Republic:** Bílé Karpaty has been declared a nature conservation area for its valuable habitats and species diversity. The designation involves restrictions on farming practices that are perceived as detrimental to biodiversity. The goal of protection has conflicted with agricultural production in two ways. First, unclear property rights have led to land abandonment in less fertile areas. Secondly, privatisation and expanding markets have motivated farmers to intensify cultivation on more fertile lands. The administration of Bílé Karpaty Protected Landscape Area has faced problems in an increasingly pluralistic society to enforce legally mandated restrictions on farming practices and moved from a hierarchical towards a more co-operative way to deal with local land users.

**Latvia:** Soil fertility has declined and the area of abandoned land has increased in Latvia over the past decade. Reduced liming has led to the acidification of agricultural soils. The decline of drainage systems maintenance has led to the destruction of drainage systems and disturbed soil moisture conditions. The deterioration of soil fertility has been associated with a general decrease in agricultural production and a shift from state and collective enterprises to small-scale and subsistence farming. As a consequence of privatisation, the farm structure has become increasingly fragmented, agricultural land abandonment has increased, and local-level drainage works have not been maintained properly.

**Poland:** Agricultural land has rapidly shrunk in the surroundings of Warsaw and Olsztyn. An increasing share of the land has been converted to housing land, reducing traditional agricultural landscapes and changing species compositions. Land conversion has been driven by several factors: the privatisation of previous state farm land and expansion of private rights over land, an increasing demand for cheap land by people from Warsaw and Olsztyn, unprofitable market conditions for agricultural products, the desire to attract non-agricultural employment opportunities, and the hope for infrastructure improvements. County governments, empowered under the policy of fiscal and administrative decentralisation, have displayed little interest to limit conversion, as they expect to gain higher tax revenues after conversion.

**Romania:** Irrigation management has fallen into disarray in Manastirea commune in the southern part of the country. Land had been privatised in 1991 already, but water resources and irrigation infrastructure had remained under the control of the state irrigation company. People established an agricultural co-operative to work the land, but it did not get involved in water management. The situation changed recently, when the state irrigation company was dissolved. With support by the World Bank, people now want to establish a water user association for irrigation management.

Source: Central and Eastern European Sustainable Agriculture (CEESA), Humboldt University of Berlin (2001).

Finally, former communist economic and political systems usually have a *deficit regarding decentralisation and participation*. Many systems such as irrigation organisations were highly centralised and have to undergo fundamental transformation towards polycentricity. Similarly, the autocratic political design of the communist governments tried to avoid people's free participation in public affairs, what requires a process of learning and reorientation as an essential part of reform in those societies. Filling these gaps is particularly important for institutions of sustainability, because in the process of co-evolution mutual adjustment of ecological and social systems and the special properties of ecological systems require sufficient flexibility and scope for trial and error. This requires accumulation of social capital.

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