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Central and Eastern European Sustainable Agriculture

**Institutional Change in Central and Eastern
European Agriculture and Environment**

VOLUME 4

Synopsis of the CEESA Project



Food and Agriculture Organization of the United Nations
Humboldt University of Berlin

Institutional Change in Central
and Eastern European
Agriculture and Environment

Franz Gatzweiler and Konrad Hagedorn (eds.)

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SYNOPSIS OF THE CENTRAL AND EASTERN EUROPEAN SUSTAINABLE AGRICULTURE PROJECT (CEESA)

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PREFACE

The work for this synopsis report was conducted as part of the Project on Sustainable Agricultural Development in the Central and Eastern European Countries (CEESA) funded under the EU 5th Framework Programme. The Project analyzed the context and prospects for sustainable agricultural development in twelve Central and Eastern European Countries (CEECs): Bulgaria, Croatia, Czech Republic, Estonia, Hungary, Latvia, Lithuania, Poland, Romania, Slovakia, Slovenia and Ukraine. The research group was composed of researchers from universities and research institutes from these CEECs, as well as from the Humboldt University of Berlin, University of Helsinki, Wageningen University, University of Newcastle upon Tyne and the FAO Sub-Regional Office for Central and Eastern Europe, Budapest.

The CEESA Project explored how the requirements of environmental protection and nature conservation have been taken into account during both the transformation of the political and economic institutions of the CEEC agricultural sectors and the preparation for EU accession. Local case studies were conducted in each of the above-mentioned CEECs. The findings were collected and subjected to detailed scrutiny and discussion at the CEESA Policy Learning Workshops (PLWs), which were field-based workshops that took place in the Czech Republic, Bulgaria and Poland.

Our findings have asserted that the building of institutions for sustainable resource management in agriculture will remain a process in transition, even after accession in 2004. In the new Member States much effort has been put into the task of adopting the *acquis communautaire* and creating new administrative bodies (as part of the Copenhagen criteria¹). This observation confirms that building formal institutions at national and subnational levels of society is a task that can involve fewer difficulties than the challenge of building institutions for local resource management. This latter challenge requires that fundamental economic and political reforms be implemented at an early stage in order to create a positive enabling institutional environment for continued reforms at the local level.

Reasons for the delays and lack of success in building institutions of sustainability are the following:

¹ In 1993, at the Copenhagen European Council, the Member States agreed that ‘the associated countries in central and eastern Europe that so desire shall become members of the European Union. Accession would take place as soon as an applicant is able to assume the obligations of membership by satisfying the economic and political conditions required’. These are referred to as the Copenhagen criteria.

- the increasing complexity of resource conflicts at the local level (e.g. different interest groups, differing characteristics of stakeholders and different patterns of behaviour interacting with specific resource features);
- the slower pace of change that is required for designing institutions of sustainability at the local levels. (At this level informal institutions, traditions, habits and routines are often involved that are subject to slower rates of change compared with many formal institutions. This characteristic is also brought to the fore by an ageing rural population);
- the importance attributed to solving “large” problems instead of local ones in the light of EU accession.

Therefore, to address environmental and resource problems adequately in CEE agriculture at the local level, there is an urgent need to shift the focus of attention towards building institutions in partnership with other CEECs and Western European countries. The CEESA Policy Learning Workshops were among the first positive examples in this direction. Exchanging ideas about similar problems and experiences with similar environmental and resource–management tasks can stimulate the mutual learning process. This process is indispensable for building institutions of sustainability. Facilitating processes of mutual learning and the building of institutions for sustainable resource management must be accompanied by continued investments in the social and human capital stocks of rural populations in Central and Eastern Europe.

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The CEESA Project (Sustainable Agriculture in Central and Eastern European Countries) was funded under the 5th Framework Programme of the EU: Quality of Life and Management of Living Resources; Key Action No. 5: Sustainable Agriculture, Fisheries and Forestry; and Integrated Development of Rural Areas Including Mountain Areas. The Project consists of a network of researchers and scientists in Germany, United Kingdom, the Netherlands, Finland, Bulgaria, Croatia, Czech Republic, Estonia, Hungary, Latvia, Lithuania, Poland, Slovakia, Slovenia, Romania, and Ukraine.

The network was established as a joint effort by the participants of the first workshop of the CEESA Project that took place in March 1999 in Gödöllő, Hungary, supported by the FAO Sub-Regional Office for Central and Eastern Europe (FAO, 1999). The work of all who participated in the design of the CEESA Research Project, particularly at its early stages, is highly appreciated. We wish to thank Antonia Lütteken for her input during the project proposal and project commencement phases. Largely due to the success of her efforts and a small, dedicated team at Humboldt University we had the pleasure of experiencing the fulfilling work of a three-year pan-European Research Project.

Much effort has been put into designing, managing and carrying out the research activities of the CEESA Project. The results presented in this volume of the CEESA/FAO series are based on the CEESA case study reports in Central and Eastern European Countries (CEECs) and the CEESA Policy Learning Workshops (PLWs). The PLWs were carried out in the Czech Republic, Bulgaria and Poland. Our efforts to achieve both the richness and diversity of the CEESA case study reports, as well as the reports on the PLWs, would have been fruitless without the help and cooperation of the entire CEESA Research Group (see participant list). We are deeply grateful to our senior and junior research colleagues in the CEECs who joined the CEESA Research Project. They contributed substantially to delivering insight and results.

From its outset the CEESA Project has defined clear research objectives and an analytical framework that put great demands on its CEE participants regarding the appropriateness of theoretical approaches and empirical methodologies. All accepted this challenge and engaged in a process of mutual learning, ongoing scientific discourse and lively discussions. The efforts invested into papers, reports, articles and presentations for conference presentations (see Appendix 2), as well as the efforts devoted to the exchange with practitioners and political decision-makers reflect the high motivation of all research-group members. Their dedication and zeal were extremely productive and are highly appreciated, even though each person cannot be mentioned here by name.

Apart from its scientific achievements the CEESA Project aimed at establishing a group of researchers from Western European and CEE research institutes and universities. This aim was facilitated by a common operational language and research interests. However, day-to-day work soon revealed that there were many barriers to a seamless research operation. Cultural differences and different traditions in research and research management needed to be overcome in order to achieve the goals of the Project collectively. We learned much in this respect and would like to thank all who took an active role.

Our regular workshops, conferences and seminars were important steps in exchanging knowledge and building the CEESA Research Group. They marked the end of research phases and allowed the members of the CEESA Research Group to present and discuss their findings with an international audience. These meetings each took place in one of the Central and Eastern European Countries. The CEESA researchers in these countries took over the local organization during the meetings and ensured that our working sessions were pleasurable and effective. Special appreciation goes to all the local organizing teams for hosting the CEESA workshops, seminars and conferences in Gödöllő (Hungary), Bucharest (Romania), Jelgava (Latvia), Plovdiv (Bulgaria), Nitra (Slovakia), Bled (Slovenia) and Olsztyn (Poland). The mid-term highlight of these events was the Nitra Phare/ACE Seminar which brought in many external experts and non-CEESA contributors to discuss the work of CEESA. In this context, our special thanks go to the FAO Headquarters which backed this Seminar by sending Dr. John Dixon as official delegate.

We would like to thank all Project partners and their research teams, especially the Working Group leaders Philip Lowe, Louis Slangen, John Sumelius and Stjepan Tanic, for guiding the research process and providing critical, constructive and innovative support. Our gratitude also goes to local practitioners, farmers, NGO representatives and representatives from local authorities who directly or indirectly participated in the activities of the Project. Their participation in the various workshops, conferences and seminars helped us refine our research methods and better focus our research strategies. We hope that long-term relationships have been built from the cooperation among all CEESA researchers in Western, Central and Eastern Europe. We would particularly like to thank all the people at the European Commission (EC), especially Mr. Norbert Winkler, for their advice and helpful support.

Last but certainly not least we would like to thank the coordinating CEESA team in Berlin. Special gratitude goes to Ms. Renate Judis for her expertise in all project management and coordination activities. She accompanied the Project since its very first meeting.

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ABBREVIATIONS

| | | |
|----------------|---|---|
| AEP | – | Agri–environmental programme |
| CAP | – | Common Agricultural Policy of the European Union |
| CEECs | – | Central and Eastern European Countries |
| CEESA | – | Central and Eastern European Sustainable Agriculture |
| EC | – | European Commission |
| EIB | – | European Investment Bank |
| EU | – | European Union |
| FAO | – | Food and Agriculture Organization of the United Nations |
| ISPA | – | Instrument of Structural Policies for Accession (EC Programme) |
| KATO | – | Comparative Analysis of the Transformation Process in Central and Eastern Europe (Research Project at Humboldt University of Berlin) |
| LFA | – | Less Favoured Area |
| MoA | – | Ministry of Agriculture |
| MoE | – | Ministry of Environment |
| NAEP | – | National Agri–Environmental Programme (Slovenia) |
| NATURA 2000 | – | Ecological Network of Protected Areas Across the EU |
| NGO | – | Non–Government Organization |
| OECD | – | Organization for Economic Co–operation and Development |
| PHARE | – | Originally, EC Programme of Economic Aid to Hungary and Poland Later, Pre–accession Instrument to Assist Central and Eastern European Candidate Countries in Achieving Economic and Social Cohesion |
| PLA | – | Protected Landscape Area |
| PLW | – | Policy Learning Workshop |
| SAEP | – | Slovenian Agri–Environmental Programme |
| SAPARD | – | Special Accession Programme for Agriculture and Rural Development (EC Programme) |

| | | |
|-------|---|---|
| TACIS | – | Technical Assistance of Eastern Europe and Central Asia (EC Programme) |
| USSR | – | Union of Soviet Socialist Republics |
| WB | – | World Bank |
| WUA | – | Water User Association (Bulgaria) |

1 INTRODUCTION

1.1 Environmental Protection, Complexity and Socialist Legacies

“The mixed response to transition in different Eastern European countries (and former USSR states) suggests that the nature of (institutional) change from a planned economy to a market economy has not been fully understood or predicted” (Ibrahim and Galt, 2002).

Two points, however, seemed to be rather clear for politicians and political advisors at the beginning of the transition process. First, Western societies and economies were the required frame of reference for transition because they had proven to be more successful. Second, politicians and economists were convinced that this change would be feasible within a limited period of years (Hagedorn, 1999).

According to this preconception, the types of institutional changes suggested initially were either imitative or limited in nature. One group of changes suggested were replications of those institutions that operated in Western market economies. The other group mainly described limited changes stressing the establishment of private property rights, liberalization of markets and the voluntary reaction of individuals and organizational structures to establish appropriate and efficient exchange systems that would minimize transaction costs. Indeed, the New EU Member States have undertaken great efforts to transform their systems and prepare their countries and people for EU accession. From among CEECs, the Czech Republic, Estonia, Hungary, Latvia, Lithuania, Poland, Slovakia and Slovenia have been successful in fulfilling the accession criteria. As a result, on 13 December 2002 the European Council marked the end of the accession negotiations and scheduled these CEECs to enter the EU as full members on 1 May 2004.

Despite this success story it is also clear that environmental criteria were not the sole yardstick for measuring success. In agriculture the CEECs continue to be confronted with the multiple challenges of institutionalizing the joint production of agricultural and environmental goods and services. This challenge goes beyond the difficulties of transforming the political and economic systems as it takes place in the tension-filled area between accession- and evolution-related change (Gatzweiler, 2003). This situation makes institution building for sustainability an extraordinary challenge – even beyond accession.

After more than a decade of transition in the CEECs it has become more evident that institutional reform is not only about replacing and transplanting institutions. Instead, all elements and relationships within the multilevel institutional network must change in a harmonious manner when passing from collectivized to decollectivized agricultural structures. Eventually, this holistic and systemic change also needs to be rooted into the histories and cultures of the CEECs².

Environmental problem areas pose additional tasks, which result from the nature of ecosystem characteristics and do not always coincide with political problem areas. When taking account of environmental problems in agriculture, Western European countries only rarely serve as successful examples that can be simply replicated. There are two main reasons for this:

- western agriculture itself is still at the beginning of its own transformation towards sustainability;
- achieving sustainable agricultural development when political and economic systems are in a fundamental process of change is more difficult and requires different strategies.

The environmental problems that emerged from post-war Western European agriculture led to the formulation of an environmental *acquis* with which now the CEECs also need to comply. Beyond doubt, CEECs exercised enormously intensive agricultural production during the socialist era, which exacerbated certain environmental problems (e. g. biodiversity loss, nitrate pollution, soil erosion). However, central planning resulted in a smaller loss of biodiversity and natural values in the CEECs than in most Western European states. Following the political and economic changes, agricultural production underwent a spontaneous “extensification”. This change was characterized by rapidly decreasing stocking densities and land abandonment that threatened landscapes and biodiversity preservation.

A peculiar legacy of socialism in the CEECs was that while central planners sought to dismantle traditional forms of land use and rural communities, the system also tended to preserve vast areas of nature (Beckman, 2002). On the one hand, there were large-scale production units and large agricultural areas that were managed intensively. Animal concentrations and the use of agro-chemicals were high, which harmed biodiversity in soils and ecosystems and polluted ground and surface waters. The development of collective farms disrupted traditional landscapes and low quality land was converted to farmland in ineffective efforts to increase production. Furthermore, traditional ties between the land and the people were disrupted by turning farmers into rural workers, reducing the land to little more than a means of production. On the other hand, the inefficiency of central planning ensured that traditional forms of land use survived. In those regions capital shortages resulted in low input farming. CEE landscapes consisted of large areas covered by natural habitats and areas rich in biodiversity. These areas were managed extensively on a small scale, leading to landscape and species diversity. Poland, for example, has preserved its small-scale private farming structure. In the Czech Republic and Hungary

² In particular, the KATO (Comparative Analysis of the Transformation Process in Central and Eastern Europe) Project has revealed the complexity of institutional change in CEE agriculture (Schlüter, 2001; Brem, 2001; Pavel, 2001; Boger, 2001).

low-intensity grazing in mountain and other remote areas has maintained agro-ecosystems and forests rich in biodiversity.

The historical paths that Western and CEECs experienced differed considerably. Changes to create sustainability must work within an institutional framework that takes into account more than just economic variables and technical efficiency. Social, cultural and ecological systems are essentially interrelated and in order to achieve sustainability, they need to be viewed as integrated (Hagedorn, 1999). While recognizing the important role of formal institutions (some of which may be transferable from West to East), this integrated view suggests that institutional change is embedded into history, values, norms, habits and routines that are deeply rooted into a people's mental models. They cannot simply be replaced, but need time and guidance to change. The legacies of the socialist past need to be considered when striving for institutional reform towards sustainability. Attitudes, concepts and management strategies towards the environment are strongly shaped by history.

Observed continuities in CEE regulatory and public administration can be regarded as both strengths and weaknesses. Strengths could include the accumulation of expertise and technical management, while weaknesses could be exemplified by a lack of cooperation or reliance on a limited number of policy instruments. Addressing institutional change towards sustainability requires an appreciation that such changes need to be appropriate and recognizable by those who have to adjust to new circumstances.

1.2 The Challenges of Transition and Accession

Despite the drastic decline in CEE agricultural production and the environmental relief that has been an initial result, the implementation of policies and the building of institutions for sustainable agri-environmental resource use remain important tasks. CEE agriculture continues to be relatively extensive³, which could be considered to have only positive impacts on the natural environment. However, huge investments are needed in rural development to ensure that this environmental advantage is not replaced by negative environmental impacts from rural poverty and other conflicts over natural resources in rural areas. In many countries transition has led to:

- fragmented ownership structures,
- unclear property rights,
- ageing and decreasing rural populations,

³ CEECs possess large areas that are almost unaffected by urbanization, transport or intensive agriculture. Thirty percent of the total area of these countries can be classified as “unaffected”, hosting among the most valuable biodiversity in Europe (REC, 1994).

- rural poverty and other problems.

These problems together act to hinder both rural development and environmental protection in agriculture.

After the breakdown of the socialist system the agricultural sectors of the CEECs faced a twofold challenge: (1) transition from a centrally planned economy to a market-oriented one, and (2) transition towards environmentally sound agriculture. These changes were (and still are) contained in another challenge: the move towards EU accession. The transition process has frequently been referred to as a “window of opportunity” regarding the integration of environmental concerns into emerging market-based societies (thereby achieving sustainable transition). However, structural change and/or structural gridlock in agriculture and natural resource management may frustrate this objective.

Despite the aid of the SAPARD pre-accession programme, the time needed for institutional change towards sustainable development in CEE agricultural and rural sectors can hardly keep pace with the timetable for EU accession. Environmental goals will not be achieved to a sufficient level without considering larger system change. Above all, institutional system change is required as a precondition for environmental change, and formal as well as informal institutions need to be part of this reform. Furthermore, environmental problems often cannot be solved by merely designing new rules for resource management. Public environmental awareness, participation in decision-making and a strong civil society form a necessary backbone for institutionalizing sustainable development in agriculture and rural areas. Many environmental problems require active involvement and innovative solutions. Achieving environmental goals in agriculture will ultimately require changing the behaviour, attitudes and value systems of people and politicians.

The CEESA Project has taken an integrated and systemic perspective by analysing change towards sustainability during transition and accession. This was done by establishing three working groups on: policies, institutions and farming systems.

Crucial questions addressed by the Working Group on Policies were:

- Do governments pay sufficient attention to necessary agri-environmental policies?
- How are agri-environmental policies and institutions being prepared to meet the challenges of EU membership?
- Would EU policy instruments facilitate the solving of agri-environmental problems?

The Working Group on Institutions focused on questions regarding how economic institutions (e. g. property rights on land or water) have affected environmental functions (e. g. biodiversity, soil degradation and water quality). Other inquiries

concerned governance structures or institutions for the sustainable management of different resources.

The Working Group on Farming Systems tackled the following issues:

- exploring the variety of farming systems existing in the CEECs,
- measuring the impact of different farming systems on the environment,
- comparing different types of farming systems with regard to their environmental impact,
- aiming at solving how these systems need to be designed to prevent the increase of negative externalities from agricultural production.

These questions were answered by concentrating on specific resource problem areas by means of selected case studies in each of the CEECs. The case studies were chosen at a local scale in order to gain an in-depth understanding of causalities through detail-rich descriptions and analysis of local conditions.

This report aims at presenting the research strategies and core findings of the CEESA Project and all three Working Groups. The findings are based on research carried out in the CEESA member countries.

1.3 The Project Objectives

The CEESA Project had two main objectives. First, it intended to establish an international research group that would serve as a forum for exchanging views, knowledge and research approaches on sustainable agriculture in CEECs among academics (from EU member states and CEECs) and policy-makers of the region. Second, it aimed at elaborating policy recommendations for the successful transition of CEE agricultural sectors towards sustainability. There were several principal discussion questions, including:

- To what extent would the process of transition cope with the requirements of environmental protection and nature conservation?
- What changes would be needed in institutions, policies and farming systems structure and management to achieve this transition?

In order to answer the questions set out in the Project objectives, the following research areas were defined: (1) identification of the main problems, (2) institutional issues related to transition and sustainability, (3) agricultural and environmental policy issues and (4) farm-level issues.

(1) Identification and structuring of main problems

In this research area the aim was to identify important conflicts between “transformation and sustainability” and define them (Gatzweiler et al., 2001). It was decided

to take an integrated view of sustainability, concentrating on the ecological, economic, political and institutional implications of environmental issues. This involved assessing environmental problems related to the agricultural sectors in the participating countries and structuring institutional, political and economic issues based on a comparative analysis of national data⁴. Following the results of this analysis, the case studies probed specific environmental problem areas.

(2) Institutions of sustainability

The transformation of agriculture and transformation towards sustainability can both be considered issues of institutional change. Therefore, in order to achieve the goals of transformation and sustainability, both traditional and new institutions need to be built with the involvement of relevant actors. The objectives of this research group were to:

- analyse the environmental impact of changes in economic institutions of agriculture and to identify conflicts affecting the environment, e. g. biodiversity;
- explore the emergence of ecosystem institutions, e. g. property rights on natural attributes (ecosystem functions) and the corresponding organization and management types;
- analyse governance structures, which are necessary for the property rights to become effective;
- elaborate alternative institutional arrangements for the sustainable management of relevant environmental resources.

(3) Agri–environmental policies

There are several crucial questions at the policy level regarding agri–environmental policies. Do governments pay heed to the necessity of agri–environmental policies? Is there a discrepancy between existing legal regulations and their implementation by the administrative units? Could EU enlargement result in a transfer of institutions and instruments? This research group concentrated on the following policy aspects:

- assessing the environmental impact of current policies affecting agricultural sectors,

⁴ This analysis was based on country reports on the current environmental situation in agriculture in participating countries (except Slovenia). These were elaborated by local researchers and presented at the first workshop, which was organized to initiate the CEESA Project (FAO, 1999).

- anticipating the impact of EU policies, pre-accession policies and international agreements on sustainability of agriculture,
- elaborating alternative national policy instruments.

(4) Sustainable farming systems

How should systems based at the farm level be designed to prevent an increase in negative externalities of agricultural production? This research question was at the centre of this group's attention. Farm-level research activities focused on a concept of sustainability that integrates economic, ecological and social aspects. The research objectives of this group were to:

- explore the variety of farming systems existing in the CEECs after one decade of transformation,
- measure the impact of the different farming systems on environmental sustainability,
- compare different farming systems in selected rural areas with regard to environmental and economic sustainability.

The CEESA Project defined specific resource problem areas that were grouped into three categories:

- biodiversity and landscape,
- water management (protection, irrigation and drainage),
- soil (salinization, land abandonment, housing in suburban areas).

Each of these problem areas were examined using the following categories: (1) adequate policies to achieve agri-environmental goals, (2) institutions that ensure policies become effective and that actors manage resources according to sustainability principles and (3) farming systems. The specific objectives in each research group refer to sustainable solutions for a specific agricultural or environmental resource problem.

2 THE CONCEPTUAL FRAMEWORK

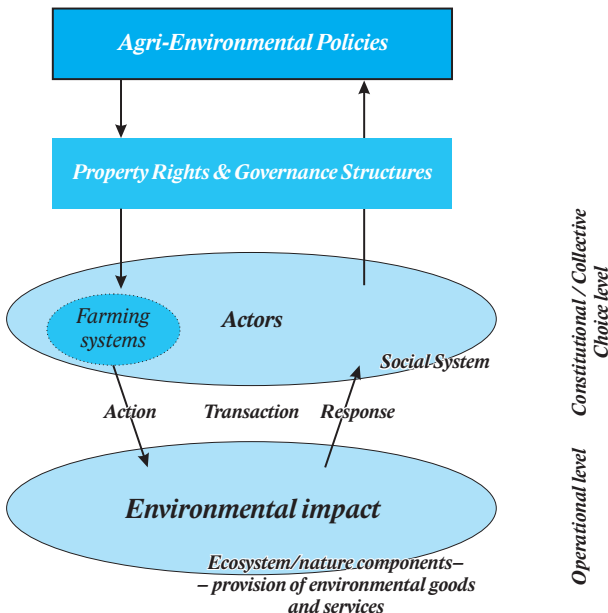
Institutions are found in all areas of society and at all levels of decision-making. Institutions may be formal or informal, local, national or global, legal or customary, scientific, political or economic. Dovers (2001) analyses “institutions for sustainability” and defines an institution as:

a persistent, reasonably predictable arrangement, law, process, custom or organization structuring aspects of the political, social, cultural or economic transactions and relationships in a society. Institutions allow organized and collective efforts toward common concerns and the achievement of social goals. Although by definition persistent, institutions constantly evolve.

Gatzweiler and Hagedorn (2002) analysed the evolution of institutions at the interface of social and ecological systems with special reference to the transitional context of CEECs. The components and dynamics of institutional change described in that paper define the elements of our conceptual unit of analysis – the agri-environmental action scenario.

The agri-environmental action scenario (Ostrom et al., 1994) represents the basic conceptual unit for analysis in the CEESA Project (Figure 1). This model is an ab-

Figure 1: The Agri-Environmental Action Scenario



traction of the complex cause–effect relationships between each of the environmental assets (water, soil, biodiversity) and the three dimensions of analysis (i.e. institutions, farming systems, and policies). The agri–environmental action scenario can be applied to the majority of case studies of the CEESA Research Project. Each Working Group has adapted the conceptual frame to the specific needs of the cases observed (Gatzweiler et al., 2001).

The idea of sustainability has been discussed in numerous concepts. Despite the different ideas behind these concepts, the reason to pursue sustainability is to make sure there are resources left for future generations to have a reasonably good quality of life. Whereas the former political leaders in Central and Eastern Europe followed the ideal of a centrally planned economy, the market economy has been the model followed by most Western European political leaders until today. While the collapse of the socialist system seems to be proof that the planned economy is not a sustainable economy, there are also strong doubts about the sustainability of the Western economies, which are predominantly shaped and driven by market mechanisms.

These doubts are particularly supported by the external effects produced in areas where markets fail, such as the provision of environmental goods and services. From an institutionalist perspective we would rather describe this as a lack of institutional diversity and an imbalanced institutional evolution that creates misleading constraints and motivations for human activities (e.g. exploration of resources and neglect of socio–cultural concerns). Because of its special location at the interface between the economy, natural environment and society, agriculture is an excellent field of research to investigate these externalities and the institutions that are required to internalize external effects into functioning governance structures.

The CEESA view on sustainability is an integrated view. It is based on the knowledge that gains in the economy are linked to costs in other areas, such as loss of social cohesion or destruction of ecosystem functions.

In order to operationalize the concept we decided to cast light on it from three different perspectives: policies, institutions and farming systems. From the farming–systems perspective, sustainability mainly refers to economic performance (e.g. profitability, productivity) and environmental performance, which can be measured in monetary units or by indicators. From the institutional perspective the term sustainability is used in a more comprehensive context. Institutions are complex and they emerge and interact in multiple ways. Institutions for sustainability may be defined as sets of rules that effectively enable and facilitate the achievements of the environmental, economic and social goals responding to the core attributes of sustainability problems. With respect to environmental problems in agriculture, institutions of sustainability need to consider the specific nature of environmental problems, such as system complexity and dynamism.

It is especially difficult defining institutions for sustainability because they constantly need to be adjusted to changing social and ecological characteristics and relations. Rules at the operational level need to be related to rules at the collective choice level, as well as those at constitutional level. Farmers do not need only farm-specific management skills and knowledge because their work is part of a larger economy and they are part of a larger society. The farm and its assets, for example, have a certain legal status that is part of a larger legal system. Change at one level is linked to change at other levels of society.

Different types of institutions also change at different rates. Norms, values, habits and routines are informal institutions located at a level that changes very slowly. Property right regulations, judiciary, bureaucracy, contracts, etc. are institutions which change relatively fast (Williamson, 2000). Institutions for sustainability are impossible to achieve if institutions at different levels do not match. Although some institutions need to fit in their operating environments and contribute to risk-alleviation by being persistent, the criterion of persistency is at the same time both valid and inadequate. This is the case because institutional reform and change is often required to achieve sustainability. The concept of institutions of sustainability, therefore, recommends a mixture of different types of institutions responding to specific organizational problems and consisting of formal and informal rules (of which some are persistent and others dynamic).

The policy system interacts with formal institutions and indirectly modifies institutional arrangements and governance through the incentives and constraints it provides. The policy system includes:

- the relevant policy itself (e. g. laws, plans, strategies, programmes),
- policy instruments (e. g. taxes, charges, incentives, controls),
- organizations that implement policy (e. g. ministries, agencies, inspectorates, local governments),
- individual or collective actors who shape policy (e. g. ministers, political parties, unions, NGOs, social movements).

Similar to the concept of institutions of sustainability, the concept of sustainability here also refers to the capacity for the adaptive change that takes place within the policy cycle and the capacity to achieve policy goals. Sustainable policy-making is a process-oriented concept and can be achieved if policies are designed in a way that allows for intentional change (e.g. changing the actor's behaviour) by simultaneously maintaining the ability to adapt to basic necessities and changing conditions. This adaptability of the policy-making process takes into account the fallibility of decision-makers and the decision-making process. Only if decision-makers are aware of their own and others' fallibility is it possible to learn, improve and adapt policies to changing goals.

In summary, the concept of institutions of sustainability used in the CEESA Project is characterized by the following features:

- Systemic orientation: institutions of sustainability in agriculture evolve at the interface of ecological and social systems that are embedded into systems at higher scales (Gatzweiler and Hagedorn, 2002, pp. 38–42);
- Dynamic orientation: systems of decision– and policy–making are adaptive and include processes of learning (Gatzweiler and Hagedorn, 2002, pp. 38–42);
- Actors' orientation: actor constellations, interactions, motivations and resources for behavioural patterns (Hagedorn et al., 2002, pp. 10–12);
- Resource orientation: features of natural resources and consequences for their management, such as excludability, rivalry, asset specificity, complexity and uncertainty (Hagedorn et al., 2002, pp. 6–9).

3 METHODOLOGY

3.1 The Case Study Approach

The aim of the CEESA Research Group was to understand to what degree the requirements of environmental protection are being taken into account in the reform of the policies, institutions and farming systems during the transition of the agricultural sectors in CEECs. Case-study analysis was used as the main methodological tool to achieve this goal. Case-study analysis provided a way to deepen the understanding of the motivations, interests and actions of stakeholders. It offered a method for a holistic and detailed understanding of conflicts between agriculture and the natural environment.

In addition, the case study approach enabled the understanding of specific causalities. Researchers of the CEESA Group carried out interviews with key informants and organized field visits for a detailed analysis of obstacles and opportunities occurring in the transition process and because of EU accession. Furthermore in the Czech Republic, Poland and Bulgaria additional scientists, experts and local officials from different Eastern and Western European countries participated in study tours and Policy Learning Workshops (PLWs). Their purpose was to exchange knowledge and experience on the case-study problems that were carefully identified in each of these countries.

3.2 Learning and the Mutual Exchange of Knowledge

In former socialist countries information offered for selective knowledge acquisition was either not provided to the individual or was constrained. The preconditions for social learning (processes of close communication with other agents of the social system) were deliberately constrained, for example, by limited freedom of speech or by restraining the mass media. In this way problems were displaced instead of being solved. Constructive critique, protest, active participation by the population and the building of a civil society itself were thereby obstructed.

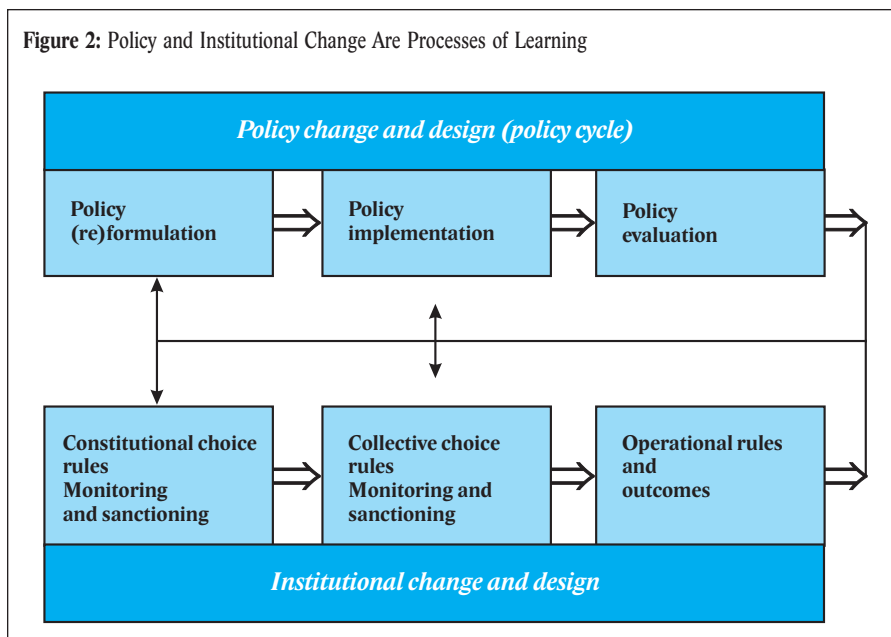
As change and learning are mutually related, the move from a command and control system to a market system is not the only issue involved in transition. Apart from changes in values and mental models, massive organizational change is taking place.

In the past Western European societies moved towards a network society, where the opportunities and capabilities to gain access to and join knowledge and learning networks are determining the relative economic success of individuals and firms. The learning economy (in contrast to the information society⁵) refers to a society in which the capability to learn is critical to economic success (Lundvall, 2002). In this context institution building does not merely take place under the heading of improv-

ing static efficiency and reducing transaction costs. Rather, institutions are evaluated in terms of how they affect learning and innovation.

Learning becomes even more important in the environmental field. Here, there are often no institutional structures for sustainable resource management that could be exactly copied or transplanted from elsewhere. Policies, therefore, need to promote general access to information and education at all levels of society. In other words, the social construction of sustainability, which is at the heart of any progress towards sustainable development, is a political question about how to stimulate social learning by providing adequate incentives (Figure 2).

Figure 2: Policy and Institutional Change Are Processes of Learning



The assumption underlying the learning approach is that actors in the CEE agricultural sectors can achieve sustainable management practices (and institutional innovation) if they have the opportunity to exchange views, information and knowledge. In the CEESA Research Project social or joint learning took place in two dimensions: (1) among academics in CEECs and (2) between academics, politicians and practitioners from Western European and CEECs. This process of mutual learning was facilitated by bringing together a small group of officials and experts in order to

⁵ The outcome of learning, namely knowledge, is a much wider concept than information. Whereas information is the part of knowledge which can be put into pieces and transmitted (e. g. through a computer network), learning involves skills and competencies that are often tacit and cannot easily be transmitted.

discuss possible solutions for specific agricultural resource problems. The exchange of knowledge was organized by Policy Learning Workshops (PLWs).

The aim of the CEESA PLWs was to bring together (1) a group of researchers from different CEECs, (2) experts/officials and (3) practitioners and local actors from a specific field of expertise (e.g. irrigation or agri–environmental schemes). The PLWS were intended to facilitate the process of mutual learning at three levels:

- Mutual learning among the members of the research project group. This process enabled the researchers to elaborate on their own case study by identifying what is specific or unique to it and what is general or shared.
- Mutual learning among the PLW participants (members of the research project group plus participants outside the project). This allowed the members of the research group to elaborate their analysis of the case in a mutual exchange with external experts. The experts received in–depth knowledge of the specific case.
- Mutual learning between the PLW–group members and local actor groups. The exchange of knowledge took place between the PLW group and local actors (e. g., farmers, NGO representatives, representatives from governmental authorities) that were previously interviewed. Local actors got the chance to tap the expert knowledge of the PLW–researchers, while PLW–researchers received the local actors’ perspectives on a specific case–study problem (e.g. farming vs. conservation).

The PLWs carried out in the Czech Republic (Prazan et al., 2003), Poland (Karaczun et al., 2003) and Bulgaria (Penov et al., 2003) consisted of the following main elements:

- **PREPARATORY PHASE:** The topic of the workshop was identified and potential participants were informed well before the event. Briefing material was prepared and local arrangements were made.
- **STUDY TOURS:** Project participants came together in order to get familiar with the case and discuss similarities and differences of cases in other countries. During the tour, field visits were organized and interviews with key informants were carried out. The purpose of the Study Tour was to become prepared for the learning workshops, which would include experts and officials.
- **EVALUATION OF THE STUDY TOURS:** The participants of the Study Tours discussed the thematic and organizational particularities of the case and planned the future learning workshop event. Background information was assembled and distributed to the participants of the future workshop.
- **POLICY LEARNING WORKSHOPS:** The case–study description and the output of the Study Tour were distributed as background information to the Project’s internal and external participants at each PLW. The workshop

lasted three days. During the first day, participants were introduced to each other, the objectives of the workshop were explained and the participants were informed about the case study. The second day was used to visit the field and carry out interviews with key informants. Finally, throughout the third day participants discussed their impressions of the case, compared them with similar cases and elaborated possible options and recommendations.

- **PLW DOCUMENTATION AND DISSEMINATION:** The results of the PLWs were presented at international seminars (e. g. the International Green Week in Berlin 2003). The views and opinions of practitioners and political decision-makers were discussed and the results were published.

3.3 The Research Process

The CEESA Research Process was structured in four phases with the following general objectives:

- Phase 1: Detailed analysis of the current situation and key problems caused by agricultural production,
- Phase 2: Specification of causalities between environmental problems and agriculture, as well as the need for changes,
- Phase 3: Requirements for alternative concepts and strategies of sustainable agriculture in CEECs,
- Phase 4: Final elaboration and dissemination of recommendations for sustainable development in CEE agriculture.

The analysis of policies in transition focused on:

- analysis of the problem definition,
- policies during the socialist period,
- attitude of actors and cooperation,
- strategies with respect to the problem area,
- alternatives and recommendations.

The analysis of institutions focused on:

- the nature of the transaction and the natural-resource features,
- characteristics of actors involved in the resource problem,
- property rights of resource use,
- governance structures for organizing resource use,
- alternatives and recommendations for sustainable resource management.

The analysis of farming systems focused on:

- description of the organizational forms of farming systems and natural conditions resulting from transition,
- specification of strategies for sustainable farming,
- measuring the environmental impact of farming systems,
- analysing alternative farming systems,
- recommending farm-based measures for promoting sustainability.

3.4 The Resource Problem Areas

The main resource problem areas (Table 1) focused on water (irrigation, drainage, pollution), biodiversity and landscape, as well as soil and agricultural land (abandonment, salinization, conversion).

Table 1: Countries and Cases in Different Working Groups of the CEESA Project

| | Policies | Institutions | Farming Systems |
|--|------------------------------------|---------------------|----------------------------|
| Water management | Slovakia, Poland, Lithuania | Latvia, Bulgaria | Romania, Croatia |
| Biodiversity and landscape protection | Hungary, Czech, Republic, Slovenia | Czech Republic | Hungary |
| Soil/land | Ukraine | Poland | Ukraine, Estonia, Bulgaria |

Case study analyses in Slovakia, Poland, Lithuania, Latvia, Bulgaria, Romania and Croatia emphasized the issues of water pollution, irrigation and drainage in agriculture. Whereas the difficulties in harmonizing the Nitrate Directive was analysed in Slovakia, Lithuania and Poland, institutional problems with local distribution and water–resource management in drainage and irrigation agriculture were analysed in Bulgaria and Latvia. Non–point source pollution from agriculture was analysed on the farming–systems scale in Romania, and the Croatian case observed the reasons for water pollution from farming activities close to a nature reserve. Issues of biodiversity and landscape protection were analysed by the cases carried out in Hungary, the Czech Republic and Slovenia, whereas the Slovenian case did so by taking a policy perspective. The researchers of the Czech cases carried out their analysis by taking the “policy” and “institutions” perspective, and the Hungarian cases were analysed from the viewpoint of “policy” and “farming systems”. Finally, an explorative study on the environmental problem areas connected to soil or land protection was carried out in Ukraine. The following paragraphs give a short description of some selected cases with regard to their resource problem area.

3.4.1 The Challenges of Implementing the Nitrate Directive in Poland, Lithuania and Slovakia

In light of EU accession, the actual environmental problem targeted by the Nitrate Directive in Poland, Lithuania and Slovakia was often perceived as a technical problem of transposing legislative frameworks. The definition was often diluted by viewing only temporal and/or special aspects of the entire problematic situation. It was frequently mentioned that the average limits on nitrogen use and the density of livestock set out in the Directive are lower in these (and other) CEECs. This fact was explained by the decrease in productivity (especially the decrease in livestock numbers) after 1990 and their general path of “extensification”.

This example nicely illustrates the evolution of a law that was meant to restrict the environmental impact that had resulted in the EU-15 because of intensive agriculture, but that is now prescribed for the new Member States, which have very different environmental and agricultural starting conditions. Because of the generally low production intensity in CEE agriculture (during transition), it was assumed that there would be no insurmountable problems with the Nitrate Directive before accession.

There are problems, however. In the first place, efforts before accession concentrated on the *formal* compliance with the *acquis communautaire*. Therefore, the entire issue of implementing the Nitrate Directive shortly before accession is presented more as a problem of technical transposition than a serious debate on real environmental mitigation. The abandonment of the long transition periods initially applied for, which would be necessary to solve environmental problems, provide further evidence of this formal focus.

The Polish, Lithuanian and Slovakian cases analysed the problems associated with the transposition and implementation of requirements imposed by Directive 91/676/EEC, known as the Nitrate Directive. When the EU officially launched accession negotiations with Poland in March 1998, the results of the screening process confirmed the assumption that Poland would not be able to implement the requirements of the Directive until the provisional date of accession. Therefore, Poland requested a transitional period of 8 years. The EU responded that they considered the transposition of the environmental *acquis* into national legislation a major task to be tackled with priority. Thus the EU encouraged Poland to reconsider the request and to establish an implementation programme. Implementation was suggested within four years.

As a result of this negotiation Poland decided that in spite of the earlier assessment and at the current level of water pollution the designation of areas vulnerable to nitrate pollution from agricultural origin would not be justified. Therefore it was decided that there would be no need to prepare an implementation programme. The Institute of Meteorology and Water Management prepared a report on *The designa-*

tion of zones vulnerable to nitrate pollution from agricultural sources. It concluded that there was no serious problem of nitrate pollution from agriculture and that the state of Polish waters was generally better than in most EU countries (Karaczun et al., 2003).

In the attempt to “harmonize” with the EU, discrepancies such as the different storage capacities proposed by Polish and EU law (6 and 4 month capacities) do not seem to receive much attention. Karaczun et al. (2003) conclude that instead of negotiating on specific issues in which both sides tried to solve the environmental challenges of accession, position-based negotiations were carried out in which both parties endeavoured to achieve superiority. “This might lead to the situation that Poland tries to find a legal interpretation” that allows it to proclaim the fulfilment of all accession requirements in this field.

These diplomatic and rhetoric acrobatics, however, cannot cover up the fact that there continues to be a lack of coordination and cooperation between local and central authorities and between the relevant Ministries. Nor can it be denied that civil servants, farmers and trainers in the field lack training capacities. The Polish case is a good example for a strategy of dilution the definition of (or repudiating) an environmental problem for the sake of compliance with the EU environmental *acquis*. It further exemplifies how the accession negotiations have transformed the political status of the farm pollution problem in Poland.

The case study area in Lithuania comprises the northern karst region, which covers one-fifth of the entire country. After privatization the large state and collective farms of socialist times dispersed into a highly fragmented farming structure with great variability in farm size, specialization, and levels of education. The advisory service, which existed during socialism, was rebuilt during the 1990s. Small farmers, however, need better access to information and training.

In Lithuania laws for the protection of water were already in force in 1972. Since the mid 1970s protected water management zones had been declared. In 2001 the Agricultural and Environmental Ministries issued a joint order as part of the implementation of the Nitrate Directive, regulating the stocking density of livestock. Administrative penalties for visible actions are effectively enforced. It is envisioned that the entire country will be designated a Nitrate Vulnerable Zone (following Danish advice). Such an approach implies a commitment to uniform environmental standards across sectors.

In contrast, Slovakia's large-scale farm structure continued after land restitution. The Slovakian case deals with one of the most productive agricultural areas in Slovakia – Corn Island. It is an area with very rich groundwater resources. Eighty percent of the area is under agricultural production, and most crops are irrigated.

In Slovakia laws for the protection of water were already in force in 1973. In 1978 the Corn Island area was declared a protected water management area. In 2002 the

new Water Act was adopted, which defines the storage, manipulation and application of mineral and organic fertilizers and appropriate soil cultivation. It also limits the number of animals per land unit. The degree of continuity of the enforcement mechanisms has been greater than in Lithuania or Latvia, as the farming community and farm structures were less fragmented after privatization. However, the Slovakian water–monitoring system is very comprehensive and meets the requirements of the EU. Its water–monitoring network has been functioning since the 1960s. As in Poland there is hardly any functioning agricultural advisory service, especially for small farmers.

In summary, much effort has been put so far into the formal harmonization of legislative bodies in the context of accession. This however, is only a small step towards sustainability in the region. In addition, the successful accession process may produce a lax attitude toward achieving environmental goals in the future. In order to progress further towards the goals of the Nitrate Directive, continued efforts are required to strengthen the social and human capital stocks in rural areas of Poland, Lithuania and Slovakia. This involves informing and training farmers on the environmental impacts of nitrate pollution, providing incentives for pollution prevention measures and supporting structural change towards viable and environmentally sound farming systems. It will be an exhausting task to design institutions for sustainability in areas where farming structures remain fragmented, land owners are absent and fields are abandoned. Another challenge for all countries is the lack of financial resources. The funds provided by pre–accession programmes are very limited. Farmers will be financially strapped to pay for manure tanks, but banks are unwilling to provide loans for unproductive investments in storage facilities and other technical equipment. In the long term, resources for investments need to be generated from viable farming activities.

3.4.2 Agri–environmental Governance in Czech Republic, Slovenia and Hungary

Agri–environmental measures are not new for many applicant countries. Many CEECs have already implemented schemes that are similar either to the EU Less Favoured Areas (LFA) measure or to those under the EU Agri–environmental Regulation. In the Czech Republic, Slovenia and Hungary considerable support is provided to farmers to continue agricultural management and preservation of the landscape in marginal areas, especially for grassland based systems. In all accession countries national agri–environmental working groups have been formed to develop pilot agri–environmental programmes at the national and regional levels. Their progress shows that governments are interested in exploring new agri–environmental ideas especially if external support is forthcoming (Zellei, 2001).

The CEESA cases in Slovenia, Czech Republic and Hungary (Prazan et al., 2003) dealt with biodiversity issues and the implementation of agri–environmental schemes in protected areas. All countries show specific and general problems with

the governance of agri–environmental programmes. The lack of cooperation and co-ordination between agricultural and environmental ministries and the landscape protection authorities is crosscutting source of conflict. This is problem that is rooted in the traditionally strict division of responsibilities of the ministries (Ministry of Agriculture and Ministry of Environment), as well as their strict hierarchical design. The cooperation and participation between the different actors vary considerably depending on the hierarchical structure of authority within and between these bodies, the traditions in decision–making and where the most financial resources are located. Administrative capacities require improvement and the coordinated participation of farmers and NGOs in decision–making in order to achieve a frictionless and less “top–down” governance for the benefit of the people and the environment.

The Czech case may serve as an example for a case where a local NGO is very active in providing information about organic farming, EU programmes and a wide range of other information to farmers. Its success strongly builds on the local recognition of its manager and his leadership qualities.

Bio–physical environment. The Czech case deals with the challenges of landscape conservation and management in the White Carpathian area in eastern Moravia on the border with Slovakia. The area is characterized by small dispersed villages and pastoral agriculture with extensive cattle and sheep grazing. Low input farming remained characteristic until the middle of the 20th century. It contributed to the evolution of bio–diverse landscapes comprising of a mosaic of forests, pastures and meadows, which are among the most species–rich in Europe. The area has a dual structure regarding farm size. About 50 percent of the area is managed by a handful of large enterprises, while 33 percent of agricultural land is managed by holdings under 10 ha. The landscape consists of small privately owned parcels and large commercially managed plots of land.

The Slovenian case deals with the agri–environmental scheme in an area designated as a regional park. In Slovenia the total share of LFA accounts for 84.3 percent of the total surface area and 78.4 percent of Slovenia’s agricultural land. The country is characterized by hilly and mountainous areas, representing 70 percent of the total area. The country has a rather long tradition of making policies for less favoured areas. The case–study area is an upland natural forest with traditional pastoral farming, which has been proposed as a regional park. Small scale family farms continue to exist on private–land ownership in the area.

The Hungarian case is about the agri–environmental scheme in a protected landscape area predominated by small scale farming. Traditional grazing practices in this hilly region have shaped diverse grassland habitats (predominantly steppe habitats). After 1990 the number of grazing animals decreased, threatening the maintenance of the landscape and its biodiversity.

Rural population. The Czech case describes the effects of out-migration. People have moved to the cities or commute if they have found a job in the city and live in the countryside. There are many smallholdings, mainly producing for their own consumption. Small farmers and elderly farmers often express a strong attachment to the landscape and are voluntarily involved in environmental and landscape improvement activities. The functioning of village life and involvement in agri-environmental programmes have been impacted by the absence of the younger generations. The Slovenian rural population resembles Austrian or North Italian conditions and therefore is an exception among CEECs. Many farmers work part-time, earning their main income from non-agricultural activities (e. g. tourism and crafts). There has been no considerable depopulation of the areas after 1990. In Hungary the area chosen for a case study consists of many small subsistence farmers with no off-farm income alternatives. In light of the fragmented farm structures produced by the privatization of land, people are more concerned (than in the Czech case) about their survival than about the environment. In Hungary we can also witness the effects from out-migration and the ageing of the rural population.

Policies, institutions and governance. In the Czech case agri-environmental programmes are being prepared in preparation for EU accession. Farmers are eligible to receive LFA support. Farmers are unfamiliar with agri-environmental incentives. Various compensation payments have been introduced by the Ministry of Agriculture (MoA) and Ministry of Environment (MoE), but those from the MoA are the highest. Subsidies are only available for farmers with more than 2 ha within the protected area and more than 5 ha outside it. Small farmers can apply for the additional suckling cow premium, pasture-based livestock premium and payments for ecological farming. There are coordination problems because the different subsidies from the MoA and MoE are not necessarily complementary. NGOs are very active in mediating between farmers and authorities, as well as in providing additional information on biological farming practices.

In Slovenia there has been a LFA support system since 1975. The Slovenian Agri-Environment Programme (SAEP) had already been established on a pilot scale in 2001. The local population wishes to be more involved in the designation process of the park. Farmers receive LFA support (49 euro/ha) and are eligible for agri-environmental payments, as well as other subsidies.

In Hungary agri-environmental programmes are being developed in preparation of EU accession. In 1999 the government approved the National Agri-Environmental Programme (NAEP). Schemes developed under the NAEP are intended to provide support for environmentally friendly production methods (reduced use of fertilizers and pesticides, environmentally oriented farm plans) and nature-sensitive land use that will also support quality food production (Zellei, 2001). Most of the protected area is state owned. The state rents land to farmers under conditions of rather strict environmental management prescriptions. Financial incentives and compensation

payments from the LFA have not yet occurred. The National Park Directorate gives indirect supports by issuing preferential rents for farmers in the protected landscape area. The approach towards farmers is prescriptive and regulatory. Cooperation between farmers and authorities need improvement and the strict environmental regulations cannot be implemented and enforced.

In conclusion it is extremely difficult to direct the attention (interest of policy-makers and resource flows) to the protection of natural and environmental values in agriculture. This is the case because one of the main objectives of current agricultural policies is to invest into the improvement of agricultural efficiency and production to prepare the agro-food sector for EU accession. Exchange of knowledge and training is needed to design contracts for non-production related farm activities. Limited (if any) resources are available to compensate farmers for environmental services. The lack of financial resources and competition for government funds makes it unlikely that proposed agri-environmental schemes can preserve the traditional diversity of the CEEC countryside. External funding, appropriate incentive payments and the building of human capital (e.g. by the exchange of knowledge) are essential if management agreements are to become a significant policy tool.

The analysis of case studies in the Czech Republic, Hungary and Slovenia (Prazan et al., 2003) has further demonstrated, that three wider issues remain problematic with respect to agri-environmental policies:

- Uncertainty surrounding the ownership and control of land. The duality of farm structures, the asymmetry of power, indeterminate ownership, absent land owners and illegal occupation of land are factors that do not support long-term decision-making and sustainable management. To address these problems three options were discussed. First, the acquisition of land by the landscape protection authority (such as in the Hungarian case) could overcome the uncertainty of property rights. Second, small land owners and farmers could be encouraged to cooperate and participate in rural development and conservation policies. The Czech case, for example, gives an example of a Conservation Land Trust, which is managed by a local NGO that leases 700 ha of land with high natural value from farmers for targeted conservation management. This is an option that requires strong social and human capital stocks, which are presently not available in many CEE rural areas.
- Difficulties integrating measures and policies for agricultural support and environmental protection. A comparison of current EU agri-environmental policies and those practised in the CEECs shows that the measures need to be more target-oriented and adapted to local conditions. Individual contracts, for example, need to be elaborated in cooperation with farmers to achieve the envisioned conservation targets. Local conserva-

tion authorities and farmers need to have better access to information and learn about new legislation. However, they also need to develop new ways for cooperating. Accurate baseline data to calculate adequate payments and maps showing land ownership and ecological characteristics of the area are still needed.

- Limited involvement of local people in determining how marginal areas should be managed and developed. Given the legacy of the socialist era? when conservation issues were decided by designating national parks without consulting local communities – creating participatory types of governance is a tremendous task. Apart from the need for improved access to information and the theoretical possibility to participate in decision-making, there has been a feeling of alienation among local rural actors. They perceive the destiny of marginal areas as being dependent upon distant power struggles and rivalries between conservation, agriculture and environmental agencies.

Our findings in these countries show that the patterns of evolving agri-environmental governance are determined by the degree of homogeneity of the physical environment (including the farming structure) and of the social environment. In addition we have distinguished those factors hampering and promoting agri-environmental governance.

Factors hampering agri-environmental governance are the following:

- Complexity of the initial problem situation and ties to the historical past,
- Rivalry among stakeholders,
- Fragmentation of the ownership and farming structure after privatization,
- Uncertainty of property regulations with respect to public and common goods.

Factors promoting agri-environmental governance are the following:

- Availability of potential non-state actors for sharing of responsibility,
- Administrative capacities and other resources for problem-solving and conflict resolution,
- Sufficient number and diversity of actors needed to solve the problems,
- Access to information and equal opportunities to participate in decision-making.

Regarding governance structures, responses to more complex, less homogeneous variables of institutional change have been different among the case studies. There are more elements of market governance and civil society in the Czech case than in the Hungarian case. Similarly, the functioning governance structures for agri-environmental coordination of the other cases vary.

In the case of Hungary governance solutions were sought that were hierarchically structured and regulatory. These solutions had the state as sole landowner, prescribing strict regulations for land management without being able to compensate the farmers. This approach may minimize transaction costs for the Hungarian case because it reduces costs for coordination among different authorities and actors. It remains questionable, however, if such a protective and hierarchically structured type of governance leads to environmentally sound and socially acceptable results.

In contrast the Czech case demonstrates the difficulties with governing the environment not only as a result of the complex physical problem setting, but also because of the task of coordination and cooperation among different actors involved. Although there is private ownership of land in protected areas, the powers are redistributed to large enterprises renting land from an enormous number of landowners and paying very low rents. The coordination problem involves these large enterprises, different governmental authorities, small farmers and NGOs. Despite higher costs for coordination, people are better motivated and integrated in the process of decision-making. They receive incentive payments and they are willing to invest in their rural environment even without direct benefits.

3.4.3 Road to accession or disaster? The case of Bulgaria's irrigation sector

The Bulgarian case is about the rebuilding of the irrigation system in the Plovdiv agricultural area, which has been destroyed during the period of transition. After privatization the irrigation system needed to supply water for a large number of small landowners. Property rights needed to be redefined, and responsibilities, rights and duties needed to be changed and adapted to new conditions.

Privatization and restitution has led to uncertainty about the organizations in charge of managing local-level irrigation works. Decollectivization has implied that the state-owned irrigation company deals with a large number and different types of agricultural producers, instead of the agricultural cooperatives of the past. As a consequence, many internal irrigation canals have not been maintained, and thus have deteriorated. Cropping structures have also undergone changes, with a switch from vegetables to less water-intensive crops.

Property regimes have changed, leading to fragmented landscapes with a large number of small plots. The consequence of this process was that the new ownership structures no longer related to the original large scale-physical structure of the irrigation systems. The destructive physical effects on the internal irrigation systems were amplified by dissolving social structures and by conflicts with minorities at the community level.

Confronted with the depressing situation in the rural areas, many young people have left the villages in search for work in the cities. Former human networks have broken up, and "social mechanisms" have collapsed.

The practice of irrigation—water appropriation is chaotic and dominated by opportunism and the “rule of the fist” instead of “rule of law”. Water users who order water cannot rely on the delivery of water, and when water is delivered spontaneously (i.e. nobody knows when exactly the water is coming) those at the top of the irrigation canal are served first. As a result, no water is left for those at the end of the canal. In some villages farmers guard their own fields in case water is delivered, and once water comes through the channels they must make sure that nobody diverts the water flow to a different field. Agricultural advisory services are absent or ineffective, and farmers’ organizations play basically no role in solving the many conflicts surrounding water. A situation prevails in which there are no commonly agreed upon rules and behaviour, and free-riding and rent-seeking are usual.

In this case it appears that as long as economic framing conditions are unstable and basic conditions (such as access to information) do not exist, there is little basis on which good governance can grow and institutions of sustainable irrigation systems can evolve. Both forces of institutional change – the actions stemming from the evolutionary and the new institutionalist perspectives – seem to have failed in the Bulgarian irrigation case (Penov et al., 2003).

4 MAIN FINDINGS

This chapter aims at summarizing the main findings of the three CEESA Working Groups on Policies, Institutions and Farming Systems. Since the beginning of transition, different initial conditions among CEECs have played a significant role in explaining their varying success in transformation. Countries with “market memory” and prior nationhood experience (prior to the socialist period), as well as countries in which market oriented reforms started early, performed better in achieving the economic and political maturity required for EU membership. However, this important role tended to become less important towards the end of the first transition decade.

EU accession has frequently been portrayed as the main driver for institutional change and environmental improvement in the CEECs. Given the importance of environmental issues in the *acquis communautaire*, it was expected that these would almost automatically be transformed in the accession countries. For many environmental goods and services, especially those which are excluded from the governance of the market, this is obviously been an illusion. Although legislation can be rewritten and agri–environmental programmes (AEP), national environmental action programmes or new environmental agencies can be built rapidly, these are far from being enforced, implemented and in operation.

Along this line an entire network of institutions at different societal levels and their relationships need to change. A variety of implementation tools and skills must also be appropriated. Until the farmer on his field actually exercises and understands the reason for policy–induced environmentally friendly farming practices, while running a viable business, more time is needed. As mentioned before, a change of institutions towards sustainability, policy–making and farming practices are part of this entire network. Institutional change is certainly driven by accession, but at a certain point of time it may even be more of a question of evolution.

4.1 Institutions of Sustainability

The case studies prepared by the Working Group on Institutions (Table 2) focused on three resource areas: biodiversity, land conversion and water management (drainage and irrigation). The case studies were carried out in the Czech Republic, Poland, Bulgaria and Latvia.

Despite the great variety of issues dealt with in each case study, there are some common institutional problem areas that occur across all the cases observed. These are:

- the problem of institutional integration,
- institutional void and surrogate institutions,
- property rights and duties,

- Agri–environmental governance,
- Capacity building, partnerships and mutual learning.

Table 2: Case Studies of the Working Group on Institutions

| Country | Authors | Resource Issues | Resource Problem | Institutional Issue |
|----------------|--|-----------------|---|--|
| Czech Republic | Ratinger, Prazan, Krumalova | Biodiversity | Species and landscape protection in the White Carpathians | Designing and integrating effective institutions for biodiversity and agriculture |
| Poland | Wasilewski | Land conversion | Conversion of agricultural land in suburbs by land for housing | Gaps in legal systems are used |
| Bulgaria | Penov | Water | Declining possibilities for irrigation agriculture and conflict loaded distribution of irrigation water | Establishing functioning institutions for the organization of water distribution |
| Latvia | Busmanis, Zobena, Dzalbe, Grinfelde | Drainage | Land abandonment and neglected duties on drainage maintenance | Lack of organization for the effective regulation of rights and duties on drainage systems |

Institutional integration. Institutional integration involves coordination between various agencies and jurisdictions at different levels of decision–making (vertical and horizontal) to achieve seamless operation. In order to achieve effective institutional integration, agencies and jurisdictions must agree on the benefits of being part of an integrated system. They must agree on roles, responsibilities and shared operational strategies. This coordination effort remains a considerable task in many CEECs, especially in governing environmental resources in agriculture, when different government authorities formulate policies that do not complement each other for overlapping target areas. Usually resource management in agriculture is subject to directives, laws or programmes from either the Ministry of Environment or the Ministry of Agriculture. As both policies do not always follow the same goals, confusion can be created at farm level. The Czech case gives an example of conflicting policies from both ministries. The Bulgarian case illustrates that institutional arrangements for allocating irrigation water to users are often isolated from legal frameworks or other jurisdictions.

Institutional void. The institutional void is a major hindrance for sustainable agricultural and rural development. Lacking agricultural advisory services, farmer organizations, NGOS, trust and collaboration among actors in Bulgaria’s irrigation sector is probably the clearest example for the existence of institutional void. Institu-

tions at the intermediate and local levels of decision-making often lacking. Furthermore, the government authorities responsible for respective fields in agriculture and environment are also detached from the problems of the rural population and inexperienced in effective conflict-resolution mechanisms. In Latvia, institutions for the management of secondary canal systems are lacking. The costs for the maintenance of many of these canals are shouldered by farmers who have a potential benefit and are willing to bear the costs of common duties. Because of alternative employment opportunities, many new landowners have no interest in managing their land. They keep ownership for security reasons, but neglect their duties with respect to the maintenance of canal systems.

Surrogate institutions such as opportunistic behaviour, the rule of violence and the mafia can be found to fill in this void. Instead of progress and development, a grid-lock situation emerges in which all actors involved act in their own interest. The establishment of Water User Associations (WUAs), for example, has been mainly driven by the support from the World Bank (WB) instead of farmers' participation. After WB support decreased, local powerful elites used their influence, access to information and networks as a means for additional income in the process of establishing WUAs, whereas the WUA "members" rarely even know what an WUA is (Theesfeld, 2001). Surrogate or transitional forms of institutional arrangements can also be witnessed in the Bulgarian case, where local mayors attempt to solve conflicts over water distribution. As adequate institutions for the organization of irrigation are missing the mayors use their position, reputation and power to settle conflicts that are outside their usual field of responsibility.

Because institutional void exists and surrogate institutions are not able to address adequately the environmental problems in agriculture, the legislative frameworks in place are insufficient. These frameworks have been transposed to a large extent from the EU and remain meaningless "packaging", and rules in use are often applied outside the legal frameworks. From an analysis of the CEESA Case Studies in Bulgaria, Czech Republic and Poland, Sikor (2002, pp.11) concludes that rural actors (e. g., landowners) frequently ignore the legal duties connected to their land rights. This is especially true with respect to assets with "common good" characteristics, such as the maintenance of irrigation or drainage canals, and the extraction of groundwater.

After privatization private ownership was established in all CEECs, though specific rights and obligations connected to the management of environmental resources in agriculture have not always been clear. This has contributed to serious negative environmental impacts, such as the salinization of soils or the abandonment of agricultural land, which leads to acidic soils and in inauthentic landscapes. Property rights in irrigation or drainage (e. g. in Bulgaria and Latvia) demonstrate the difficult task in distributing, coordinating and agreeing on different cost and benefit streams from the use of the resources and the respective technology and equipment. Very of-

ten consensus cannot be achieved regarding who receives the benefits and who bears the costs from resource use. This situation results in opportunistic behaviour, and as a result the “grabbing hand” often becomes the dominant form of governance (Shleifer and Vishny, 1998). Finally, ecosystem functions have been degraded or destroyed, and the costs are allocated to future generations.

Agri–environmental governance. Agri–environmental resources, especially those with common–pool resource characteristics, require decentralized environmental management because decentralization brings environmental management closer to local concerns and enables local actor participation. Thereby the rules in use for the management of these resources are “first–hand” – adapted and constantly improved to local conditions.

In most CEECs progress has been achieved in decentralizing government structures. Transition changed the role of governmental institutions and led to different patterns of decentralizing environmental management. However, apart from the CEESA findings in the Czech case (where positive examples of NGO involvement could be witnessed), participation of local actors in decision–making for agri–environmental management was either lacking or very low.

The cases studied in Poland and Bulgaria are examples that illustrate clearly that local economic interests dominate over environmental issues. In Poland local governments have the economic interest to convert agricultural land into land for housing. In Bulgaria all actors involved tend to seek personal enrichment, either to maintain power and influence or merely to ensure survival. Therefore, decentralization concerned merely with structural change while neglecting qualitative change (such as participation, transparency, competence and reliability), contributes little to governance that bridges the gap between people and politics. Apart from structural change and qualitative change, decentralized entities (governmental as well as non-governmental) need to be vested with sufficient rights and financial resources. This is a process that has been referred to as devolution and that we assume to be part of the broader discussion about rural development issues in Central and Eastern Europe.

Governance of environmental resource use in agriculture requires mutual adaptation at local and national levels and a common goal that relates not only to the interests of farmers but also that of the general public. The degree of authority that the government retains in local resource management tends to depend on the nature of the resource itself. However, it also depends on traditions of political culture and progress towards EU accession. Countries in which the national government maintains control over protected areas (e.g. Borsodi Mezőség Landscape Protected Area in Hungary) tend to face problems with farmers being unwilling to cooperate and understand the goals of the park authority. In such cases it may be worth supporting local governance and cooperation or bringing environmental goods and services

into the price system by supporting agro–tourism or the marketing of regionally produced, organic products.

In other cases the governance of resource management is largely left to local actors. The cases dealing with water management issues (Romania, Bulgaria, Latvia, Lithuania, Slovakia and Croatia) show that farmers are mainly concerned with their private businesses and their own subsistence. They are swamped with the difficulties and challenges of dealing with the complex issues of water management and need substantial assistance by their national governments. A set of clear, predictable “rules of the game” (OECD, 1999) is insufficient if people do not have the means and motivation to follow the rules. Therefore, adjusting the design of governance to the nature of the resource and the potential of the people seems more promising than calling for even more rules that cannot be translated into effective, sustainable resource management. This belief in the conflict resolving function of laws, regulations and punishments was documented in the studies of Theesfeld (2001) and during the Policy Learning Workshop in Bulgaria (Penov et al., 2003).

Clearly there are limits to the ability of the market to address environmental problems in agriculture. The crucial question to be answered in this context is: why should farming be environmentally friendly if the price system that rules the farming sector provides incentives to farm against the ecosystem? This counts even more in CEECs, where one of the priorities of farm restructuring is to make the sector economically viable. Therefore the dominant role of the market in governing the agricultural sector needs to be reconsidered, if the market provides incentives against environmentally friendly practices. These incentives, however, mainly refer to the production functions of agriculture. The more diversified the agricultural sector becomes, the more the role of the farmer as steward of the rural landscape becomes evident. In such a diversified agricultural sector agricultural production would be only one function among others, such as landscape management and recreation. Therefore, the complexity of environmental issues that need to be addressed increases, which requires new forms of governance. However, before farmers are able to make a living from agriculture, they are unlikely to expend their labour on the additional effort of improving the environment.

Capacity building, partnerships and mutual learning. We know that building institutions and governance structures for sustainable resource use needs to match the complexity of agri–environmental issues in order to adequately address the problems in question (Ostrom, 1995). Apart from government involvement and markets (e.g. agro–tourism, eco–labels, cooperation with the business sector) there are other different forms of governance built on principles such as partnership, shared responsibility and cooperation (Baker, 2001) that need to be built to successfully cope with the environmental challenges of agriculture. These new forms of governance, however, require a mature civil society with access to information and demo-

cratic rights in decision-making. Based on CEESA experience, this generates a variety of questions, such as:

- how long will this process take?
- how can the process of creating these prerequisites be stimulated?
- are there transitional forms of institutional arrangements that can do without them?

Because rural populations are ageing and suffer from outmigration, this problem will probably remain an important challenge.

The successful and effective implementation and enforcement of the EU environmental policy in the CEECs would require:

- building up local, regional and national institutions,
- having well-trained and well-managed public administration at subnational levels,
- strengthening civil society to make it an active and critical partner in environmental issues.

National and subnational structures must be empowered with responsibilities, capacities and resources in order to protect the quality of environment. The capacity of local governments and local state administration is problematic because of limited resources and expertise. Thus policy making is often reduced to copying examples from the advanced EU countries without a clear understanding of the issues and without the capacity and resources to implement policies effectively and efficiently. It is necessary to invest in extensive capacity building and experience-exchange programmes among policy-makers and practitioners.

Certainly among the impacts that the EU integration process will have on the applicant countries will be the building of an immense centralized institution. The Europeanization of the candidate countries' environmental policy and administrative and regulatory structure is based on the implementation of a great deal of legislation and procedural rules. However, the CEECs have only a limited opportunity to mitigate the EU's influence. In addition the whole accession process has an executive bias because of the structure of negotiations and the fact that EU actors mostly see the process of adopting EU norms as an administrative exercise. The accession process emphasizes the capacity building at the central levels and reinforces the tendency towards having a core executive at the expense of other branches and levels of government. There remains a great demand for institutional partnership programmes devoted to the exchange of knowledge between policy-makers, researchers and practitioners at the local level in order to learn about similar and different problems faced in Western European countries, as well as in CEECs. Such an organized exchange of know-how and experience would considerably support and catalyse the institutional change towards sustainability in agriculture.

4.2 Agri–Environmental Policies

The challenges and difficulties of developing appropriate agri–environmental policies in six Central and Eastern European Countries (CEECs) in the light of EU accession have been analysed through comparative case studies in the CEESA Working Group on Policies. Half of the cases have investigated the difficulties of nature conservation and landscape management in marginal areas and the challenge of the Habitats and Birds Directives. The other three cases dealt with the agriculturally induced nitrate pollution of water resources and the implementational difficulties of the Nitrate Directive. Each country case study has examined a specific agri–environmental problem, highlighting particular aspects of agricultural production and policy systems in the region (Table 3).

Table 3: Case Studies of the Working Group on Policies

| Country | Authors | Agri–environmental Problem | Resource issues | Policy system issue |
|----------------|------------------------------|---|------------------|--|
| Czech Republic | Prazan, Rättinger, Krumalova | Species and landscape protection in the White Carpathians | Biodiversity | Designing effective organizations and policy instruments |
| Hungary | Szabó, Podmaniczky, Balázs | Species protection and landscape protection in Borsodi Mezőség | Biodiversity | Designing effective organizations and policy instruments |
| Lithuania | Zemeckis, Lazauskas | Groundwater pollution in karst landscapes | Water protection | The complexity of managing the policy system |
| Poland | Karaczun | Water pollution from animal waste in the Ostrołęka region, situated northeast of Warsaw | Water protection | National level (or the lack of) coordination between the Ministry of Agriculture and the Ministry of Environment |
| Slovakia | Kováč, Macák, Stehlo, Otepka | Nitrate pollution on Corn Island | Water protection | Implementing an effective mix of policy instruments |
| Slovenia | Barbic, Udovc | Environmentally sensitive rural development in the proposed National Park | Biodiversity | The level of participation in rural development at both regional and local levels |

The research in this group sought to uncover the way in which the policy system has changed in addressing the specific case–study problems since the late 1980s. Problems induced by the changes created by EU accession were also investigated (Figure 3). The research methods focused on documentation and in–depth interviews with key actors. The current agri–environmental programmes, national and key EU regulations relevant to the specific case–study problem were described, as well as the challenges they pose for the accession countries.

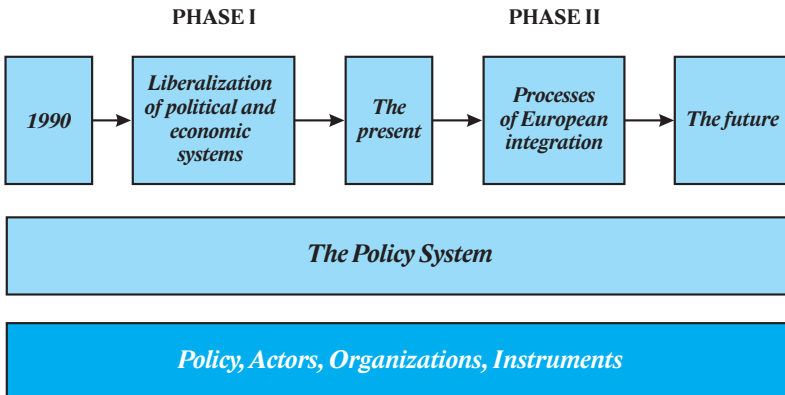
In this Working Group the following broad categories of findings were identified:

- Importance of agri–environmental issues on the political agenda,
- Complexity of the policy system and the need for a proper policy mix,
- Public environmental awareness and funding,
- The challenge of legislative harmonization, implementation and enforcement.

Importance of agri–environmental issues on the political agenda. The case studies revealed that during transition agri–environmental issues have received less attention in discussions on CEE agriculture by international agencies and academics because of the dismantling of the system of central planning and falling input intensities such as fertilizers and chemicals. However, our case studies pointed out that reducing agri–environmental assessments to little more than debates over intensification is inadequate. This viewpoint ignores problems that may emerge from small–scale production and inappropriate farm management practices, as well as the difficulties of preserving biodiversity and financing environmental improvements in a period of low returns from agricultural activities.

Despite the decreasing intensity of arable farming in all the countries, agri–environmental problems remain, such as nitrate pollution of water resources and a threat for further biodiversity loss. Nitrate pollution includes that from inadequate storage of manure on small farms and the inappropriate handling of other inputs. Therefore the need for careful monitoring and regulation even in an era of lower input farming still remains. As for biodiversity loss, the low input and low intensity agriculture that now characterizes much of the CEE region can be perceived in certain respects as an opportunity for environmental sustainability in the agricultural sector (Prazan et al.,

Figure 3: Investigating the Ways in which the Policy System Has Changed since the Late 1990s



2003). However, there is a fear that without appropriate policies and incentives to support extensive farming practices, enlargement will encourage both the re-intensification of fertile land and further abandonment in marginal and peripheral areas. These will have negative consequences for both the rural environment and the rural population.

Complexity of the policy system and the need for a proper policy mix. It was also concluded from the case-study observations that political change, subsequent to land reform and privatization programmes, has increased the complexity of policy system. This change and programmes have resulted in an increase in the number of farm holdings with different farm sizes, as well as diverse sets of rural actors with various degrees of specialization, education level, and skills. It should be noted that to certain degree Slovenia and Poland differ from the other CEECs in this respect because their agricultural farm structures have been dominated by small family farms pre- and post-1989. The break up of state and collective farms has promoted small-scale and fragmented ownership, especially where land is divided up between heirs. There are concerns that this has generated a new agrarian class that cannot adequately support itself. Many of the heirs are not engaged in agriculture, have no sector-specific skills nor are many of working age. Many farmers are inexperienced in the handling of agri-chemicals and fertilizers and are ignorant or unable to follow guidelines on good agricultural practice. Consequently, managing and enforcing appropriate regulations and providing adequate training for the increased number of agricultural operators has become more difficult (Karaczun et al., 2003).

There is a need for a proper mix of the economic, legal, institutional, educational and informational policy tools. The focus of future policy planning should be more on the use of economic instruments and less on the use of legal instruments. Up to now most of the CEECs have limited experience with positive incentives as legal restrictions and penalties are the predominant policy tools. In the socialist times environmental inspectorates had to rely almost exclusively on financial penalties to enforce legislative provisions. This 'command and punish' approach is inadequate for meeting key policy goals, especially where environmental maintenance depended upon the active cooperation of land managers. The CEECs would require a wide range of different policy instruments for nature and landscape conservation and environmental protection of natural resources. For example, in protected areas it is usually necessary to have more complete control of land use. However, on farmland outside of these protected zones (where a large number of important semi-natural habitats can be found) payments should be provided for farmers to carry out prescribed environmental management on a voluntary basis. Until recently only the Czech Republic and Slovenia used this possibility.

As highlighted by the case studies, dealing with agri-environmental problems will require (1) efficient regulatory and enforcement agencies and (2) national and international schemes that link agri-environmental policy to wider socio-economic ob-

jectives. This in turn will require the use of a wider range of policy tools, in which agri–environmental policy should not be seen merely as a set of constraints on farming practices but rather as part of a more positive framework for rural development. Integrated rural development implies the existence of linkages between economic, environmental, social and spatial aspects of rural life rather than having a primary focus on agriculture. As agricultural returns decline and employment in the sector falls there is a consequent need to develop non–farm rural economies and diversification. The successful development of rural diversification typically necessitates large–scale investment in infrastructure, services and non–agricultural sources of rural employment. Therefore the CEECs have a strong need for appropriate rural development in which environmental management and protection should be a central component. CEECs should avoid the high level of production subsidies typified by the CAP and should advance directly from centrally planned policies for agriculture to more integrated rural development policies in the future.

Public environmental awareness and public funding. There is a concern over the low funding and low political priority that agri–environmental matters receive in the CEECs where the economic and political transition dominates. A greater sectoral integration would be required in the applicant countries between agriculture and the environment. However, institutional barriers, the lack of cooperation between relevant actors and a low awareness of the possible economic and societal benefits pose challenges. The environment has not yet made it into mainstream politics and it is still marginalized. While the key stakeholder groups do not dispute the importance of environmental protection, many of them still see the environment as a sector that constitutes a continuous drain on country resources without measurable benefits for the economy.

The main pre–accession funds provided by the Commission for investment in environmental projects include:

- PHARE (institution building, industrial restructuring and SME development),
- SAPARD (for modernization of agriculture and rural development),
- ISPA (infrastructure projects in the fields of transport and environment).

The overall pre–accession assistance is 3 billion euros per year during the 2000–2006 period. (Half of this amount was allocated to Phare, 540 million euros went to SAPARD and 1 080 million euros were earmarked for ISPA in 2001.)

Other possible sources could include international financial institutions, such as:

- European Investment Bank (EIB),
- bilateral grants credit schemes,
- commercial bank loans,
- foreign direct investment,

- revenue generated from consumer charges, fees or taxes.

While the EU *acquis communautaire* generally does not dictate the use of specific policy approaches, the EU financing instruments implicitly or explicitly predetermine the solutions. The use of EU financing instruments should be made more flexible to speed up implementation through the use of innovative solutions. There is a lack of EU economic resources that facilitate effective and complete implementation responses to the requirements of the directives and the adaptation pressure imposed on domestic institutional arrangement. It is feared that this situation could result in incomplete and ambiguous implementation responses in the acceding countries. This might exacerbate the implementation deficit of EU environmental policy, which is particularly problematic in the existing Member States.

The challenge of legislative harmonization, implementation and enforcement.

The EC fears that the limited public and legal awareness in the environmental field might slow down the environmental performance of the enlarged Union. The Commission has learned from previous enlargements that ignoring environmental issues could be costly for the EU politically and economically (southern enlargement resulted in the set up of the Cohesion Fund). Therefore, the Commission is pushing the applicant countries to put the whole environmental *acquis* in place before accession.

Member States are not keen on allowing environmental gaps to continue for a long time after accession that would distort internal competition. The EU has been emphasizing that the applicant countries should go beyond the formal transposition of the environmental *acquis* and establish effective administrative practices, as well as concrete plans for practical implementation and financing. Applicant countries can require transition periods for implementing environmental directives that require heavy investment, but this was not an option for the Habitats and Birds Directives. Regarding the Nitrate Directive, Poland, Slovakia and Lithuania initially asked for derogation, but in 2001 they withdraw their transition-period requests.

From the applicant countries' point of view the pursuit of high environmental standards is difficult to accept during times of economic downturn. They may interpret the motives of some existing member states as trying to limit CEEC ability to enter potential markets when EU countries pursue and lobby for very strict environmental standards. It is difficult to envisage how the huge costs of environmental improvements on farms required for EU harmonization will be achieved in some CEECs that are characterized by small-scale production and low agricultural returns. The Commission has regularly emphasised that it can only partially contribute and encouraged the CEECs to seek out important domestic and foreign financial resources (particularly from the private sector).

In all countries environmental and nature conservation problems gained international significance through the ratification of several environmental treaties and

conventions. Nevertheless, a more intense Europeanization of the CEECs' environmental policy (including its water and biodiversity components) has occurred, which began with their EU integration process.

The integration of the CEECs into the EU clearly makes both the candidate countries and the EU confront unique challenges. For the applicant countries, meeting the requirements of the environmental *acquis* (i. e. the Community's environmental legislation) and putting it into practice are daunting tasks from financial, administrative and technical viewpoints. The relative weakness of environmental institutions in the applicant countries combined with the growing complexity of the *acquis communautaire* poses an additional threat to the effective implementation of this body of laws. The scope and depth of environmental legislation has substantially increased during the last decades (while 58 items of legislation were adopted in 1967–85, it increased to 611 in 1986–2000). Consequently, the scale of investment in the physical and administrative infrastructure required to meet the environmental standards is significantly higher than it was in, for example, the case of the Mediterranean countries' accession.

In addition, the candidate countries have to face a new approach promoted by EU environmental policy. They must establish basic procedures for improving environmental behaviour, while setting no concrete environmental targets to tackle environmental problems. This approach differs very much from the CEECs' traditional end-of-pipe policy style, which mainly required a technical-fix solution to environmental problems. The flexible approach urged by the EU environmental directives is a novelty for the CEE regulators and inspectors, as they used to deal with precisely detailed legislation with limited possibility for discretionary action. The effective implementation of the EU environmental policy will require higher environmental awareness and commitment not only from the national governments but also the applicant countries' general public. The change from having shortsighted and wasteful public attitudes (like those during the socialist era) to an environmentally responsible and cooperative attitude requires massive efforts in education, training and the improvement of local economies. This will take a long time to achieve.

The Europeanization process can be viewed as providing a catalyst for the development of agri-environmental policy in the CEECs. There is a widespread perception among policy elites in the CEECs that the EU integration process will have a positive effect on water quality and nature conservation. They believe that EU membership will encourage a closer cooperation among stakeholders/actors, and there will be a shift of responsibilities to a regional and local level to deal with the case study problems.

4.3 Farming Systems and the Environment

The transition to a market economy in the CEECs has influenced farming systems and the environment in many respects. The collapse of the planning economy and the transition from large state-owned and collective farms to private farms have implied that the organizational structure of farms have changed. A combination of several factors has also implied that a change of technology used on farms has occurred, as well as a change in the organization of resource provision and use on the farm. This in turn has affected the environment in various ways. Some of the influences of farming-system transition have been beneficial from an environmental point of view (e.g. reduced pressure from highly intense crop and animal production, reduced soil compaction), while some have been negative (e. g. threats to existing biodiversity reserves, increasing soil salinization). The new systems have been going through a transition period but are still not stable.

Six countries in CEE are considered to be Low Income Food Deficit Countries with considerable food security problems (Tanic, 2002a). The farming systems in CEECs are dualistic in structure. In other words, there are a small number of large-sized, market-oriented agricultural enterprises and a large number of small- and medium-sized family farms, often producing for subsistence and only partly producing for the market.

Five countries were examined in the CEESA Research Group on Farming Systems. In these countries different farm types and their main interaction with the environment were identified (Table 4). A crucial issue of the CEESA research in this group was to assess the sustainable development aspects of alternative farming systems.

The Working Group contributed to the following broad categories of findings detailed in the case studies:

- The causal link between changing farming structures and environmental impact,
- Land abandonment and loss of biodiversity,
- Soil degradation,
- Water pollution and nutrient leaching.

Farming structure and environmental impact. The group on farming systems observed a link between changing farming-system structures and the subsequent impact on environmental resources. This linkage, however, is not strictly positively or negatively correlated. For example, relating groundwater pollution levels with changing farming structures is difficult, as it can take long periods of time for nutrients to leach into the groundwater. In addition the non-point source character of the environmental impact makes it difficult to determine small or large-scale farming systems as the cause for pollution. Although large farming systems can be more

efficient in the treatment of agricultural waste, such as liquid manure, smaller subsistence and semi-subsistence farming systems contribute to the maintenance of biodiversity with traditional management practices (such as regular mowing of biodiverse meadows).

Table 4: Cases and Topics in the Farming Systems Group

| Country | Authors | Farming system ⁶ | Key features | Farm type | Resource issues | Approach to modelling of farming systems |
|----------|----------------------------|------------------------------------|--|------------------------------------|--|--|
| Bulgaria | Alexiev | Irrigated Systems in Rainfed Areas | Large-scale deteriorating irrigation schemes | Small and medium mixed family farm | Management of salt-affected soils, irrigation and secondary salinization | LP modelling with alternative technologies, multiple objectives; trade off between salinization and farm profit |
| Croatia | Grgic, Mesic | Mixed | Pressures to increase productivity and specialize | Small and medium family farm | Nutrient management and N leaching | Econometric modelling of N-response and N-leaching; effects of farming practices |
| Estonia | Hiiemäe | Forest Based Livestock | Scattered medium-large farms in extensive forestry | Small and large dairy farms | Landscape management, land abandonment | Environmental impact assessment supplemented with an analysis of agricultural policy and farm level effects; land use scenarios |
| Hungary | Podmaniczky, Balázs, Szabó | Mixed | Pressures to increase productivity and specialize | Large mixed farms | Management of environmental fragile areas and biodiversity losses | Spreadsheet calculations with qualitative judgement of economic and ecological sustainability, land use pressures and effects of policy incentives |
| Romania | Toma | Mixed | Pressures to increase productivity and specialize | Small and medium farms | Nutrient management and ground-water problems | Econometric modelling of farmers' preferences in activities concerning water quality; discrete choice models; random utility model |

⁶ Classification based on: Dixon, J. and A. Gulliver with D. Gibbon. 2001. Farming Systems and Poverty: Improving livelihoods in a changing world, FAO and World Bank, Rome, Italy and Washington, DC, USA. and Tanic, S. and F. Dauphin. 2001. Global Farming Systems Study: Challenges and Priorities to 2030 - Regional Analysis Eastern Europe and Central Asia, Rome, FAO

Land reforms and privatization in general have had important effects on CEE agriculture and the environment. Most former collective farmland was returned to former owners using historical information. A major reason for the negative effect of privatization on the environment was that the public assets, which were included in the privatization of land, lacked the necessary property rights regimes and the associated fair distribution of costs and benefits. The rights and duties connected to the public assets of privatized land were severely neglected⁷. Another difficulty resulting from the privatization process was land fragmentation⁸ and land abandonment (Tanic et al., 2001). The restitution of land to farmers has resulted in a large number of small plots. In addition, in many countries the giving of land titles has been slow, and the property rights have not been clear. Fragmented parcels of land are costly to manage and maintain, which often leads to abandonment of those fields.

Land abandonment. Large-scale abandonment of land is a recent trend in many of the CEECs. This abandonment serves as an indicator of the loss of rural cultural patterns. Abandonment indicates the presence of severe land-use problems. While land abandonment is common in most CEECs, it seems to be especially widespread in particular countries or regions. Abandonment may severely decrease the biodiversity and landscape values in countries such as Estonia. While agriculture in the major areas of Europe has intensified, there are still relatively large areas in the CEECs that are dominated by natural and semi-natural grasslands, areas that are rich in natural features or important for wildlife.

Because of low profitability, the possibility and motivation to invest in environmentally friendly practices is low. In Hungary, farmers in protected areas are asked to follow strict environmental regulations without sufficient compensation payments. In most cases observed, environmental sustainability is a function of input intensity levels and depends on the knowledge and management of how to use nutrients and other agro-chemicals (Sumelius, 2000). Farmers often lack resources to adopt to new technologies. This involves mostly small farms with several investment needs. Because of the restructuring of agricultural production and lack of employment opportunities in rural areas, many people (especially the young) have migrated to urban areas.

The Estonian case demonstrates that alternatives exist to cultivate abandoned land, however, the implementation depends on the institutional conditions. The Czech case shows that a large number of landowners rent their land to big operators for two reasons: (1) economic viability from small pieces of land is questionable and (2) farming them does not pay off because of the high duties associated with managing

⁷ The CEESA Working Group on Institutions has investigated further into this issue.

⁸ Latvia, Lithuania, Romania, Bulgaria and Estonia are the countries with the highest farm fragmentation. Individual farms have a share of 40 to 94 percent of the total agricultural land in their countries, and 25–95 percent of farms not bigger than 5 ha.

land in protected areas. In all CEESA cases insufficient returns from farming are regarded as an obstacle for adopting more environmentally friendly practices and for investing in environmental improvements.

Land abandonment may have both negative and positive impacts on the environment. In areas where the share of arable land is high and marginal land is left idle, environmental effects are positive if soil fertility and subsurface biodiversity are able to regenerate. In some areas where the share of arable land is small, land abandonment leads to a loss of open landscape and field ecosystems. In addition, land abandonment can cause soil acidification with subsequent growth of undesirable shrubs and bushes.

Soil degradation. Based on general analyses of the situation in the CEECs it is possible to conclude that the problem of excessive use of plant nutrients leading to water pollution was already common in the pre-transition period. The case studies show that in regions that still are intensively cultivated or have intensified only after transition, this problem continues to exist. With intensified production, and without implementing standards, the problem will remain. However, intensive agriculture is still an exception in light of a more general tendency toward “extensification” during transition, which is a consequence of a lack of sufficient plant–nutrient inputs for the soil. Therefore, the more widespread phenomena are those of land abandonment, nutrient depletion, a decrease in soil quality and subsequent impoverishment of biodiversity. In this case, the reserves of phosphorus and potassium tied to soil particles are depleted. This, in turn, aggravates processes of soil erosion and phosphorus runoff.

Soil degradation has been a major environmental problem in the CEE region. Being the most widespread problem area in agriculture, erosion also existed prior to the economic transition. Erosion, as well as compaction, is particularly common on the large-scale farms that are common in many of the CEECs. A severe phenomenon is also the salt accumulation that is taking place in some arid regions where agriculture is dependent on irrigation. This was the case observed in the Bulgarian case study. Widespread contamination with pesticides is not taking place (at least anymore), since these potentially hazardous inputs have experienced a decrease in use.

Water pollution. The case study carried out in the Cazanesti agricultural region, Romania, observed water pollution by fertilizers and pesticides used in agriculture. Although there has been a decrease in chemical–fertilizer use since the early 1990s, the maximum allowable limits of pollutants in groundwater are still high⁹. Relating groundwater pollution levels with changing farming structures is difficult, as it can take long periods of time for nutrients to leach into the groundwater. Groundwater in the case-study area showed high nitrate content, and sanitary controls revealed

⁹ This fact can be explained by the slower process of self-decontamination of groundwater as compared with surface water.

that water from wells exceed maximum allowable limits of pollutant concentrations, making the water undrinkable for humans or for animals.

Policy instruments based on a regulatory approach (e. g. taxes), are less promising in the Romanian case, as no (monitoring and sanctioning) mechanisms exist to match environmentally adverse behaviour and respective penalties. In addition the non–point source pollution characteristics limit the applicability of conventional policies.

It is therefore recommended to:

- establish water–quality incentive projects to provide financial assistance to farmers,
- design local participatory strategies and support environmental cooperatives and voluntary actions,
- support research on the environment and best management practices,
- design effective information and education programmes for farmers,
- establish a transparent mix of policies for sustainable water management.

Many environmental problems in transition countries were related to difficult farm–income conditions. In Romania and Bulgaria especially, large numbers of small farms require policies to support economically desirable and socially acceptable change. In this sense, environmental improvement can be regarded as directly linked to stable farm–income opportunities. To improve income opportunities and food security for the rural population, farming systems in CEECs will need to become more intensive but at the same time more sustainable and diversified (Tanic, 2002b). These farming systems have to provide that:

- farm productivity is sustained or enhanced over the long–term,
- adverse impacts on the natural resource base of agriculture and associated ecosystems are minimized or ameliorated,
- residues resulting from the use of chemicals in agriculture are minimized,
- the net social benefit derived from agriculture is maximized.

Such farming systems could improve the wellbeing of individual farming families by approaching both the private and social goals. They also need to be sufficiently flexible to manage risks associated with the variability of climate, markets and instituted policies. To be able to design and to develop such farming systems it is important to have appropriate knowledge about the environment (natural, social, economic and political) where farmers operate. This would assist them in the adoption of appropriate production and management practices. Achieving sustainable development in the farming sector requires solidarity and a sense of community, independence and empowerment among the farming community, which can help create a community–driven civil society (Petersen and Norman, 2002).

Property relations in Central and Eastern Europe also need to be taken into account. In many CEECs landowners are not farmers and there is a large number of tenant farmers. After privatization, many small landowners in CEECs sold or leased their land to large cooperatives or limited liability companies. These organizations pay very low rents, if any, and continue agricultural activities on a medium to large scale.

Conclusions

The findings of the CEESA Research Project have confirmed that the problem of institutional change in CEEC Agriculture and Environment rotates around two focal points:

- the field of tension between evolutionary change and accession,
- the difficulty of institutional reform in addressing environmental and social complexity at multiple levels of society in a coordinated, efficient and fair manner.

The Czech Republic, Estonia, Hungary, Latvia, Lithuania, Poland and Slovenia have been so successful in fulfilling the Copenhagen criteria for accession that on 13 December 2002, the European Council marked the end of the accession negotiations. It also scheduled the accession of these countries as full EU members on 1 May 2004.

Despite this success story, it also became evident that environmental criteria were not the sole yardstick for measuring success of institutional reform in agriculture and natural resources. Accession involved prioritizing criteria that need to be fulfilled. Achieving environmental goals for sustainable agriculture was only one among many other aims of the transition process and it primarily focused on the legal alignment with the environmental acquis of the EU. Moving towards sustainability in agriculture by adopting new legislative frameworks is an important first step. Although environmental criteria were fulfilled and the accession negotiations on the environmental chapters have been closed, the finesse of the accession negotiators sometimes belied the nature of some environmental problems in agriculture in their countries. Nevertheless, success should be credited.

The CEESA view on sustainability, however, was reached further. Accordingly, the process of transition towards sustainability in agriculture needs to be seen less optimistically. Achieving sustainability in agriculture by fulfilling a set of environmental criteria or adopting environmental legislation, represents only a fraction of the considerable tasks to create “institutions of sustainability”. Despite the dominating influence of institutional change driven by the forces of accession, this did not automatically alter all informal and formal routines, values, attitudes, mental models and patterns of governance. Some of these remain influenced by the legacies of the past.

Still open debate is the legitimate idea that the breakdown of post-socialist agricultural production (especially in the livestock and agricultural input sectors) has alleviated more environmental pressures than has the deliberate effort to craft new institutions for sustainable agriculture. Institutional change at the interface of agriculture and the environment needs time. The time granted for changing the CEECs' political and economic systems and fulfilling the accession criteria was limited from the start. It was argued that if accession would not happen within a certain time limit, the "historical window of opportunity would close." Therefore, accession took place at its own pace, regardless of the time actually needed for building adequate policies and institutions for governing the interactions between people and their natural environment.

The CEESA research has confirmed that many negative environmental impacts from agriculture can be solved by addressing basic economic requirements in CEE agriculture. Indispensable requirements for building institutions of sustainability in CEECs are: to alleviate poverty, provide for income security (either by improving economic viability of farming or creating off-farm income opportunities) and invest into human and social capital of rural populations. In order to make this process socially acceptable, transitional forms of locally adapted policies are needed. Active involvement of different stakeholders is required in order to continue structural change in agriculture that is socially acceptable and environmentally sound. In countries whose state and local representatives cannot be trusted, where corruption is a widespread phenomenon and legal security is not provided, the role of the state in solving agri-environmental problems should be given over to the problem-solving capacities of NGOs and local self-governance. In other countries, where the state performs in an uncoordinated manner and new strategies need to be designed, NGOs and farmer participation should cooperate with state authorities to seek solutions in the common interest. Both solutions can be fostered by building knowledge-exchange partnerships among CEECs and between Western European and CEE countries.

Evolutionary processes of institutional change are far more difficult to lead in a specific, intended direction for two reasons. First, they are strongly rooted in history and culture, and second, social and ecological system complexity adds a large number of unknown factors to the process of change towards sustainability. Nevertheless, investments in human and social capital are seriously needed in all countries in order to pave the way for sustainable agricultural development. For many environmental problem areas in agriculture this means that adequate incentive structures need to be provided in order to deal with both the commodity and the non-commodity goods and services produced by agriculture.

The awareness that certain environmental problems in agriculture may be solved better by different types of community effort and self-governance is only slowly seeping into the behavioural option sets of local actors. The reasons for this can be

found, in the lack of incentive payments (e. g. the case of Hungary), the general depressing economic and political situation in rural areas and non-agricultural sectors (e. g. the case of Bulgaria), or the depopulation and ageing of rural areas (e. g. Latvia, Hungary, Romania).

The new modes of EU environmental governance that base environmental protection on the principles of partnership and shared responsibility stand in sharp contrast to the CEE human and social capital stocks upon which these forms of governance would need to build. CEESA has given a positive example of mutual exchange of knowledge in the context of the CEESA PLWs. Such measures as the Institution Building Partnership Programme¹⁰ or the Twinning Projects should be initiated for the purpose of supporting the building of institutions of sustainability in agriculture and the environment through the exchange of knowledge and expertise among practitioners, policy-makers and researchers.

During the integration process the candidate countries will not be the only group impacted. The CEECs will affect the environmental performance and policy-making processes of the EU. Nevertheless, the CEECs influence on the EU agricultural and environmental policy has been very limited up to now. The asymmetric nature of policy relationships between the Old and New Members are so far skewed heavily in favour of the present EU. The enlargement process has been a top-down imposition of EU requirements on the CEECs, rather than a mutual adaptation between the parties. This situation might raise serious problems of both democratic legitimacy and effectiveness. The problem of institutional match at different levels of democratic decision-making is also reflected in the resource management problems in agriculture and the environment at the local scale.

If rules at regional and national levels can not guarantee democratic, efficient and environmentally sound operation, it is unlikely that the local governance structure will be successful in doing so. Furthermore, even if an enabling institutional environment is created, the financial and human resources for designing institutions remain difficult to find. These are important to ensure the implementation, monitoring and enforcement of specific actions.

¹⁰ This programme supporting civil society and local initiatives is designed to support an institution building process for successful transition towards a market economy, the reinforcement of democracy and civil society and the establishment of the rule of law. This is to be done through partnership between NGOs, local and regional authorities or not-for-profit professional organizations from the EU, Tacis countries and from the countries benefiting from the Phare programme.

REFERENCES

BAKER, S. 2001. *The Impact of Eastern Enlargement on EU Environmental Governance*. Paper presented at the Environmental Studies Workshop, “Environmental Challenges of EU Eastern Enlargement”, Robert Schumann Centre, EUI, Florence, 25–26 June.

BECKMAN, A. 2002. *Growing in the Right Direction*. Szentendre, Hungary. Regional Environmental Centre (available at www.rec.org).

BOGER, S. 2001. Agricultural Markets in Transition: An Empirical Study on Contracts and Transaction Costs in the Polish Hog Sector. In K. HAGEDORN & V. BECKMANN, eds. *Institutional Change in Agriculture and Natural Resources*. Vol. 4. Aachen, Shaker.

BREM, M. 2001. Landwirtschaftliche Unternehmen im Transformationsprozess: Ein Beitrag zur Theorie der Restrukturierung während des Übergangs vom Plan zum Markt. In K. HAGEDORN & V. BECKMANN, eds. *Institutional Change in Agriculture and Natural Resources*. Vol. 1. Aachen, Shaker.

DIXON, J.; GULLIVER, A. & GIBBON, D. 2001. *Farming Systems and Poverty: Improving livelihoods in a changing world*. FAO and World Bank, Rome, Italy and Washington, DC, USA.

DOVERS, S. 2001. *Institutions for Sustainability*. Centre for Resource and Environmental Studies, The Australian National University, Canberra.

FAO (Food and Agriculture Organization of the United Nations). 1999. *Central and Eastern European Sustainable Agriculture Network*. Proceedings of the First Workshop, 2–7 March, Gödöllő. REU Technical Series 61. Rome, FAO.

GATZWEILER, F. 2003. *Patterns of Institutional Change for Sustainability in Central and Eastern European Agriculture*. CEESA Discussion Paper No. 17, Humboldt University of Berlin, Department of Agricultural Economics and Social Science, Chair of Resource Economics (available at www.ceesa.de).

GATZWEILER, F., SIPILÄINEN, T., BÄCKMAN, S. & ZELLEI, A. 2001. *Analysing Institutions, Policies, and Farming Systems for Sustainable Agriculture in Central and Eastern European Countries in Transition*. CEESA Discussion Paper No. 2, Humboldt University of Berlin, Dept. of Agricultural Economics and Social Science, Chair of Resource Economics (available at www.ceesa.de).

GATZWEILER, F. W. & HAGEDORN, K. 2002. The Evolution of Institutions in Transition. *International Journal of Agricultural Resources, Governance and Ecology*, 2(1): 37–58.

HAGEDORN, K. 1999. Opening Remarks. In FAO (Food and Agriculture Organization of the United Nations). 1999. *Central and Eastern European Sustainable Agriculture Network*. Proceedings of the First Workshop, 2–7 March, Gödöllő. REU Technical Series 61. Rome, FAO.

HAGEDORN, K., ARZT, K. & PETERS, U. 2002. Institutional Arrangements for Environmental Co-operatives: a Conceptual Framework. In K. HAGEDORN, ed. *Environmental Co-operation and Institutional Change. Theories and Policies for European Agriculture*. Cheltenham, Edward Elgar.

IBRAHIM, G and GALT, V. 2002. *Bye-bye Central Planning, Hello Market Hiccups: Institutional Transition in Romania*. *Cambridge Journal of Economics*, 26: 105–118.

KARACZUN, Z., LOWE, P. & ZELLEI, A. 2003. The Challenge of the Nitrate Directive to Acceding Countries: A Comparative Analysis of Poland, Lithuania and Slovakia. In F. W. GATZWEILER & K. HAGEDORN, eds. *Institutional Change in Central and Eastern European Agriculture and Environment*. Vol. 2. Food and Agriculture Organization of the United Nations (FAO) and Humboldt University of Berlin (forthcoming).

LUNDVALL, B. A. 2002. The Learning Economy: Challenges to Economic Theory and Policy. In G. M. HODGSON, ed. *A Modern Reader in Institutional and Evolutionary Economics*. Cheltenham, Edward Elgar.

OECD. 1999. *Environment in the Transition to a Market Economy*. Paris, OECD Publications.

OSTROM, E., GARDENER, R. and WALKER, J., eds. 1994. *Rules, Games, and Common-Pool Resources*. Ann Arbor, University of Michigan Press.

OSTROM, E. 1995. Designing Complexity to Govern Complexity. In S. HANNA & M. MUNASINGHE, eds. *Property Rights and the Environment. Social and Ecological Issues*. Beijer International Institute of Ecological Economics and World Bank, Stockholm.

PAVEL, F. 2001. Success and Failure of Post-Communist Transition: Theory and an Application to Bulgaria. In K. HAGEDORN & V. BECKMANN, eds. *Institutional Change in Agriculture and Natural Resources*. Vol. 2. Aachen, Shaker.

PENOV, I., THEESFELD, I. & GATZWEILER, F. W. 2003. Irrigation and Water Regulation Systems in Transition: The Case of Bulgaria in Comparison with Latvia, East Germany and Romania. In F. W. GATZWEILER & K. HAGEDORN, eds. *Institutional Change in Central and Eastern European Agriculture and Environment, CEESA/FAO Series*. Vol. 3. Food and Agriculture Organization of the United Nations (FAO) and Humboldt University of Berlin (forthcoming).

PETERSEN, J. M. & NORMAN, D. W. 2002. Sustainable Farming Systems in Central and Eastern European Countries. In F. W. GATZWEILER, R. JUDIS & K. HAGEDORN, eds. *Sustainable Agriculture in Central and Eastern European Countries. The Environmental Effects of Transition and Needs for Change*. Proceedings of the ACE Phare Seminar, 10–16 Sept. 2001, Nitra, Slovakia. Aachen, Shaker.

PRAZAN, J., RATINGER, T., KRUMALOVA, V., LOWE, P. & ZELLEI, A. 2003. Maintaining High Natural Value Landscapes in an Enlarged Europe: A Comparative Analysis of the Czech Republic, Hungary and Slovenia. In F. W. GATZWEILER & K. HAGEDORN, eds. *Institutional Change in Central and Eastern European Agriculture and Environment*. Vol. 1. Food and Agriculture Organization of the United Nations and Humboldt University of Berlin (forthcoming).

REC (Regional Environmental Center for Central and Eastern Europe). 1994. *Strategic Environmental Issues and Eastern Europe*. Vol. 2. p. 10 (available at www.rec.org).

SCHLÜTER, A. 2001. Institutioneller Wandel und Transformation: Restitution, Transformation und Privatisierung in der Tschechischen Landwirtschaft. In K. HAGEDORN & V. BECKMANN, eds. *Institutional Change in Agriculture and Natural Resources*. Vol. 3. Aachen, Shaker.

SHLEIFER, A. and VISHNY, R. W. 1998. *The Grabbing Hand. Government Pathologies and Their Cures*. Cambridge: Harvard University Press.

SIKOR, T. 2002. *The Commons in Transition*. CEESA Discussion Paper No. 10, Humboldt University of Berlin, Dept. of Agricultural Economics and Social Science, Chair of Resource Economics (available at www.ceesa.de).

SUMELIUS, J. 2000. *A Review of the State of Sustainability of Farming Systems in Selected CEECs*. Working Paper, Farm Management and Production Economics Service, Agricultural Support Services Division. Rome, FAO.

TANIC, S. 2002a. Agri–environmental Challenges to Farming Systems in Transition. In F. GATZWEILER & K. HAGEDORN & R. JUDIS, eds. *Sustainable Agriculture in Central and Eastern European Countries. The Environmental Effects of Transition and Needs for Change*. Proceedings of the ACE Phare Seminar, 10–16 Sept. 2001, Nitra, Slovakia. Aachen, Shaker.

TANIC, S. 2002b. *Farming Systems in CEE and the FAO Approach*. Presentation at the CEESA Parallel Session, 10. East–West Agricultural Forum, January 17, International Green Week Berlin.

TANIC, S. & DAUPHIN, F. 2001. *Global Farming Systems Study: Challenges and Priorities to 2030 – Regional Analysis Eastern Europe and Central Asia*. Rome, FAO.

TANIC, S., SIPILÄINEN, T., BÄCKMAN, S. & SUMELIUS, J., eds. 2001. *Description of Current Farming Systems in Central and Eastern European Countries*. D4 Re-

port of the Central and Eastern European Sustainable Agriculture (CEESA) Project submitted to the EU Commission. Budapest, FAO SEUR.

THEESFELD, I. 2001. *Constraints for Collective Action in Bulgaria's Irrigation Sector*. CEESA Discussion Paper No. 5, Humboldt University of Berlin, Department of Agricultural Economics and Social Science, Chair of Resource Economics, (available at www.ceesa.de).

WILLIAMSON, O. 2000. The New Institutional Economics: Taking Stock, Looking Ahead. *Journal of Economic Literature*, Vol. XXXVIII, pp. 595–613.

ZELLEI, A. 2001. Challenges for Agri–Environmental Policies in CEE Countries. Ceesa Discussion Paper 3, Chair of Resource Economics, Humboldt University of Berlin, www.ceesa.de.

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APPENDIX 1: OVERVIEW OF CEESA CASE STUDIES

| CEESA Case Study Overview | |
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| <p>POLAND Implementation of the Nitrate Directive (Policies)</p> | |
| <ul style="list-style-type: none"> • Great reliance on agricultural incomes; poor infrastructure and mechanization in rural areas; small and fragmented farming structure. • Unfavourable general hydrological and bio–physical conditions; 95 percent of farms lack manure pits or liquid manure containers; many households depend on ground water from wells. • Large investments necessary to comply with the EU nitrate directive. • Existing national law harmonization, but difficult to implement, monitor and enforce (because of a lack of cooperation among authorities and poor transfer of knowledge to farmers). • Possible discrepancy between legal harmonization and actual implementation, investments and environmental improvements (because of position–based accession negotiations). | |
| <p>Housing vs. Agriculture (Institutions)</p> | |
| <ul style="list-style-type: none"> • Master plans elaborated by local county governments (because of decentralization), forming the legal basis for the conversion of agricultural land to housing land or spatial development (mining, infrastructure). • Rules for the protection of land not monitored. • Lack of environmental groups (lobby). • Decreasing profitability of agricultural production (so farmers sell their land). • Conversion of agricultural land in suburban areas reinforced by migration into the cities. • Decline of agricultural and landscape biodiversity (from conversion process). • County self–governments gain from increased tax revenues (from the conversion of agricultural land use to housing). | |
| <p>SLOVAKIA Implementation of the Nitrate Directive (Policies)</p> | |
| <ul style="list-style-type: none"> • Modest land reclamation and consequently land fragmentation not too serious. • Emergence of fewer large cooperatives and large farms (in contrast with, e. g. Lithuania). • Insufficient sewage systems. • High nitrogen concentrations in groundwater. • Expectations of using EU funds to facilitate requirements of the EU directives. • Insufficient national funds. | |

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| <p style="text-align: center;">CZECH REPUBLIC Agriculture vs. landscape protection (Institutions and Policies)</p> |
| <ul style="list-style-type: none"> • Semi–natural grassland rich in biodiversity, partly covered by forest. • Biodiversity protection dependent on traditional farming practices. • Few large entrepreneurs rent land from a great number of owners. • Conflicting goals and policy instruments of different authorities of the area (MoA and MoE). • New NGO helps integrate environmental and agricultural goals; trust gradually evolves. • EU accession: SAPARD will strengthen the influence of the MoA and Natura 2000 will strengthen the MoE and PLA. • EU accession expected to change support schemes and power relations. • Farmers largely excluded from policy planning. |
| <p style="text-align: center;">BULGARIA Irrigation Systems (Institutions)</p> |
| <ul style="list-style-type: none"> • Rundown irrigation channels and missing equipment. • Water monitoring largely developed for main canals, but non–existent for internal canals. • Poorly developed coordination, conflict resolution and sanctioning mechanisms. • No participation by water users in system management . • Unclear and partially exercised property rights for water resources and the infrastructure for water use . • Unreliable water supply and non–transparent organization of irrigation institutions. • Land fragmentation and dissolution of old cooperatives (because of land restitution). • Ageing rural population. • Weakly developed collective action and other social capital assets of local actors. • Opportunistic behaviour and “rule of fist”. |
| <p style="text-align: center;">Salinization in the Plovdiv Agricultural Region (Farming Systems)</p> |
| <ul style="list-style-type: none"> • Land fragmentation – an obstacle for efficient resource use. • Uncertain water supply from irrigation systems make farmers use dug wells (ground water with higher mineral concentrations). • Salt accumulation reduces the efficiency of nutrient assimilation. • Increase of salinization during transition from lack of education, knowledge and skills in management practices (crop rotation, deep tillage, irrigation); these factors prevent the improvement of the situation. • Small farm structures and subsistence farming cannot invest in soil improvement (e.g. machinery needed for deep tillage). • Necessity of reconstruction of the canal network (but impossible for small farmers alone). |

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| <p style="text-align: center;">LATVIA Drainage System Abandonment (Institutions)</p> <ul style="list-style-type: none"> • Land abandonment (and deterioration of drainage infrastructure) from agricultural market conditions (mainly subsistence farming today), land privatization and fragmentation. • Drainage structures related to the large-scale collective farm structure (Privatization was based on the pre-Soviet ownership of land. New land ownership was established according to the former land borders of pre-1940, not taking into account the borders of hydrological watersheds and drainage systems.). • Often unclear property rights (especially regarding the common service characteristics of the drainage system); Unevenly distributed duties (e.g. Maintenance). • Weak social cohesion among actors. • Ageing rural population. • Human capital: lack of basic agricultural education. • Heavy reliance on and high expectations of the government. |
| <p style="text-align: center;">CROATIA Nitrogen leaching in Lonja fields' protected area (Farming Systems)</p> <ul style="list-style-type: none"> • Predominant small private family farms. • Narrow crop rotation; low effectiveness of fertilization; high share of acidic soils. • Nutrient leaching in areas close to a natural park. • Tillage practices affect nitrogen leaching . • Lack of training and education in alternative management practices. • Croatian farming systems more intensive; evidence of rising NO₃-N-levels in groundwater; contaminated groundwater. • Three economic instruments for reducing NO₃-N-leaching analysed: a fertilizer tax, a product tax and a fertilizer quota (corresponding to both of these taxes). • Need for a Code of Good Agricultural Practices. |

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| <p style="text-align: center;">HUNGAR Policies in Landscape Protected Areas (Policies)</p> |
| <ul style="list-style-type: none"> • Difficult enforcement and implementation of environmental regulation. • Sharp decrease in number of livestock (threatens maintenance of the landscape and its biodiversity value). • Protected Landscape Area: 70 percent state-owned. • Buffer zone: 94 percent of farms privately owned. • Landscape Protection Authority rents land to farmers with strict management prescriptions (no financial incentives to rent). • Most farmers have less than 2 ha each. • Ageing population with limited knowledge or interest in environmentally friendly farming practices. • Weak cooperation between the Ministry of Agriculture and Ministry of Environment. • Need for organizations providing conservation education and advice to farmers. • Insufficient involvement of local actors in formulating management practices and development activities in the area. |
| <p style="text-align: center;">Farming in Landscape Protected Areas (Farming Systems)</p> |
| <ul style="list-style-type: none"> • National park directorate contracts farmers to manage protected areas. • Lack of NGOs to educate or advise farmers in environmentally friendly practices. • Farmers lack knowledge and information about nature conservation issues. • Less concern by farmers about nature protection (because of economic pressures). • Farming not viable (because lack of compensation payments); agri-environmental payments expected. |
| <p style="text-align: center;">SLOVENIA Farming in Protected Areas (Policies)</p> |
| <ul style="list-style-type: none"> • Case-study area: proposed regional park covering an upland area of natural forest and semi-natural grassland. • Extensive traditional farm practices not economically viable (leads to depopulation and land abandonment). • Most producers are small-scale family farms. • Clear property rights (from the continuity of the land ownership structure). • Land rarely rented or sold. • Additional income sources for rural population (e.g. tourism, crafts) from plural nature of activities in farming. • Insufficient involvement of local actors in designation process of the regional park and other development activities. • Main concern: reach an appropriate balance in the area between conservation and rural development. • Several NGOs, but weak cooperation among them. |

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| <p style="text-align: center;">ESTONIA Land Abandonment and Changes in Land Use (Farming Systems)</p> <ul style="list-style-type: none"> • Decline in agricultural land use. • Dual farming structure: large enterprises (avg. 700 ha) and family farms (avg. 35 ha); average farm size is 20 ha; total of 3 167 farms. • Ageing rural population; enterprises and private farms share entire productive area. • Most fertile lands in Estonia; forests; protected species. • Decrease in agricultural land and increase in forest land. • Land abandonment is threat to landscape diversity in Ogeva County. • Reduction of land which may be qualified for direct payments. |
| <p style="text-align: center;">LITHUANIA Water Quality Protection in Environmentally Fragile Karst Areas (Policies)</p> <ul style="list-style-type: none"> • Dramatic increase in farm numbers from privatisation (restitution). • Limited implementation and enforcement of new water protection laws in agriculture (from lack of funding and lower rank of responsible institutions). • Redefinition of problem level: from a local (groundwater pollution in Karst regions) to an (inter)national level. • Technocratic transposition of rules of the Nitrate Directive. • Difficulty in making effective implementation and monitoring (from increase in number of farms with different sizes, diverse actors, degree of specialization and level of education). • Establishment of new advisory service especially for medium and small scale farmers with the help of Denmark. • Personnel continuity in agencies that are obliged to control farming activities. • Limited knowledge of environmental control methods and limited access to information by small farmers. |
| <p style="text-align: center;">ROMANIA Non-point Source Pollution from Farming (Farming Systems)</p> <ul style="list-style-type: none"> • Constant number of farms; small number of large agricultural associations. • Few changes in land use during the last decade; ageing rural population, “pluriactive” households. • Low percentage of farmers with main occupation in agriculture. • Large number of livestock farms, increasing number of dairy farms. • Contribution of agricultural activities to physical, chemical and biological degradation of soil; insufficient manure storage facilities. • Despite high education level of farm managers, lack of available cash, credit and knowledge regarding appropriate fertilizer and agro-chemical applications. |

APPENDIX 2: CEESA DOCUMENTATION

Seminar Proceedings and Books

FAO (Food and Agriculture Organization of the United Nations). 1999. *Central and Eastern European Sustainable Agriculture Network*. Proceedings of the First Workshop, 2–7 March, Gödöllő. REU Technical Series 61. Rome, FAO.

GATZWEILER, F. W. 2003. Synopsis of the Central and Eastern European Sustainable Agriculture Project (CEESA). In F. W. GATZWEILER & K. HAGEDORN, eds. *Institutional Change in Central and Eastern European Agriculture and Environment*, Vol. 4, Food and Agriculture Organization of the United Nations (FAO) and Humboldt University of Berlin.

GATZWEILER, F. W. & HAGEDORN, K., eds. 2003. *Institutional Change in Central and Eastern European Agriculture and Environment*. Vol. 1–4, Food and Agriculture Organization of the United Nations (FAO) and Humboldt University of Berlin.

GATZWEILER, F. W., Judis, R. & Hagedorn, K., eds. 2002. *Sustainable Agriculture in Central and Eastern European Countries: The Environmental Effects of Transition and Needs for Change*. Proceedings of the ACE Phare Seminar, Aachen, Shaker.

KARACZUN, Z., LOWE, P. & ZELLEI, A. 2003. The Challenge of the Nitrate Directive to Acceding Countries: A Comparative Analysis of Poland, Lithuania and Slovakia. In F. W. GATZWEILER & K. HAGEDORN, eds. *Institutional Change in Central and Eastern European Agriculture and Environment*, Vol. 2, Food and Agriculture Organization of the United Nations (FAO) and Humboldt University of Berlin.

PENOV, I., THEESFELD, I. & GATZWEILER, F. W. 2003. Irrigation and Water Regulation Systems in Transition: The Case of Bulgaria in Comparison with Latvia, East Germany and Romania. In F. W. GATZWEILER & K. HAGEDORN, eds. *Institutional Change in Central and Eastern European Agriculture and Environment*, Vol. 3, Food and Agriculture Organization of the United Nations (FAO) and Humboldt University of Berlin.

PRAZAN, J., RATINGER, T., KRUMALOVA, V., LOWE, P. & ZELLEI, A. 2003. Maintaining High Natural Value Landscapes in an Enlarged Europe: A Comparative Analysis of the Czech Republic, Hungary and Slovenia. In F. W. GATZWEILER & K. HAGEDORN, eds. *Institutional Change in Central and Eastern European Agriculture and Environment*, Vol. 1, Food and Agriculture Organization of the United Nations (FAO) and Humboldt University of Berlin.

CEESA Deliverable Reports

BÄCKMAN, S., SIPILÄINEN, T. & SUMELIUS, J., eds. 2001. *Analysis of Environmental Impact of Farming Systems in Five Central and Eastern European Countries*. D7 Report of the Central and Eastern Sustainable Agriculture (CEESA) Project submitted to the EU Commission. Helsinki–Helsingfors, University of Helsinki.

BÄCKMAN, S., SIPILÄINEN, T., SUMELIUS, J. & TANIC, S., eds. 2002. *Comparative Analysis of Alternative Sustainable Farming Systems*. D10 Report of the Central and Eastern Sustainable Agriculture (CEESA) Project submitted to the EU Commission. Helsinki–Helsingfors, University of Helsinki.

HAGEDORN, K., GATZWEILER, F. W. & JUDIS, R., eds. 2000. *Documentation of Conflicts and Environmental Problems Related to Agriculture in Twelve CEE Countries*. D1 Report of the Central and Eastern European Sustainable Agriculture (CEESA) Project submitted to the EU Commission. Berlin, Humboldt University of Berlin, Chair of Resource Economics.

HAGEDORN, K. & JUDIS, R., eds. 2000. *Description of Institutions of Sustainability in Central and Eastern European Countries*. D2 Report of the Central and Eastern European Sustainable Agriculture (CEESA) Project submitted to the EU Commission. Berlin, Humboldt University of Berlin, Chair of Resource Economics.

HAGEDORN, K. & SIKOR, T., eds. 2002. *Alternative Concepts of Institutions of Sustainability in Central and Eastern European Countries*. D8 Report of the Central and Eastern Sustainable Agriculture (CEESA) Project submitted to the EU Commission. Berlin, Humboldt University of Berlin, Chair of Resource Economics.

SLANGEN, L. H. G., van KOOTEN, C. G., SUCHANEK, P. & van OOSTEN, R., eds. 2001. *Institutions of Sustainability in Central and Eastern European Countries*. D5 Report of the Central and Eastern European Sustainable Agriculture (CEESA) Project submitted to the EU Commission. Wageningen, Wageningen University.

TANIC, S., SIPILÄINEN, T., BÄCKMAN, S. & SUMELIUS, J., eds. 2001. *Description of Current Farming Systems in Central and Eastern European Countries*. D4 Report of the Central and Eastern European Sustainable Agriculture (CEESA) Project submitted to the EU Commission. Budapest, FAO SEUR.

ZELLEI, A., GORTON, M. & LOWE, P., eds. 2001. *Description of Agri–Environmental Policies in Central and Eastern European Countries*. D3 Report of the Central and Eastern European Sustainable Agriculture (CEESA) Project submitted to the EU Commission. Newcastle, University of Newcastle.

ZELLEI, A., GORTON, M. & LOWE, P., eds. 2002. *Alternatives Concepts of Agri–Environmental Policies in Central and Eastern European Countries*. D9 Report

of the Central and Eastern European Sustainable Agriculture (CEESA) Project submitted to the EU Commission. Newcastle, University of Newcastle.

ZELLEI, A., GORTON, M., LOWE, P. & MINOIU, D., eds. 2001. *Description of Agri-Environmental Policies in Central and Eastern European Countries*. D6 Report of the Central and Eastern European Sustainable Agriculture (CEESA) Project submitted to the EU Commission. Newcastle, University of Newcastle.

CEESA Discussion Papers

BALAZS, K., PODMANICZKY, L. & BALAZS, A. 2002. *Agri-environmental Practices in Order to Preserve Biodiversity and Landscape in Hungary*. CEESA Discussion Paper No. 14. Berlin, Humboldt University of Berlin, Dept. of Agricultural Economics and Social Science, Chair of Resource Economics, (available at <http://www.ceesa.de>).

GATZWEILER, F. W. 2003. *Patterns of Institutional Change for Sustainability in Central and Eastern European Agriculture*. CEESA Discussion Paper No. 17. Berlin, Humboldt University of Berlin, Dept. of Agricultural Economics and Social Science, Chair of Resource Economics (available at <http://www.ceesa.de>).

GATZWEILER, F. W. & HAGEDORN, K. 2001. *The Evolution of Institutions in Transition*. CEESA Discussion Paper No. 4. Berlin, Humboldt University of Berlin, Dept. Of Agricultural Economics and Social Science, Chair of Resource Economics (available at <http://www.ceesa.de>).

GATZWEILER, F. W., SIPILÄINEN, T., BÄCKMAN, S. & ZELLEI, A. 2001. *Analysing Institutions, Policies, Farming Systems for Sustainable Agriculture in Central and Eastern European Countries in Transition*. CEESA Discussion Paper No. 2. Berlin, Humboldt University of Berlin, Dept. of Agricultural Economics and Social Science, Chair of Resource Economics (available at <http://www.ceesa.de>).

LASCHEWSKI, L. 2003. *Systems of Local Self-Administration after Agricultural Transformation – Experiences of a Local Resource Management Project in East Germany*. CEESA Discussion Paper No.12. Berlin, Humboldt University of Berlin, Dept. of Agricultural Economics and Social Science, Chair of Resource Economics (available at <http://www.ceesa.de>).

PENOV, I. 2002. *The Use of Irrigation Water During Transition in Bulgaria's Plovdiv Region*. CEESA Discussion Paper No. 7. Berlin, Humboldt University of Berlin, Dept. of Agricultural Economics and Social Science, Chair of Resource Economics (available at <http://www.ceesa.de>).

RATINGER, T. & KRUMALOVA, V. 2002. *Provision of Environmental Goods on Potentially Abandoned Land – The White Carpathians Protected Landscape Area*. CEESA Discussion Paper No. 6. Berlin, Humboldt University of Berlin, Dept. of Ag-

ricultural Economics and Social Science, Chair of Resource Economics (available at <http://www.ceesa.de>).

SCHLEYER, Ch. 2002. *Economic and Ecological Transformation Processes in East German Water Management Regimes: The Role of Property Rights and Governance Structures*. CEESA Discussion Paper No. 9. Berlin, Humboldt University of Berlin, Dept. of Agricultural Economics and Social Science, Chair of Resource Economics (available at <http://www.ceesa.de>).

SIKOR, T. 2002. *The Commons in Transition*. CEESA Discussion Paper No. 10. Berlin, Humboldt University of Berlin, Dept. of Agricultural Economics and Social Science, Chair of Resource Economics (available at <http://www.ceesa.de>).

SLANGEN, L. H. G. 2001. *Sustainable agriculture – getting the institutions right*. CEESA Discussion Paper No. 1. Berlin, Humboldt University of Berlin, Dept. of Agricultural Economics and Social Science, Chair of Resource Economics, (available at <http://www.ceesa.de>).

SUMELIUS, J., GRGIC, Z., MESIC, M. & FRANIC, R. 2002. *Farm Level Cost of Reducing Nitrate Leaching by Economic Instruments in Croatian Farming Systems*. CEESA Discussion Paper No. 11. Berlin, Humboldt University of Berlin, Dept. of Agricultural Economics and Social Science, Chair of Resource Economics (available at <http://www.ceesa.de>).

THEESFELD, I. 2001. *Constraints for Collective Action in Bulgaria's Irrigation Sector*. CEESA Discussion Paper No. 5. Berlin, Humboldt University of Berlin, Dept. of Agricultural Economics and Social Science, Chair of Resource Economics, (available at <http://www.ceesa.de>).

TOMA, L. 2003. *Policy Recommendations for Pursuing a Sustainable Agriculture in a Small Rural Community in Romania*. CEESA Discussion Paper No. 13. Berlin, Humboldt University of Berlin, Chair of Resource Economics, Dept. of Agricultural Economics and Social Science (available at <http://www.ceesa.de>).

UDOVC, A. & BARBIC, A. 2003. *Protection of the Environment and Biodiversity for Sustainable Future of Rural Areas: The case of Planned Regional Park Trnovski Gozd, Slovenia*. CEESA Discussion Paper No. 15. Berlin, Humboldt University of Berlin, Dept. of Agricultural Economics and Social Science, Chair of Resource Economics (available at <http://www.ceesa.de>).

WASILEWSKI A. & SIKOR, T. 2003. *Institutional Options for the Protection of Open Space: Evidence from Poland*. CEESA Discussion Paper No. 16. Berlin, Humboldt University of Berlin, Dept. of Agricultural Economics and Social Science, Chair of Resource Economics (available at <http://www.ceesa.de>).

WASILEWSKI, A. & KRUKOWSKI, K. 2002. *Land Conversion for Suburban Housing: A Study of Urbanization around Warsaw and Olsztyn, Poland*. CEESA

Discussion Paper No. 8. Berlin, Humboldt University of Berlin, Dept. of Agricultural Economics and Social Science, Chair of Resource Economics (available at <http://www.ceesa.de>).

ZELLEI, A. 2001. *Challenges for Agri–Environmental Policies in CEE Countries*. CEESA Discussion Paper No. 3. Berlin, Humboldt University of Berlin, Dept. Of Agricultural Economics and Social Science, Chair of Resource Economics (available at <http://www.ceesa.de>).