

Rural Sustainable Development in the Knowledge Society

Edited by
Karl Bruckmeier
Hilary Tovey



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preface

Presentation of the CORASOn Project (2004–2007)

Studying rural and sustainable development as ongoing processes in 12 European countries, *co Ra Son* (a cognitive approach to Rural Sustainable Development – an EU-funded research project) started from the interpretations of these concepts by rural actors, in policy programmes, and in public administration and planning. A series of case studies identified trends in rural and sustainable development that reveal the changing nature of development processes on the way towards a knowledge society.

The chapters of this book illustrate the different preconditions and contexts which come into play when rural development strategies are linked to strategies for sustainable development. There is more similarity and common understanding among rural actors about the concept, the goals and the nature of rural development than about sustainable development. The changing meanings given to rural development over time are reflected in scientific discourses, in the policy process, and by relevant rural actors. The concept of sustainable development is much more difficult to introduce into practice through the policy process, because of the complexity of the idea, its nature as an essentially contested concept, and the presence of counteracting interests among rural and other actors.

To concretize both concepts and to enable comparison between the processes which occur under each, the chapters in this book, based on *co Ra Son* case studies, illustrate different practices of resource management, which is a component in both rural and sustainable development objectives. Sustainable resource management is a unifying topic across the following case studies from the countries participating in *co Ra Son*, and is closely connected to a second topic, knowledge use by actors involved in rural development. The chapters are organized under two overarching themes: (1) rural development with regard to diversification and innovation in rural economies, and (2) rural development with regard to environmental and sustainability issues. The connections between these two themes, as illustrated in the case studies, are shown in emerging ideas, practices and strategies for sustainable resource management found in the *co Ra Son* project.

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We dedicate this book to the memory of Jonathan Murdoch, rural sociologist, colleague and friend who has gone so early

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List of abbreviations and glossary

Agenda 21 a blueprint for action to be taken globally, nationally and locally by organizations of the UN, governments, and major groups in every area in which humans affect the environment in the 21st century

CAP Common Agricultural Policy – a system of EU agricultural subsidies and programmes

CITES Convention on international trade in endangered Species of wild Fauna and Flora

CORASON a cognitive approach to Rural Sustainable Development

CORINE coordinate information on the environment

COST European Cooperation in the field of Scientific and Technical Research

EquAL eQual is part of the EU's strategy for more and better jobs and for ensuring that no one is denied access to them.

ERDF European Regional Development Fund

FFH Fauna, Flora and habitats; the FFH Directive (Directive 92/43/EEC) concerns the protection of natural and semi-natural habitats and wild fauna and flora

FAO Food and Agriculture Organization of the United Nations

GDP gross Domestic product

In TERREG a EU initiative to stimulate interregional cooperation

ISO international organization for Standardization

LAG local action group

LEADER II Programme EU-funded initiative for rural development; the successor programme is known as LEADER+

LEONARDO the Leonardo da Vinci programme focuses on the teaching and training needs of those involved in vocational education and training.

LETS local exchange trading System

LIA local implementation area

LIFE The EU's financial instrument supporting environmental and nature conservation projects throughout the EU

natura 2000 EU-wide network of nature protection areas with the aim of assuring the long-term survival of Europe's most valuable and threatened

species and habitats. It is comprised of Special Areas of Conservation (SACs) designated by member States under the Habitats Directive, and also incorporates Special Protection Areas (SPAs) which they designate under the 1979 Birds Directive.

NGO Non-governmental organizations

NR Natural Resources

NTS Nomenclature of Territorial Statistical Units; a system of classification of regions across the EU used by the European Commission. For the purposes of Structural Funds, the most important are the so-called NUTS II regions and NUTS III regions

OECD Organization for Economic Cooperation and Economic Development

Riparian Habitat Aquatic and terrestrial habitat adjacent to streams, lakes, estuaries or other waterways

RRA Regional Research Area

SAPARD Special Accession Programme for Agriculture and Rural Development

SME Small and medium-sized enterprise

SRM Sustainable Resource Management

Structural Funds Seek to address economic and social cohesion in the EU by reducing the disparities between levels of development in Europe's regions; regions with Objective 1 status have a GDP per capita of less than 75 per cent of the EU average; Objective 2 of the funds is to support the economic and social conversion of areas facing structural difficulties

Subsidiarity The principle whereby the EU does not take action (except in the areas which fall within its exclusive competence) unless it is more effective than action taken at national, regional or local level

UNDP United Nations Development Programme

UNESCO United Nations Educational, Scientific and Cultural Organization

introduction

natural Resource management for Rural Sustainable Development

Karl Bruckmeier and Hilary Tovey

This book presents some results of research which was conducted as part of the co Ra Son project, a cross-national study of on-going processes of rural sustainable development in 12 European countries which was funded under the EU Framework Six Research programme over 30 months between 2004 and 2007. co Ra Son is an acronym for 'conditions for Rural Sustainable Development' and its research started from the interpretations of the concepts of rural development and sustainable development used by rural actors, in policy programmes, and in public administration and planning. A series of case studies identified trends in rural and sustainable development that reveal the changing nature of development processes on the way towards a rural knowledge society.

The chapters of this book illustrate the different preconditions and contexts which emerge as relevant when rural development strategies are to be connected with strategies for sustainable development. It seems clear that there is more similarity and common understanding among rural actors about the nature of rural development, what the problems are and how they are to be dealt with, than about that of sustainable development. The changing meanings given to rural development over time are reflected in scientific discourses, in the policy process, and by relevant rural actors, and are by now well documented social practices. The concept of sustainable development is much more difficult to introduce into practice through the policy process, because of the complexity of the idea of sustainability, its nature as an essentially contested concept, and the presence of counteracting interests among rural and other actors that block redirection of development processes towards a new path.

To concretize both concepts, and to allow comparison of the processes which occur under each, we focus here on ideas and practices of resource management, as this is a core component in both rural and sustainable development objectives. Sustainable resource management is a unifying topic across the case studies which were carried out in the countries participating in co Ra Son, and it is closely connected to a second topic, that of knowledge use by actors involved in rural development. co Ra Son's approach was to deal with knowledge, not as prior to, but as part of, social interaction processes through which new social realities are going to unfold, in a manner described as 'path transformation' (Djelic and Quack 2007). This type of knowledge-related perspective, although found more broadly

in sociology, is rarely used in rural sociology and this became a motive for the research project.

The chapters which follow are organized under two overarching themes: (1) rural development with regard to diversification and innovation in rural economies, and (2) rural development with regard to environmental and sustainability issues. Connecting these two themes allows us to identify and discuss emerging ideas, practices and strategies for sustainable resource management which were found in the CoRaSon case studies and are summarized in the concluding chapter of this book. In addition, however, the case studies document how difficult it is to access the transition processes towards sustainability in the European countryside using established quantitative and qualitative methods of social research. The research focused on some specific themes: land use management and civil society practices of participatory development were taken as key trends framing more specific processes of local food production, non-agricultural rural economy, innovative rural development, nature protection and bio-diversity management, and sustainable resource management, which were to be studied through regional and local case studies. A range of different methods was used, from interpreting statistical data to documentary analysis and, in the context of the case studies, qualitative interviews; the aim was to use an open methodology, as in much social anthropology, to find the seeds of new knowledge practices in rural development. But too often the dominant reality of social and political routines was experienced as sterilizing the change and transformation processes we were looking for. This happens both in the conventional way of dealing with the idea of sustainable development as a policy-guided development process, unfolding in top-down approaches of implementing pre-fabricated development models by way of administrative implementation machineries that specify the process for different local contexts; and in more nuanced forms, where the same powerful institutions have co-opted a variety of non-political stakeholders by way of notions of participatory development.

The CORASOn Research: Knowledge Processes for Sustainable Development

CoRaSon's overarching objective was to identify and explain the dynamics and variety of knowledge forms ('expert' and 'lay' – ranging from scientific, economic, administrative, and managerial forms to local, practical, and ecological knowledge, traditional repertoires, trial and error or experientially-based discoveries) used in rural projects in relation to rural economic development, rural civil society and the protection of rural nature. Associated with this were three further objectives:

- to open up the concept of 'sustainability' to examination in the context of rural development, and the knowledge combinations relevant to this
- to track the emergence of a knowledge society with all its inherent difficulties and varying forms across rural Europe, and the impact of these on social inclusion or exclusion and inequality

- to develop an evaluation of the social, cultural and institutional sustainability of these different forms of knowledge and of the interactions between them.

The research was carried out by a consortium of researchers from 12 European countries. These were drawn geographically from the European 'rim': east (Hungary, Poland, Czech Republic), South (Greece, Italy, Spain), west (Portugal, Ireland, Scotland) and north (Sweden, Norway, Germany). They were selected using the 'Green Ring' hypothesis (Granberg, Kovach and Tovey 2001), and it is important to note that some 'core' European countries, in particular those with established agrarian histories and traditions (such as France), were not included in the study. The participating countries and research institutions represent a variety of different social, political and historical backgrounds, lifestyles, economic traditions and cultures (including some distinctive variations within a single state, as in the cases of Scotland and East Germany). An important commonality across all the participating countries is the significance which rural culture and agricultural or an agriculturally based economy have had in their political, cultural and economic lives, even after the secular societal processes of industrialization and modernization. As the EU expands in members, and as European countries become more interconnected through shared policy frameworks, cross-national networks, and the trans-national communication of ideas, a capacity to grasp both commonality and differences between European states can significantly influence the understanding of how 'rural sustainable development' is being implemented on the ground and in development practices. Whether this 'Europeanization' represents only a new bureaucratic layer of policy, or whether it enhances path transformation and transition to sustainable rural development, is a question that recurred throughout the research.

Our interest in knowledge dynamics within rural society grew out of two contexts. The first is the current movement towards a 'knowledge society', widely supported across European countries and within EU policy as the way to achieve economically competitive societies, which are also potentially more democratic and place fewer burdens on the environment and natural resources. The impact of this movement on rural change is unclear. While rural areas are often seen as rich in natural resources for societal development, they are also often seen as areas with deficits in capacities and knowledge. We adopted a critical approach to the concept of a knowledge society, placing the expert forms of knowledge (scientific and technological) that dominate it within a broader understanding of knowledge that includes lay and popular forms of cognition.

The second context is the increasing emphasis which has been placed over the last decade on achieving development which is sustainable, both for society as a whole and for rural areas and social groups. In Co Ra Son, sustainable development was, as a preliminary step, understood as a knowledge-based set of practices, used by social actors who are brought together by a shared desire to achieve transition towards a situation which is, at the beginning of the process, only vaguely formulated in terms of goals, visions or wanted future states. The

political rhetoric of maintaining 'living' rural areas, in the sense of socially attractive, economically prosperous, and environmentally sound rural economies, can be understood as part of such joint efforts to make sense of an unclear idea. However, several of our case studies suggest that where expert-dominated and elitist development models are dominant, the standardized rhetoric that splits sustainable development into social, economic and ecological sustainability works more to block than to enhance rural development.

to assume that programmes, projects, and development practices aiming at (1) a knowledge society and (2) sustainable development somehow melt together into an enabling condition for transition to sustainability is too simple as an idea, and predefines too quickly a new social reality which has as yet scarcely taken root in the social practices of rural actors. In early two decades of agri-environmental policies in some EU countries have still not produced a broad consensus about ecologically sustainable development, and there is even less consensus about its links with the other two components, social and economic. And although consensus is growing on the importance of including a broad variety of social actors, with their respective interests and knowledges, in strategies for sustainable development, expert knowledge has generally played the dominant part and science has re-asserted its aspiration to provide the only relevant knowledge, as the intensity of debates and research about sustainability in such disciplines as sociology, policy sciences, economics, ecology, and in interdisciplinary subjects shows.

In reaction to this neglect of lay actors, and of tacit, local or lay knowledge, it seemed important to study more systematically what roles they can and do play in this process as it develops within rural areas. The process of transition towards sustainability, it can be hypothesized, is one which takes place over generations, and one that will become rapidly more difficult, as not only institutional limitations but also deteriorating environmental conditions for economic development, such as degradation of ecosystems, exhaustion of natural resources, bio-diversity reduction and climate change, require action for which, despite the abundance of scientific knowledge, not enough applied knowledge, which could guide social action on resource management, is available. This reveals something of the nature of the coming knowledge society, as one in which the explosion of stored scientific knowledge conceals ignorance when knowledge is to be used for the practical solution of complex problems; it may be one of the reasons why such improvisatory ideas like 'transdisciplinary knowledge production' are currently attracting so much attention.

Munnich, Schrock and Cook (2002), pursuing some similar questions to our own, have used the concept of 'rural knowledge clusters', a concept which comes from firm-based industrial development and innovation processes, to analyse how rural economies can become competitive and innovative.¹ Our analysis of

¹ This framework augments the traditional industry cluster model by placing added emphasis on the instrumental role of knowledge as the driver of innovation and competitive advantage. This is especially important for rural economies, where advantages

the emergence of the rural knowledge society starts instead from an ecological point of view, assuming that rural areas are key areas for the societal transition to sustainable development as natural resources are largely found there. With the growth of the idea of sustainability, rural areas have gained new economic significance in the post-industrial and post-agricultural phase of development, as a reservoir of resources and potential for further development that has to support most of the tentative practices that aim at this transition, such as bio-energy production on agricultural land. This new significance of rural areas is visible in the manifold reactivations of the countryside as a diversifying, locally based agricultural economy encompassing new forms of production (including organic and non-food production), small-scale food processing, new forms of rural tourism, innovatory non-agricultural rural economy, and new forms of managing the complex natural resources, ecosystems and landscapes, which are found in, or related to, rural areas and policy approaches under ideas such as integrated rural development, resource management or sustainable development. In Co Ra Son, these reactivations, their varying social and institutional forms, and their use of different forms of knowledge, was the subject of case-study research through which we sought to contribute to a comparative analysis of the emergence of a European knowledge society, identifying the roles of policies and of a variety of rural actors in managing this transition and the combinations of knowledge forms and processes of knowledge management which may be involved.

This approach to researching rural sustainable development differs from the more conventional one of reviewing and assessing sustainable development as articulated in scientific and political discourses. In this project we tried to encompass the main interpretations of sustainable development held by different actors in rural development – including both governmental (national, regional, EU administrations) and non-governmental (community groups, local networks, civil society associations, NGOs) actors – in order to understand what these interpretations might imply for the organization of sustainable rural development. While we devoted considerable attention to the policy process, it did not provide the dominant framework for the research. We were interested in broader and more pluralistic frameworks, a broader knowledge-base than scientific and managerial knowledge alone, and a broader interpretation of ‘rural development’ itself as something which is more than a political–managerial process. Rural development, from our perspective, includes a range of components: social, as in creating new sustainable livelihoods for, and by, rural populations; economic, as in redistributing economic and other resources to enable a socially inclusive development process; and ecological, in the sense of ‘navigating’ the connected development of social systems and ecosystems (benkes, colling and Folke 2003).

of agglomeration, scale economies, and highly articulated inter-industry linkages – key ingredients of successful metropolitan clusters – are less evident. Furthermore, this framework is consistent with the idea of knowledge as the fundamental basis of competitive advantage in the globalized economy.’ (Munnich, Schrock and Cook 2002, 7)

thus, where much research has emphasized evaluation, seeking to judge success or failure or to identify ‘best practices’ for sustainable development through policy processes, coRaSon’s approach was more open, descriptive and exploratory, aiming to grasp some of the new practices in the difficult transition to sustainability that often fall out of sight in conventional frameworks of policy analysis.

The core question the research sought to answer was, what knowledge is used, and how is it used, by rural actors in the rural development process to specify the concept of rural sustainable development? In a more systematic form we asked: how do different understandings of the (sustainable) future of rural areas in Europe help to value and promote some kinds of knowledge more than others? Through answering these questions we hope for a better understanding of how an emergent ‘knowledge society’ is being constructed and formed within rural areas in Europe as an emerging multi-faceted and regionally differentiated social reality.

Researching Sustainable Development

From the outset, we recognized that the ‘sustainable development’ discourse is characterized by variation and disagreement, both political and scientific. Sustainable development has been described as an ‘essentially contested concept’ (Jacobs 1999), and as a ‘discourse coalition’ (Hajer 1995). It can be seen as a ‘battlefield of knowledge’ (Long 1992) in which different participants disagree over who is entitled to produce the relevant knowledge for its interpretation, which knowledge is accessible and understandable for whom, and how knowledge sharing and integration is to be negotiated. From another point of view it works as a ‘bridging concept’, providing some general principles (such as intra- and intergenerational solidarity, or maintenance of the natural resource base) on which different actors following different interests can more or less easily agree. These accounts – battlefield or bridge – imply contradictory practices, yet both sets of practices are required to drive the transdisciplinary discourses that could guide the long transition towards sustainability. In coRaSon we referred to sustainable development as a ‘platform concept’, to indicate how the discourse is driven by consensus at the level of principles and also by disagreements and controversies at the operational level, so that it is subject to ongoing interpretation and reinterpretation of its ‘central’ meanings.

It seems fruitless to deal with this concept in a conventional way, such as identifying its scientifically or politically formulated meanings and then finding adequate ways to ensure their diffusion, social anchoring and the building of consensus around them. Although this has not been well documented in scientific and policy processes since the quest for global sustainable development was embarked on in the early 1990s, it could have been learned early in these processes that sustainable development is not an idea that can be grasped and fixed in a scientifically sanctioned meaning but that it continually evades standardization; it describes a moving target which is continually informed by

new and changing knowledge, changing interests and institutional conditions both locally and globally. To apply the idea successfully would require its continual modification, updating, and improvement. It is already a significant result that the idea of sustainable development has been frozen in a mainstream notion of a balance between social, economic and ecological sustainability. This can be understood as a capitulation to the complexity of the goals to be achieved, not as a consensus which signals a movement towards a shared understanding and progressive realization of the guiding ideal. In other words, the mainstream version of sustainable development can be seen as wishful thinking, an aspiration to capture and integrate all the problems of development that have never before been capable of integrated resolution in modern societies. This wishful thinking does not address the preconditions for far reaching institutional change that would be required for the transition to sustainability.

The concept of sustainable development is by now widely disseminated in many national and international policy documents and agreements, but using these sources to interpret its goals and search for their implementation through policy programmes would produce a fragmentary picture of change. It would not allow us to see the development processes in total and over the long run, in the trans-political social practices in which sustainable development is incorporated. An alternative to policy analysis, used in Co Ra Son, was to try to establish how and whether sustainable development is being realized in knowledge-guided practices in rural Europe today. National strategies for sustainable development, guided by international strategies, as for example in EU policies and in the global 'agenda 21', generally include rural areas within their remit but they do not always make any clear distinction between sustainable development in general, and rural sustainable development discourses and practices. Particularly in those versions which articulate ecological modernization perspectives, which have become the mainstream model in EU countries since the 1990s, there has been little specification of how this might be implemented for rural areas or what its implications are for the use of rural resources (see Bruckmeier and Tovey 2008).

Differences in national, regional and local situations, in rural development policies and in scientific traditions of rural research make it implausible to treat rural sustainable development as a single coherent discourse. Rather, it appears in many variants, some irreconcilable with each other, and large parts of the discourses develop outside policy processes and practices. In beginning the CORASON research, we did not expect to find a correlation between the coherent theoretical constructions of science and the (probably pre-analytic) visions of sustainable development held by rural actors. Rather than start with a predefined concept and look for indicators to measure progress towards the predefined goals, we decided to research the multi-faceted knowledge practices of rural actors who are themselves engaged in some form of rural development programme or project. In negotiated situations like these, a political rhetoric of 'joint goals' or 'visions' works more as a 'symbolic platform' on which the different actors can meet, using the same concepts while still following their specific aims and purposes.

Scientific interpretations of sustainable development tend to be rather general, lacking cultural, social or historical specification. This may relate to their emergence within a global discourse and to their concern to formulate universalistic understandings of sustainability which would be culturally neutral. However, over time there have been shifts in the scientific discourse: the imperative of ‘maintaining the global resource base for future generations’ of the earlier period has given way to a focus on the conditions for maintaining biological and socio-cultural diversity. Sustainable development has thus come to indicate the necessity of identifying local, ecologically and culturally specific forms of appropriate development.

This shift towards recognizing that sustainable development cannot be a standardized concept has been strengthened by research into ‘non-equilibrium ecology’ (Scoones 1999) and inter- or transdisciplinary knowledge integration (Nowotny, Scott and Gibbons 2001; Thompson Klein et al. 2001). With the general trend towards interdisciplinary approaches such as ‘sustainability science’, or the approach constructed by ecologists, ecological economists and anthropologists of ‘integrating social and ecological systems’ with a ‘human-in-ecosystem’ or ‘dwelling’ perspective (Berkes, Golding and Folke 2003), it has become increasingly apparent that attempts to define, explicate or model the concept of sustainable development and to construct indicators for it are simultaneously debates about changing knowledge for sustainable (rural) development.

Thus there is an important link between the concept of sustainable development as it is used here and our second key issue for research – knowledge forms and knowledge use. Our focus is on the actor-specific practices of knowledge use in rural development: how actors interpret, apply and combine abstract terms such as sustainability with their own knowledge about development and about natural resources and processes; and the socio-cultural variation associated with this. While the attempt to develop an interdisciplinary sustainability science supports the importance of recognizing local and regional differentiation in rural sustainable development, it tends to assume that analysing variety at the level of ecosystem research ‘automatically’ makes socio-cultural variety also visible. Co-Ra Son, on the other hand, inquired directly into socio-cultural variety (the dynamics of ideas, concepts and knowledge forms used by different actors that shape rural development processes) and this may be its main contribution to the ongoing debates.

The Bureaucratic Practice of Sustainable Development: Legislative Enactments and Policy Programmes from the Participating Countries

A summary of cross-national trends in the policy-guided practice of sustainable rural development can be found in the comparative report on sustainable resource management from Co-Ra Son (Brockmeier, Tovey, Mooney 2006). Here we draw on that information base to describe some key trends country by country, in order to place the case studies which follow into a wider context. politico-

administrative practices and strategies for sustainable development influence in many ways the practices of rural development that we observed through regional and local case studies, but they do not determine these, nor even create consensus among the actors involved in spite of their coordinating aspirations. They give rise to different and contradicting practices among rural actors. This is evident even at the level of studying the political 'input' itself – programmes for rural sustainable development – where the initiatives appear as de-synchronized: some countries start the policies rather late, and most countries have rather unclear goals and expectations.

Norway

Sustainable development is predominantly linked to environmental concerns, while social and economic dimensions are less specified. Nevertheless it is not a strong guiding concept, nor is the concept of sustainable resource management; objectives that may address both can be found under different headings, different national policies, programmes and laws. Agenda 21 is the most explicit policy framework, having been adopted in a National Agenda 21. There are also two specific laws which influence the process of sustainable development with regard to rural areas: the planning and building act and the nature conservation act. Sustainable resource management is not used as a guiding concept in policy programmes but it has an effect through such specific laws which influence resource use. A tentative conclusion is that in the Norwegian case, sustainable development as a general concept used at the national level should be differentiated from its concretization at local levels, which happens primarily through resource management strategies.

Sweden

Here, a strategy of sustainable development similar to that of the European Commission has been adopted, but the underlying approach of ecological modernization has been more explicitly spelled out, providing a clearer interpretation of the otherwise vague idea of sustainability. The Swedish strategy follows a centralized approach, leaving little scope for regional strategies, and the idea of addressing rural aspects and problems of sustainable development came rather late; the strategy is dominated by the rebuilding of industrial society, less by rural reconstruction. Since the 1990s several events have accelerated the process: the introduction in 1999 of a unified environmental code with 15 (later 16) national environmental quality objectives, the introduction of a national strategy for sustainable development in 2001, and a two-step formulation of a strategy for sustainable rural development with subsequent programmes for rural development for 2000–2006 and 2007–2013. Sustainable resource management is shaped by the policy of ecological modernization as an economic innovation process driven by the development of 'clean' and 'green' technologies and products in both industrial and agricultural production.

Germany

a national strategy for sustainable development which follows the ‘classical three pillar approach’ of social, economic and ecological sustainability has developed into a more specified programme with a mix of sectoral, thematic and geographical priority areas and 21 goals. The national strategy was set out in 2002 and reviewed in 2004, and an updated strategy was produced in 2005. As with the Norwegian strategy, at the national level the ecological component is dominant, and this is also visible in the pilot programmes which guide its implementation (programmes for energy production, renewable primary products, sustainable forestry, and bio-diversity management). Beyond this, the policy process is characterized by the presence of support institutions (governmental advisory councils) and by the formulation of regional strategies through the federal states (Länder). Sustainable resource management is framed through nature conservation policy; but as a process it is more influenced by spatial planning than by legislative acts.

Scotland

Scottish strategies are conditioned by those of the UK in general (which emerged out of criticism of the EU-strategy as incoherent) and claim to go beyond the ‘simplistic understanding’ of the three pillar approach. However they do not reject this model, but rather expand it, by including additional dimensions and by formulating more specific priority areas (sustainable consumption and production, climate change and energy, natural resource protection and environmental enhancement, sustainable communities). These priorities reveal similarities with other national strategies; and the definition of sustainable development used in UK and Scottish strategies is not far from the EU definition which echoes the idea in the Brundtland² report of intergenerational solidarity. Both the EU and UK definitions, with their core concept of ‘quality of life’, could be interpreted as prioritizing social sustainability as the dominant process. However, this is a controversial interpretation. The Scottish research for CoRaSoN focused on the natural resource use and management components of sustainability, following the argument: resource use is the key to sustainable development, and UK/Scottish sustainable development strategy makes a clearer connection between sustainable development and sustainable resource management than is found in many of the other national strategies.

Ireland

The Irish strategy for sustainable development, similar in some respects to the German, is an example of a mix of sectoral, thematic and geographical priorities. In contrast to many of the other country-based reports, the Irish report identified the

² The Brundtland Commission, formally the World Commission on Environment and Development (WCED).

economic dimension as dominant and prioritized in the government's understanding of sustainable development. In relation to natural resource management, the report emphasizes the influences of EU policy and of national sectoral and regional development policies. While the national strategy for sustainable development itself does not do this, our research suggested a need to differentiate between sustainable resource management as environmental resource management (long-term strategy, future generations) and as economic resource management (short-term strategy, present generations), thus suggesting that these two dimensions of environmental and economic sustainability have different time horizons.

Portugal

The concepts of sustainable development and sustainable resource management have been adopted very late in Portuguese national discourses, political agendas and civil society. A national strategy for sustainable development was only completed (after several years of discussion) in 2005 and had not yet started to influence policies and resource management practices at the time of our research. These, therefore, need to be conceptualized within a framework of 'first generation' approaches to sustainable development where the idea took shape very gradually and primarily with regard to rural development: the agri-environmental measures introduced with the 1992 reform of the common agricultural policy, specific nature and species protection directives from the EU (Birds and Habitat Directive, Natura 2000 network), local Agenda 21 processes (these represented the first commitment, in 2002, to sustainable development in Portuguese public policy, but at municipal levels only) and finally the recent national strategy. This unfolding of the idea of sustainable development within public policy over time could nearly be described as a paradigmatic process of societal 'learning the way into sustainability': starting from limited linkages in sectoral policies (agriculture and nature protection) and at local levels (local Agenda 21) and growing into a nationwide strategy with a more holistic guiding idea.

Poland

Poland was one of the accession countries that formulated a national strategy for sustainable development rather early, in 2000 (the 'Poland Strategy of Sustainable Development 2025'). However, this strategy, along with other national policy documents and programmes which influenced it, has scarcely been implemented. All the policy documents describe a series of principles that specify or go together with the idea of sustainable development; these are primarily 'political rhetoric' and have not reached into the rural development process, rural actors and areas – they are not widely known or well understood. The way the ideas of sustainable development and sustainable resource management entered into Polish policy processes and discourses can be described as an 'importation of a strange idea' that has come with EU membership and is something like a price to be paid for

eu membership. Both ideas dissolve into a series of general principles which are meant to be observed in all policy sectors; however, the compatibility of these multiple principles is not discussed in the policy process.

Czech Republic

The Czech Strategy of Sustainable Development, adopted in 2004, follows the basic idea in the EU strategy of balancing the separate dimensions of social, economic and environmental sustainability. The process of adopting a Genda 21 started earlier. The national strategy is mainly understood as a long-term policy framework to comply with international commitments of the country as a member of international organizations. It was formulated – as in many other EU countries – through a broad consultation process that included many stakeholders, political, economic and other. It was also expected that formulating the strategy would be a way to improve the quality of life of the population and to strengthen the democratic process and politics by encouraging active participation of many groups. The practice of implementation, however, is difficult to describe – not only because of the short time since enactment of the strategy, but also because of the complex system of policy programmes and guiding documents supporting regional development. The impression is that – with somewhat less scepticism than in Poland – rural actors perceive sustainable development mainly as an idea that came with EU membership.

Hungary

Here too the recently adopted national strategy for sustainable development follows principles and ideas that have been formulated in EU strategy, again reproducing the three separate dimensions of social, economic and ecological sustainability. However, in contrast to many other countries, the Hungarian strategy is interpreted in our research as prioritizing the social dimension of sustainability over the economic and environmental; that the three dimensions are linked is nevertheless envisaged in the argument that social sustainability can only be realized through successful economic development and environmental sustainability. Whereas the strategy includes a number of different priority areas that justify the assessment that it is highlighting social sustainability (e.g. quality of life, equal opportunity, public participation), its weakness appears to lie in the lack of implementation up to now. Sustainable resource management is not specified within the broader context of discourses about sustainable development, but can be found in reference to practical aspects of resource use.

Spain

The policy context of sustainable development and sustainable resource management appears to be best understood here from a temporal perspective, emerging after the transition to democracy which was quickly followed by integration of the

country into the eu and the common european market. a national strategy for sustainable development was published in 2002 but never implemented, so that the eu considered it in a 2004 analysis as still 'under preparation'. the dilemma of implementing a national strategy is linked to the limited power of the central state, which has no legislative competence and plays more of a coordinating role in regional legislation. Sustainable resource management works as an umbrella concept to link many sectoral policies, specified through a series of laws guiding these policies. however, the complicated division of power and responsibility between the central state and the regions makes the policy process complicated – in the end, both sustainable development and resource management become confusing concepts which are mentioned in many laws but have no detailed implementation codes (as for example in the 2003 law for land management which does not include regulations to make the law operative).

Italy

The Italian national policy for sustainable development is influenced by EU and international policies, and also by agenda 21. however, most national legislation still follows a conservation strategy more than one of sustainable development; we could say that the italian national strategy focuses on environmental problems, which is also suggested by the 2004 analysis by the eu commission which characterized it as a strategy to decouple environmental sustainability or resource use from economic growth. also, the process of rebuilding the governance system with national, regional, provincial, municipal and territorial institutions is still incomplete, which tends to make the policy process inoperative and complicated. although a national strategy for sustainable development has existed since 2000, the important legislation with regard to rural development is the legislation on protected areas and on sustainable use of energy from 1991. the traditional preservationist approach to natural resources found in most italian law prevents the emergence of a more comprehensive and wide-ranging perspective that would be compatible with an evolving idea of sustainable development.

Greece

the greek research for co Ra Son provided a problem-oriented analysis of the processes of policy formulation and implementation, emphasizing its deficits in practice, which can be summarized as: lack of overall planning and of provision of holistic development frameworks; bureaucratic prerogatives and biases; lack of coordination between administrative tiers and levels; inadequate translation of theoretical theses into local visions; lack of integration of sustainability concerns into sectoral policy designs; lack of adequate political dedication and will; lack of human and civil capacity at the local level; and inadequate take-up of innovatory solutions and modernization schemes. All of these deficits make a rural policy for sustainable development difficult, but not necessarily doomed to fail. Regarding

sustainable resource management, natural resources can be seen as important for Greek economic development policy, but there is no institutionalized land-use planning system, and the development of rural areas tends to be determined by conflicts over the use of natural resources rather than by planning.

It is much easier to summarize strategies for sustainable development than for sustainable resource management because the former have now been formulated as national strategies by all the countries concerned. Using the tentative classification suggested by the European Commission in 2004 one can differentiate between:

- countries that follow a 'framework strategy'-model of sustainable development (Greece, Spain, Portugal, Poland, Czech Republic) and
- countries that follow an 'action programme'-model or mixed model (UK, Ireland, Sweden, Germany).

beyond that, one can identify:

- a group of countries where, in spite of differences in the strategies, there is a dominant interpretation of sustainable development as environmental or ecological sustainability (Norway, Italy, Hungary according to the analysis of the EU, although the CoRason research interprets the Hungarian national strategy as prioritizing social improvement or social sustainability; Greece according to our research, although not according to EU analysis)
- countries where the classical three-dimensional approach is adopted (Germany, Greece, Ireland, Portugal, Spain, Sweden) and
- countries where additional dimensions are defined in the national strategies (a cultural dimension in the Czech Republic and Poland; community governance in UK/Scotland).

Whether all the three 'dimensions' of social, economic and ecological sustainability are covered in the strategies cannot easily be answered with 'yes' or 'no'. These three components are interpreted differently across the countries and in very few cases is it recognized that the issue is not just one of 'three or more dimensions', but of grasping a holistic view of sustainable development that takes all the important structural determinants from systems and subsystems in society and nature into account. Adding 'more dimensions' has been limited to adding a cultural dimension (which could be seen as already included in the social dimension), or introducing into the general formulation of a concept of sustainable development some specific institutions or action components such as communities. Few of the countries follow only a two-dimensional approach, identified by the European Commission in the Italian case (decoupling economic growth from environmental degradation). In some countries the legislative basis for sustainable development is more dominant, where the concept is translated into a number of specific laws. However, even then the implementation process is not necessarily more coherent,

homogeneous and consequential than in other countries for which sustainable development remains just a broad and vague category in policy frameworks.

How are Sustainable Development and Sustainable Resource Management understood by Different Social Groups?

Our research shows that sustainable development is interpreted differently, not only by governmental and non-governmental actors, but also through differentiating practices visible at regional and local levels that could be called 'cultural traditions of resource use'. The interpretations of sustainable development and sustainable resource management that emerged from the research pose a number of questions: Who has and should have definition power for sustainable development and sustainable resource use – scientists or political actors? At what level of action (national, regional, local) does sustainable development become effective? How are the concepts of 'sustainable development' and 'sustainable resource management' substantially understood: as nature conservation, as focusing on natural resources, or as more than that? Who are the rural social groups that argue for a specific interpretation of both of these guiding concepts? Summarizing the trends provides some answers to these questions:

- The Hungarian research provided an example of a systematic analysis of the understanding of sustainable development by scientific, political and social actors at different levels. It shows that the use of the concept is splintered, clearly following actors' specific interests. Such splintered use seems likely to be found in most of the other countries too, although with different types and combinations of interest groups.
- The Norwegian research raised the question of whether the local level is adequate for the practical realization of sustainable development and resource management. Attempts to appropriate these concepts through local definitions and interpretations were found in other countries too (e.g. Scotland). It is evident that the national strategies are not necessarily decisive in the process of creating operationally relevant interpretations of sustainable development; this process must also go on at regional and local levels between the actors there. In many countries it has not started yet, whereas in others it has been somewhat slowed down by the presence of a formalized and standardized set of goals, criteria and indicators that dominate the national policy process (for example, the Swedish national environmental quality objectives).
- The most complex debate is about how to specify the resources and actors that should be involved in sustainable development and sustainable resource management. Ecological modernization tends to dominate how the implications of sustainable development for inclusion or exclusion are understood (and this is visible in many of the participating countries); there

is not yet a clearly differentiated formulation of other, more critical variants of sustainable development such as might be found among environmental or other social movements.

- The social groups that argue for specific interpretations of sustainable development are not always easily identified from the research. It seems that rural groups in particular rarely articulate their interests and their interpretations directly in the public and policy discourses; this tends to be done for them by 'intermediary actors', whether established environmental associations (see Fontalez 2005) or 'hybrid' groups and institutions where governmental and non-governmental actors participate.

public and policy discourses not only offer different interpretations of the concepts of sustainable development and sustainable resource management, they also differ over whether these are to be understood as distinct or interlinked, for example: whether the latter should be seen as specifying what the former means with regard to human resource use. To understand them as multi-dimensional concepts is already an advanced interpretation that is evolving only slowly and piecemeal in the countries concerned and has so far been mainly expressed rhetorically without fully taking into account the consequences of a holistic understanding of sustainable development. Whereas a more standardized interpretation of sustainable development is coming into use through the framing, coordinating and consensus-building processes found in international and governmental programmes and decisions, sustainable resource management is a concept that has developed with input from scientific knowledge and research (Bringezu 2002) and from NGOs (Fontalez 2005).

Linking sustainable development and resource management is difficult, in part because the two ideas result from different discourses that are not necessarily related to each other or help to interpret each other. Political discourses and their connected political-institutional structures and hierarchies tend to create their own, more selective and superficial ideas, for which sustainable development seems to be an ideal notion whose vagueness can be exploited. Where sustainable resource use is studied through local projects and rural development practices, and through interdisciplinary research (for example, Ostrom 1999), we find a more complex, differentiated and changing social reality in discourses and social practices.

Organization of the Book

Although the Corrao research aimed to produce comparative and condensed analysis across the countries involved, what we present in this book are analyses of case studies specific to individual countries and/or to regions within them. The chapters are intended to illustrate the different preconditions and contexts of relevance when rural development strategies are connected with strategies for sustainable development. They start, as mentioned earlier, from two overarching

themes, rural development with regard to diversification and innovation in rural economies, and rural development with regard to environmental and sustainability issues. The connections between these two themes, as illustrated in the case studies, allow us to identify and discuss emerging ideas, practices and strategies for sustainable resource management. In this introductory chapter we have provided a context for the country-specific case studies which follow, by summarizing the different approaches to, and interpretations of, sustainable development as rural development found in policy programmes and projects. In the concluding chapter we try to summarize the emergent practices and trans-political meanings which are found in the case study chapters and discuss their implications for formalized policy processes.

All but one of the countries participating in CoRaSon are represented in the chapters which follow (the exception being Spain); in one case, two chapters present studies from the same country (Poland), but carried out in different regions and by researchers from different institutions. The chapters present case studies that were originally carried out for different thematic work packages, to do with local food production, non-agricultural economy and innovative rural development on the one hand, and nature protection and bio-diversity, land use and sustainable resource management on the other; but they are all constructed as discussions and reflections on the case study results under the two guiding themes of sustainable development and knowledge practices.

The texts represent a variety of approaches and methods, empirical findings and theoretical reflections. The initial country reports under the different thematic work packages (accessible at www.corason.hu) gave detailed empirical descriptions of the study areas and of the processes of interpreting and shaping rural development in relation to a variety of different thematic issues. That material has been reorganized and rewritten for this book to fit a more general perspective, pulling together the different aspects of the studies under the two guiding themes mentioned above. Different chapters have done this in different ways. Sometimes (as in the chapters from Sweden or Portugal) they have focused more on connecting the theme of sustainable rural development and its underlying knowledge practices in a paradigmatic case study that shows how integrating different knowledge forms (by way of successful local movements and strategies for rural development) can help to solve problems in rural areas in ways that approach sustainable development goals. Other chapters illustrate the problems of sustainable rural development by focusing on one core issue: renewable energy sources, as in the Scottish case, or nature protection in several cases. In other cases the findings are organized by structuring them around the general theme of knowledge practices (the Irish chapter) or by showing how processes of knowledge integration can be frozen by a bureaucratic and elitist policy programme for rural development as in the German and Greek examples. The themes of knowledge and sustainable development as discourse and organized process run through all chapters. What they all show, moreover, is the paramount reality of present rural development as a politically directed and expert-dominated process – whether

through the dominance of a bureaucratic administration, for which the german, portuguese and greek studies give different examples; through ‘importation’ of a new idea (sustainable development) as a consequence of recent eu membership, shown particularly in the polish and czech chapters; or through developing a conception of sustainable rural development from earlier ideas of nature and resource protection as the norwegian, german, hungarian and italian chapters show.

The case study based methodology of Corason, the focus on regional and local processes of rural development, the limited, although still large, number of countries participating in the project, and the restricted time for the research, together make it impossible to present a ‘representative’ picture of the processes ongoing in the transition to sustainability in rural areas in Europe. Rather we give an incomplete and illustrative picture, showing the manifold ways in which the transition is beginning, the significant contextual differences and the lack of temporal synchronization which shape the processes of building new rural realities. The open and fragmented picture which this provides seems in many respects to capture the very nature of the process, revealing it as permanent and unfinished, ongoing for a long time, and not consolidating into a final model that incorporates the interests and aspirations of all the main rural actors under a globally integrating idea of sustainable development. The chapters that follow can, hopefully, show some of the reasons why sustainable rural development remains an unfinished and multi-faceted idea.

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chapter 1

u K: Sustainable livelihoods on the island of Skye

hilary t albot, l orna Dargan and mark Shucksmith

Introduction

The island of Skye off the west coast of Scotland, u K, is used in this chapter as a case study to investigate the ‘performance’ of sustainable development by enterprises. The term sustainable development, in regular policy parlance, has come to convey development that takes social, economic and ecological (or environmental) sustainability into account. However, widespread acceptance by the eu member states ‘has led, not so much to change in policies and development strategies, but rather to an adoption of a common terminology that at best has some effects at the level of principles, strategies and policy programmes (where intentions are formulated), but much less at the level of implementation and actor strategies (where ideas are realized)’ (Co Ra Son 2006, 82). What can we understand from starting from what local entrepreneurs actually do, rather than from high-level rhetoric about sustainable development?

This analysis does not aim to capture the totality of activity on Skye that might contribute to sustainable rural development. The performances that are investigated here are some that might traditionally fall under the rubric of ‘economic development’; the approach in this chapter is to look at how they deviate from modern economic thought which conceptualizes the economy as an autonomous ‘interlocking system of markets that automatically adjust supply and demand through the price mechanism’ (Block 2001), in which self-interested actors maximize individual profit. The aim is to raise the profile of this group of ‘alternative’ actors, and to discuss their approach as one that has a contribution to make to sustainable rural development.

The Island of Skye, Scotland, u K

The island of Skye is the main land mass within the administrative area of Skye and Lochalsh, which is on the west of the Scottish highlands and islands, and one of the most remote parts of Europe (see Figure 1.1). It is located about 2 hours’ drive from the regional administrative centre of Inverness, 4 hours from the capital of Scotland, Edinburgh, and more than 15 hours’ drive and 1000 km away from London.

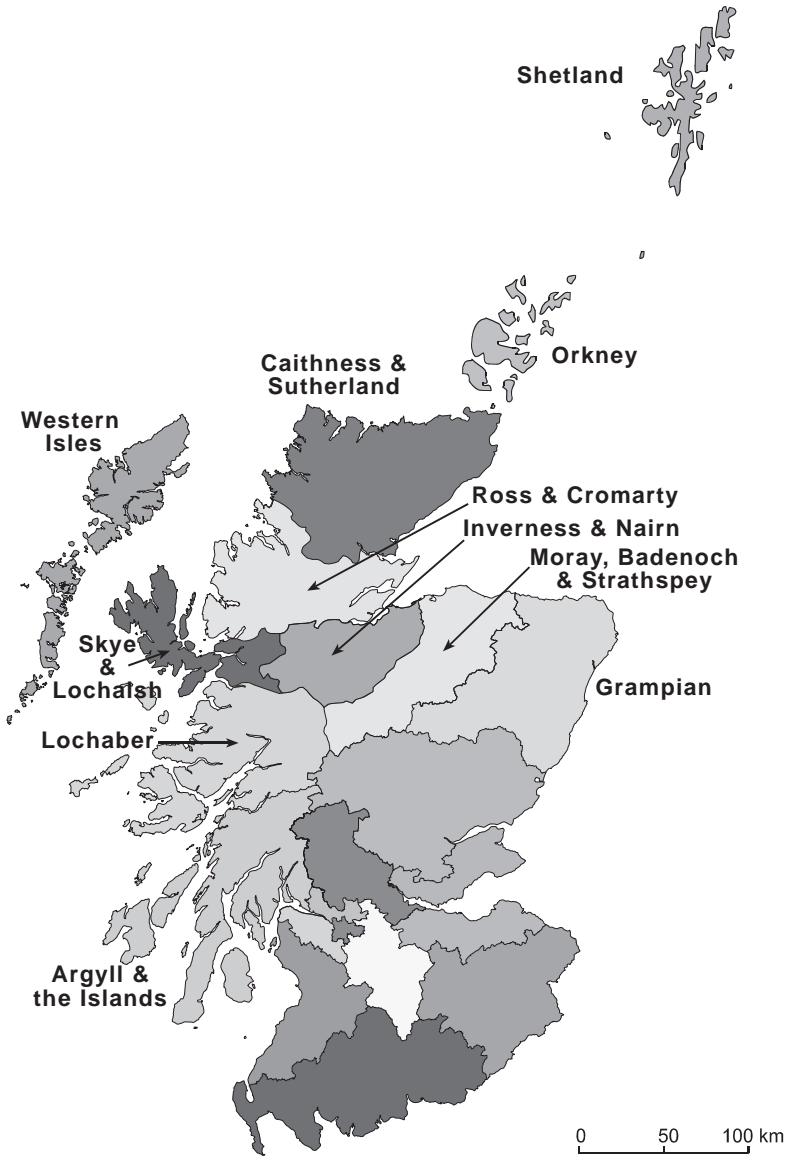


Figure 1.1 Skye and Lochalsh in the context of Scotland

Source: Nightingale, A. (2002).

The population of Skye and Lochalsh is 11,890 people, 76 per cent of whom live on the island of Skye. The average population density is 4/km², but in fact a quarter of Skye's population live in the island's main centre, Portree. The area lost

population from the nineteenth century until the 1970s, since when it has shown a slight growth – 3 per cent between 1991 and 2001 (Highlands & Islands Enterprise 2003) – due primarily to in-migration.

The economy was traditionally based around the primary industries, although the dominant tenure system (crofting) always meant a degree of diversification was necessary. Nowadays the tourism sector and the public sector provide 60 per cent of the island's employment (Highlands & Islands Enterprise 1999). The 1997 agriculture census shows that about 14 per cent of the population of Skye and Lochalsh were still engaged to some extent in agricultural activity. Much of the employment is seasonal, low-skilled and insecure. Structurally, the economy is dominated by micro-businesses (<10 employees), with 25 per cent of employees working in firms with four or less staff (Highlands & Islands Enterprise 2003); there is a self-employment rate of over 20 per cent as well as comparatively high, and increasing, rates of business start-ups. However, business survival rates are relatively low.

Physically, the area is mountainous and inhospitable, but strikingly beautiful. Soils are thin and acidic, with very little cultivated land. Skye is better connected than most islands – a bridge was built connecting Skye with the mainland in 1997, and it also has more advanced telecommunications links with the outside world than many remote islands. However, it still suffers from a lack of local services.

A sketch of the island is not complete without mention of the 'magic of Skye'. This is more than simply clever marketing jargon to attract tourists – it is something that permanent residents also recognize. The beauty of the landscape is central to this 'magic', through its ability to enchant with its changing moods and colours; for some the quiet lifestyle and the closeness of communities conjures up 'imaginaries' of rural idylls; the spirit of Skye is also tied up in its history – especially the draconian 'clearances' of the land in the nineteenth century – and in its traditional musical, artistic and language cultures.

Sustainable Livelihoods

The concept of sustainable livelihoods emanates from development studies, with the work of Chambers (and colleagues at the Institute of Development Studies) being seen as seminal (for example, Chambers 1988, Chambers 1997; Chambers and Conway 1991, Scoones 1998). Although the approach was intended to provide an understanding of livelihoods and how policy might impact on them (Korf and Oughton 2006), it was quickly taken up by governments and aid agencies such that a sustainable livelihoods approach has often been perceived to be about the interventions made by such organizations. In this chapter it is our intention to use the concept of a sustainable livelihoods approach in its original form, with the strategies of local people being the approach of interest, rather than the prescriptions of external organizations.

We are not alone in identifying the potential for taking this concept from development studies and applying it in a more developed context (for example,

Korf and Oughton 2006), but still need to proceed with caution. It is not our intention to provide a systematic evaluation of activities on Skye against an agreed set of principles of the sustainable livelihoods approach – which, in any case, does not exist (Scoones 1998) – rather, we use it as a rhetorical device to explore how people ‘construct and contrive a living’ (Chambers and Conway 1991, 8), in ways, and for reasons, that may be far more diverse than those suggested by orthodox capitalist economics.

Ellis (2000), developing the definition provided by Chambers and Conway (1991) (and quoted extensively by other authors), suggests ‘a livelihood comprises the assets (natural, physical, human, financial and social capital), the activities, and the access to these (mediated by institutions and social relations) that together determine the living gained by the individual or household’ (p. 10). The five commonly cited assets are a ‘diverse repertoire of resources’ (Chambers 1988, 6) that are far more wide-ranging than the traditional factors of production (finance, land, and labour) of economic theory. However, many commentators argue that these assets are not necessarily all available to everyone equally (for example, Chambers and Conway 1991, Sen 1984) – Ellis’s reference to ‘access’. A person’s ability to access the assets, or to act in certain ways, may be limited (or enhanced) by who they are, by rules and customs, or by the interventions of the state and development agencies. The final point of Ellis’s definition emphasizes how combining available assets with the capacity to take action need not take place at the individual level (the focus of most economic analysis). In fact, Scoones (1998) goes well beyond Ellis’s individual or household level, identifying also the village, regional or national level as possible sites for livelihood strategies.

The use of the term ‘strategy’ implies active, goal-oriented behaviour (Small 2005). The origins of the sustainable livelihoods concept in development studies and its close association with poverty reduction programmes mean that there is a focus on survival strategies; it is common for strategies to be analysed in the context of external shocks and crises (Ellis 2000). Some commentators, though, see alternative rationales – adaptation strategies (Davies 1996); accumulation strategies, and changing to a better way of life (Dorward and Poole 2003).

Consensus is lacking on the specifics of the desired outcomes of a sustainable livelihoods approach, although it is clear that they are far more holistic than the common economic goals of increased production, employment and cash income (Chambers and Conway 1991, 3). For some, securing a sustainable livelihood is paramount (for example, Ellis 2000); others refer to the elusive concept of improved well-being: Scoones (1998) lists self-esteem, security, happiness, stress, vulnerability, power and exclusion as key measures (p. 6); Chambers and Conway (1991) talk of providing the ‘conditions and opportunities for widening choices, diminishing powerlessness, promoting self-respect, reinforcing cultural and moral values, and in other ways improving the quality of living and experiences’ (p. 8). Improved well-being is not only about objective measures of people’s well-being, but ‘the meaning that they give to the goals they achieve and the processes in which they engage. a key element of this last dimension of meaning, and a basic

driver of the future strategies and aspirations of the person, is the quality of life that they perceive themselves achieving.’ (mcgregor 2006, 4).

For the purposes of this chapter, the sustainable livelihoods approach focuses attention on how economic activity is not something that can be ‘disembedded from context’ (Ray 1999). it is not necessarily something performed out of the home, in ‘work time’, or clearly demarcated from ‘non-economic’ activity. it guides us to look for a portfolio of means of sustaining an income, rather than a single job, or business, and for collective approaches as well as individual strategies. and it emphasizes that both the resources engaged to produce a living, and the desired benefits can go well beyond the economic. The next sections of this chapter address aspects of the approach to development taken by some people on the island of Skye that resonate with ‘the holistic range of resources and activities, with and without direct monetary return, which are important to livelihood maintenance’ (Small 2005, 20). we then go on to discuss the appropriateness of the sustainable livelihoods approach to achieving sustainable rural development on Skye.

Income Generation Strategies

there is a long history on Skye of how the crofting culture made it necessary to develop portfolios of activities in order to secure a living. this system, imposed on tenants in the nineteenth century, deliberately created holdings too small to provide a full-time income, so as to ensure a supply of cheap, compliant labour for the landowners’ kelp industry. as this industry declined, crofters were left with unviable smallholdings, and therefore had to find alternative ways of supplementing their incomes. The 1950s was a period with the potential for significant changes, with the taylor commission of inquiry, and the setting up of the crofters commission. a amalgamation of crofts into larger, more viable, holdings was high on these agendas, but was resisted by most crofters, and these tiny smallholdings still dominate the agricultural land. An average croft is about one-fifth of the size of an average full-time less Favoured area livestock farm in Scotland, has less than one-tenth of the output, and provides one-twentieth of the income (Kinloch and Dalton 1990); however, there is considerable diversity.

in 2005 there were 1,866 registered crofts on Skye and the small islands, making a significant contribution to local livelihoods, given that the statistics for Skye and Lochalsh in 2001 show 5,500 people in employment (highlands & islands enterprise 2003). the average age of a tenant crofter is 50, and of an owner-occupier crofter, 69. crofting often makes only a small contribution to household income; family members must also work off-farm.

tourism provides a substantial income for the residents of Skye, with the wholesale, hotels and Restaurant sector employing more than a quarter of the workforce for Skye and Lochalsh (highlands & islands enterprise 2003), but is an important cause of the highly seasonal trends in unemployment. Some people overcome the seasonal fluctuations in income by having a sequential portfolio

of jobs; others might rely on other household members to sustain a reasonable income during the winter months.

White Wave, set up on Skye in 1990, is an outdoor pursuits company run by a husband and wife team. Alongside this, they have developed their portfolio of income-generating activities by setting up an independent record label to produce and distribute Gaelic songs. This is not only indicative of the portfolio aspect of the livelihoods approach, but also of holistic well-being as a desired outcome. Pursuing an interest is highly valued, perhaps more highly than maximizing the income from the main company – when providing catered residential accommodation for their clients proved demanding, the accommodation became self-catering. White Wave's owners do not see expansion as a target, believing that the success of a business lies in consolidation and sustainability.

Aiming to earn an adequate income, rather than a high income, is common: sometimes this is simply realistic in that many firms operate at the margins of viability, but sometimes it is about making lifestyle choices as in the White Wave example, and in the descriptions of the many 'hobby growers' in the horticultural network who are new arrivals in Skye, looking for a rural idyll. This is not necessarily only for the elite: many people are choosing to value aspects of their well-being that are not associated with money and, having achieved viability, are far more interested in pursuing a wide range of other benefits for themselves, their families, or sometimes their neighbourhood – an aspect that is drawn out in the next section which discusses the importance of 'place' for these entrepreneurs.

The Importance of Place

Many enterprises on Skye are embedded within place. The reason for, and nature of, the attachment takes many forms. The experience can be positive or negative: for some it may be more about being tied to the place than about choosing to become attached to it. 'Too many a person brought up on a north of Scotland smallholding, the pull exerted by the croft seemed as much of a curse as a blessing. If I were not born there and the very dust of the place dear to me,' said one crofter in a moment of exasperation with his fate, 'I would quit tomorrow.' (Hunter 1991, 34). (This crofter's love/hate relationship was first captured in evidence to the Taylor Commission 1954, 31).

For crofters, the relationship to place takes a number of forms. There is a formal, long-term, connection to their crofts via their tenancy agreements, and to agricultural practices. The succession of tenancies from parent to child, and the effort of past generations in improving the fertility of the soil, ties extended families to the area, and the long family histories on Skye put pressure on future generations to remain in crofting. The communal aspects of crofting and its management, typically via the common grazings and the associated grazing committees embed crofters into their neighbourhoods. This activity finds crofters coming together to manage the land to maximize the group's well-being. As the common grazings

are often loss-making, non-economic aspects of communal crofting contribute to well-being, such as the long-term security afforded by having a croft.

For the couple running the outdoor pursuits company, white wave, the relationship is different. The place is important to them for its natural resources, which they use to provide outdoor experiences for their clients. As well as physical activities which utilize the local rivers and footpaths, the white wave experience also involves appreciation of the local flora and fauna. However, the relationship with Skye goes far deeper than what is provided for the business; for one of the owners, his commitment to staying on the island was expressed as 'the place comes before the business'. The owners are also concerned that, where possible, their business should contribute to local well-being and support for others' livelihoods. As well as providing some local seasonal employment, work placement opportunities are made available for local school children and university students in the outdoor pursuits business. The opportunities for local (young) people offered by this firm are perceived by funders such as Skye and Lochalsh Enterprise as of far more importance than the limited employment it can offer: it demonstrates how a business attractive to young people can be sustained.

A very different small firm on Skye – Gael.net, an IT firm specializing in providing web-based content management systems, set up in 1995 by a man born and raised on the island – also sets out to make a contribution to local well-being. In contrast to the outdoor pursuits company described above, it can be judged a success in a classical economic sense: profit (from earned income) is healthy; it has had steady growth and has further expansion plans; and it now employs 17 staff. It contributes to the well-being of the neighbourhood in a number of ways. Each year, the company provides work experience for four to six students from the local school; some of these stay on with the company when they leave school and are given on-the-job training and certification. The company also funds awards at the local high school and sponsors the local football team. In-coming staff are assessed not only on their work skills, but also on how they, and their families, will contribute to community life on Skye. Many staff undertake pro bono IT services for islanders.

For the owner of the business, the place is associated with a sense of home. He is committed to keeping the business on Skye, even though experiencing considerable difficulties because of its location, in particular the distance from key markets. Another islander returning to set up a business explained this approach more fully: 'sense of "home", proximity to family and friends, good place to bring up children – safe, good schools, attractive, clean environment, wide-open spaces, peace and quiet. What price do you put on that?' (e-mail communication, 3 Sept 2001).

A number of enterprises on Skye are involved not only in using the natural resources of the place to generate foodstuffs, but also in using the place as a marketing tool. For Isle of Skye Seafood, a small business set up in 1993 to market locally caught fish and seafood, 'Skye' is becoming an increasingly marketable label on the mainland. Along with the Food Link van, and the Skye and Lochalsh Horticultural Development Association, this firm is also involved in selling its

produce locally. Relationships of trust build up between the producers and consumers through face-to-face contact on market stalls and at food fairs.

The predominant employment sector, tourism, is very much predicated on the 'magic of Skye'. As this term suggests, it is not so much the tangible visitor attractions of the place that make visiting the island memorable, but the way its aesthetic and cultural qualities combine to enchant tourists. The stunning scenery and the different moods produced by changes in light and weather are set alongside a strong sense of history, and the traditions of art, language and music. For some, the place is visited for its wild and beautiful landscape, and for a challenging outdoor experience; for others, a visit to Skye is about soaking up its history, its traditional cultural atmosphere and its abiding sense of community.

The association of the place with its language culture is fundamental for Sabhal Mòr Ostaig, a college set up by a private entrepreneur in 1983 offering courses in Gaelic. It now forms part of the network of colleges across the highlands and islands that come together as a higher education institution, the University of the Highlands and Islands (UHI). Although formally outside the public sector, Sabhal Mòr Ostaig benefits from some public funding for further education, but also looks to a number of grant-giving organizations and to income-earning activities to cover its costs. The founder is committed not only to invigorating the use of the Gaelic language beyond the home, but also to the well-being of Skye through reviving its economy. In his view, in order to do this, the people need to have pride in their identity and abilities in order to develop the confidence to be entrepreneurial. The college's focus is therefore on business courses taught in Gaelic, providing students with pride in their culture, and business acumen, with the long-term aim of improving the sustainability of the island. Its location on Skye brings wider benefits for local people: it provides the only opportunity on the island for higher education, a venue for the activities of local clubs and societies, and crèche facilities for the neighbourhood. Although focusing on the use of Gaelic in business, it also runs courses with their content firmly embedded in place: on highland history and culture, including music and dance traditions.

Place-based funding is provided on Skye via the EU LEADER programme, for innovative economic development projects. The overarching aims of the local LEADER programme for Skye were defined collectively by local people, but there were very different views about what it aimed to achieve, and what should be funded. Arguments were made that deviated from the innovative economic development focus of the programme at the EU level, for example, that basic service provision should take precedence over economic development projects, and for innovative projects of whatever kind to be acceptable. A number of (non-economic) community development projects have been funded under LEADER, justified as building the capacity of local people to take on economic projects in the future.

The factors that attach enterprises to the location are wide-ranging. For some, the attachment is to the physical resource: they use the land, the natural resources, or the landscape to support their economic activities, and/or valorize the land's

more aesthetic features, alongside the other resources that they bring to bear in creating a livelihood; there is an implicit commitment within this to maintaining the resource base, and in some cases a more explicit aim of improving it. a nother reason is far more emotionally based: people have formed an attachment to the place. in some cases people are encouraged to continue to work on Skye, or are attracted to set up a business there, because of its beauty and/or culture. t his is often only one aspect of the emotional attachment; more important are the social relationships. many people and their enterprises are socially embedded through long-standing (often generational) relationships with family or friends. t his does not necessarily mean that these people never leave Skye – some people do, but return at a later stage in their lives.

Some new comers are attracted to Skye because of the community life they have perceived as visitors, and arrive with the intention of embedding their enterprise and themselves within the community. a desired outcome for many of the enterprises on Skye, whether run by long-term residents, those returning, or new comers, is to increase not only the well-being of themselves and their households, but also the well-being of the community: ‘their attempts at purposive action are ... embedded in concrete, ongoing systems of social relations’ (g ranovetter 1985, 487).

Halting Population Decline

h alting population decline has been a goal for many years, and Skye can now claim modest growth. much of this has been effected by immigration, rather than by a growth in the indigenous population. t he demographics for the period 1991 to 2001 show that birth rates and the number of young people are actually falling, but that this is more than off-set by growth in the 45 to 65 age group. This reflects the propensity for young people to move out of the area in search of good jobs, and for older people to move in, either to complete their careers, to take over the family croft, or to retire.

Skye has had success in attracting people who contribute to the local economy, either by setting up businesses or as employees. n ew comers are thought to make an important contribution to the high number of business start-ups and the ‘spirit of entrepreneurship’ on the island; incoming employees can help to save local services.

t he gaelic college, in Sleat, has helped to increase the local population from 452 (in 1971) to 780 (in 2001) (h utchinson 2005). many of the new staff live in Sleat and use the local services and the local primary school, so helping to maintain viability; on a smaller scale, enterprises like gael.net bring in some staff from outside.

h owever, although these new comers help to increase the population on the island and so make local services more sustainable, they can also be a source of suspicion as well as hope. Skye is inhabited by people with a strong tradition of community and a tacit knowledge of how things are done on the island; they

are wary of the social changes that new comers bring with them (Shucksmith, Chapman and Clark 1996). There is some antipathy exhibited towards 'white settlers': those displaying an arrogant, almost colonial, attitude, expecting to do things as they always have, rather than fit in with local ways. There is also competition for scarce housing.

The Gaelic college, for all its intent to support people in taking a pride in their local identity and the tangible benefits brought to Sleat, has managed to alienate some people. There are tensions over the way that the college took the credit for Sleat's flourishing art scene, which some locals argue pre-existed the college. Ironically, although the mission of the college is to create a community, a Gaelic-speaking 'nation', they may be alienating the many people born and bred on the island who do not speak Gaelic – they feel that their culture is being excluded.

The difficulties experienced with encouraging new comers as a means of increasing the population has led to more of a focus on persuading young people to stay on the island once they finish secondary school, or to return when they leave university. This is a problematic strategy because there is a shortage of decent jobs for younger people, and few are ready or willing to start their own businesses after leaving school. Firms such as White Wave and Gael.net are therefore very important for the role they play in linking with young people and providing an example of what can be achieved on Skye. The loss of young people is a major concern for institutions such as Highland Council, and Skye and Lochalsh Enterprise, and officers believe that such examples give them hope and an incentive to stay.

Government and Sustainable Livelihoods

Government at both the EU and nation-state level show a commitment, albeit often implicitly, to the continuance of rural places and their communities. Funds are available, at least in the short term, to support vulnerable rural places. However, higher levels of the state are still organized around traditional departmental domains of government, rather than by the more integrated notions of sustainable livelihoods and improved well-being. Economic policy and support are held separate from the parallel regimes for social and environmental governance. Not only do they structure their organizations in this way, but performance on the ground can only be benchmarked against a single policy goal: an 'economic' enterprise (which is how the enterprises described in this chapter would primarily be categorized) must meet 'economic' criteria. Not only do their policies and benchmarks fail to appreciate the non-economic goals implied by improved well-being, but also the parameters of how successful economic performance is measured cause difficulty. Statistics on employment or business start-ups, for example, fail to capture the portfolio approach to devising a living of the sustainable livelihoods approach; individual income statistics fail to recognize the importance of contriving a household (rather than an individual) income. Higher levels of the state almost always measure the success of an enterprise in terms of income growth; a sustainable

livelihoods approach encourages sustaining an income over time rather than necessarily looking for growth. in the u K, devolved administrations (and regions) such as Scotland identify economic sectors, clusters or aspects of an industry for strategic development. For example, the Forward Strategy for Scottish agriculture (Scottish executive 2001) prioritizes an agro-industrial model of development for farms, whereby they increase their landholding and their levels of production, and increase their national and international competitiveness.

on Skye, governance at the local level, such as by the area committee of the highland council, Skye and Lochalsh enterprise, and the local area groups, has the task of matching higher-level compartmentalized strictures with the hybrid realities. So, for example, although an economic development programme, local area groups funded a number of predominantly community development programmes. Such organizations also provide their own ideas of what is possible on Skye, and, as part of their role, make adjustments to higher-level restrictions to make the policy work at the local level. an example of this is the way Skye and Lochalsh enterprise continues to provide funding to white wave although it clearly does not have a growth strategy (a criterion for many funding schemes) because, on Skye, firm survival is a more realistic goal. Rather than following the priorities of the Forward Strategy for agriculture as outlined above, the local agency recognizes the small scale of food production on Skye and supports part-time small-holdings in their efforts to market food locally. Such local state organizations also have the opportunity to work in partnership with the enterprises in developing a mutually agreeable goal. while Skye and Lochalsh enterprise's parent body, highlands & islands enterprise, has a commitment to increasing the population by attracting newcomers, Skye and Lochalsh enterprise is highly supportive of local enterprises which are making even subtle inroads into encouraging young people to stay.

Sustainable Rural Development?

what this chapter has described is how a group of enterprises on Skye adopted the basic principles of a sustainable livelihoods approach, as one approach to sustainable rural development. this section discusses the extent to which the two approaches have the same theoretical aims, and the contribution that a sustainable livelihoods approach on Skye makes to ensuring the long-term future of the environment, the economy and society.

At first glance a sustainable livelihoods approach would appear to fit well with sustainable rural development: both names include the word 'sustainable', both focus on forms of well-being beyond economic betterment and both are interested in securing a long-term future. in some ways it would appear that the sustainable livelihoods approach was more holistic than sustainable development which is often portrayed as linking three distinct approaches: the economic, the social and the environmental. a sustainable livelihoods approach instead sees a hybridity in

which such boundaries are either unimportant or do not exist, suggestive of an advanced form of sustainable development.

making more in-depth comparisons between the two approaches highlights the ‘fuzziness’ of both concepts. Sustainable rural development is an under-theorized area, and even ‘sustainable development’ is a contested concept. its origins were in conserving environmental resources for future generations, but more recent definitions have often balanced the needs of the environment with those of the economy and society. For some people, sustainable development is still about conserving ecology, others would expect the environment to take precedence over the economy and society in the three-dimensional definition, and a further group would expect the three aspects to be treated equally. the balance between the environment, the economy and society within the sustainable livelihoods approach is equally unclear. although, in the past, some people understood the discourse of ‘sustainable’ in the title to mean a sustainable environment, murray (2000) claims that it is now generally accepted that it is the livelihood that is to be sustained, in line with the Department for International Development (DfID) definition: ‘A livelihood is sustainable when it can cope with and recover from the stresses and shocks and maintain or enhance its capabilities and assets both now and in the future, while not undermining the natural resource base’ (DfID 1999, s.1.1). Rather than prioritizing the environment, as many definitions of sustainable development do, a basic principle of a sustainable livelihoods approach is that it should be people-centred (www.livelihoods.org/SI_defn.html, accessed July 2007).

this analysis suggests that while both concepts balance the environment, the economy and society and the interests of future generations, sustainable development is often (not always) more closely aligned with environmental sustainability, and a sustainable livelihoods approach with sustaining people. but did the performances of this group of enterprises on Skye ignore or downplay environmental issues? certainly the rhetoric of sustainable development was not prevalent, nor was environmental conservation an explicitly high priority for these enterprises. however, there were a number of ways in which environmental concern was, often implicitly, factored in to decision-making, or in which the consequences of the approach taken by the enterprises under investigation here had environmental benefits. It is also worth noting that Skye has two major environmental projects that do not feature in this chapter on sustainable livelihoods: the edinbane wind Farm has clear environmental credentials that reflect the preoccupation of high-level policy with climate change; and the John muir trust, a voluntary body with three estates on Skye that conserve the wildlife and the landscape.

The first identifiable way in which a number of the enterprises described under the rubric of sustainable livelihoods could be assessed as interested in the environmental concerns of sustainable rural development would be the way they concur with Schumacher’s ‘small is beautiful’ approach (Schumacher 1993). on Skye, there were many enterprises that were small and had no aspiration (or sometimes no opportunity) to grow. examples include the crofters, market gardeners, and the outdoors pursuits firm, White Wave.

Second, strong environmental linkages can also be discerned in the preoccupation of many of the enterprises with aspects of localness. Using a sustainable livelihoods approach, an enterprise may exploit its (local) natural resources but also has to maintain these assets in order to ensure its own survival. Important examples of this would be the crofters and market gardeners who husband their land to avoid environmental degradation, and the tourism industry which must safeguard the landscape that their clients see as an important attraction. Living and working in the same locality helps to discourage environmental damage by an enterprise to what is also their home and community. Many of the enterprises discussed in this chapter have strong social ties to the locality and would not jeopardize these through environmentally irresponsible behaviour – those returning ‘home’ to set up businesses, and the crofters, for example.

The sustainable livelihoods approach also encourages the use of local ‘markets’. In some cases, the goods on Skye never reach formal markets, being consumed by the household or traded informally, but in others there have been concerted, and successful, initiatives to encourage local marketing of local food. A n environmental consequence of the use of local markets, and of living and working in the locality, is that these enterprises’ carbon footprints from transport and travel are kept lower than for many other firms.

A third environmental theme that is very prominent for this group of enterprises on Skye is the concern for future generations. The IT firm and the outdoor pursuits company both tried to offer opportunities to the young people on Skye; the Gaelic college was intent on reinvigorating the use of the indigenous language as a means of engendering in local people a greater pride in their identity in order to make them more entrepreneurial – a long-term project with an eye to the future. The croft tenancies are passed from one generation to the next, so conserving the natural resources is very important to the crofters.

In practice these enterprises on Skye were sympathetic to environmental issues, even though the sustainable livelihoods approach in theory prioritized the sustainability of people’s livelihoods rather than the sustainability of the environment. However, their (implicit) construction of environmental sustainability did not necessarily echo the priorities and rhetoric of high-level policy. The EU’s environmental agenda, for example, prioritizes climate change (European Commission 2007), and although there were ways in which the activities of the enterprises contributed to this priority, it would be difficult to argue that climate change was something that was intentionally addressed. The local governance structures on Skye seem to have an important, if little understood, role in resolving the tension between how the various high-level policy regimes approach sustainable development, and how local livelihoods are sustained, to ensure that something enduring is put in place. They are certainly very active and political players in the process, and not simply administering programmes at the local level.

We now turn our attention to the appropriateness of the sustainable livelihoods approach to sustainable rural development in developed countries. Derived from development studies, the sustainable livelihoods approach emphasizes survival

during major crises; it is often associated with notions of subsistence. In principle, though, it also focuses on far more advanced development strategies. The examples on Skye seemed to reflect two main motivations: pursuing a sustainable livelihoods approach out of necessity, or making lifestyle choices about which types of well-being are important. In many cases both motivations were discernible, but at the low extreme, there were those who felt tied, and had to patch together a subsistence living. White wave attributes the so-called entrepreneurial culture on Skye to necessity: there are not enough jobs, so people must create their own work if they want to stay on the island; likewise new comers must set up businesses.

At the same time, there are many enterprises with a low income that would not perceive this to be impoverishment, as earned income is only one of many ways they gain value from their endeavours. One form of this is through non-market mechanisms; another is the value they attach to the way of life that working on Skye affords them; and a third is state funding. Some economic benefit is derived without the formal market mechanism and therefore fails to be included in any formal statistics. Crofters, for instance, themselves consume a significant proportion of the goods they produce, and there are examples of a number of different collective or reciprocal activities which add value without reference to a formal economic market. As already noted, wider aspects of the quality of life on Skye are highly rated, although difficult to quantify. Improved well-being is being attained by people on Skye in a plethora of ways that do not register in formal statistics. Some (not all) on low incomes would consider themselves to be in a position to choose their desired outcomes, and to develop strategies to achieve their goals; at the other end of the spectrum, there are affluent people on Skye making lifestyle choices (often including the decision to migrate, or return, to the island to live) and developing livelihoods in much the same way.

Many of the examples on Skye cited above receive some form of state funding, and would not be sustainable without it. Some of this is in the form of sector funding such as direct agricultural payments, funding for further education, or funding to support businesses; some comes through area-based designations such as Objective 1 or LEADER, and some via the local council or Skye and Lochalsh enterprise. A Highlands Council officer told us that 'there are few businesses here that haven't started with, or been sustained by, public sector funding'. Concerns were expressed about the sustainability of many enterprises as reform of the CAP reduces direct agricultural payments and when Skye loses its Objective 1 status. There is a more general concern about long-term sustainability in the context of an over-dependence on state support and the extent to which it can be relied on in the future.

Concluding Comments

The sustainable livelihoods approach has proved a useful tool in understanding how some people's livings are constructed on Skye, in particular in encouraging us to look beyond 'those egoistic preferences, inclinations, and desires on which

homines oeconomici are usually taken to act' (Schmid 2005, 51). It also appears to provide insights into how, and why, such people make a contribution to the economic, social and environmental future of Skye. In the absence of consensus over the exact nature of sustainable development, and the concept of sustainable rural development being under-theorized, the sustainable livelihoods approach should be seen as a contribution to the debate. In practice, it was concerned about all three dimensions of the standard model of sustainable development, although, in principle, it appeared not to emphasize the environment. If the three dimensions of sustainable development are conceptualized as actors in the development process, the sustainable livelihoods approach as acted out on Skye raises the question of whether a fourth dimension should be incorporated: state support. Unless living at subsistence level should be an acceptable outcome for European sustainable rural development, it would appear that in some parts of rural Europe, and for some enterprises, long-term state support might be a necessity.

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Sweden: the non-agricultural Rural economy as a component of Rural Sustainable Development

Karl Bruckmeier and Christina Höj Larsen

Introduction

Rural development in Sweden occurs more frequently through non-agricultural projects and activities that form part of the third sector or service-based economy. The non-agricultural economic activities analysed here are household- and community-related in the sense described by McGraham (2003), with a focus on two of the four types in his description: 'outside home tasks' and 'service supporting communities and their members'. The projects provide for additional income for rural household or sustenance activities (but not household work) and services for the community or maintenance activities (but not activities for people or business outside the community or the area). Such economic activities are of importance for the development of rural areas in northern Sweden, thinly populated and far from economic centres.

Economically weak rural areas depend for their development on mechanisms and forms of economic development and growth that differ from those in industrial and urban-based service economies. Ongoing debates and policies for sustainable development can help to find forms of development that can strengthen the local economy and livelihood base; to prevent out migration, income, capital and work should be kept within the area, the communities and households. The projects analysed here are based on natural resources in rural areas such as wood, and the production and processing of resources is organized in small-scale and handicraft forms that can be done by local inhabitants and do not require skills and knowledge that cannot be found or created within the region. Such 'innovations' often involve the revitalization of old practices in the rural economy and the local knowledge they have been based on. Industrial or large-scale production and economic activities are no longer realistic alternatives for such regions; they cannot develop within closed regional economies in isolation from global commodity flows.

The Study Area as the Context for Innovation Projects

Not all local communities in the northern Swedish region of Jämtland are concentrated settlements in the form of villages or small towns, but communities

often consisting of villages, hamlets and single farms spread over a larger area. The low population density and the spread of settlements over larger areas create problems for rural and economic development, for example, long transport and travel distances to workplaces make production and distribution of goods and services difficult and more expensive. Activities to strengthen the rural economy often have a regional and local scope in the sense that they create networks and cooperation between rural inhabitants and producers. This is especially important for rural development, and the new, internet-based communication technologies often support the building of such networks. However, to create an economy of 'short circuits' at local or regional levels is not the main aim of the projects analysed. Short circuits are the aim of reform projects such as the Local Exchange Trading Systems (let S) networks driven by a decoupling of the local economy from larger economic and monetary circuits. The example of let S is more one of innovative ideas about a future ideal economy than innovative activities that allow for rural areas to survive under the conditions of a globalizing economy.

The projects in this region illustrate a special relation between agricultural and non-agricultural economy that is also important for other rural areas in Sweden: non-agricultural economic activity is not based on the premise that agriculture is no longer relevant and that another rural economy independent from agricultural production should be developed. The guiding idea is rather that a rural economy can develop through the processing of agricultural products, in combination with agriculture, through the work of local people, including those practicing agriculture. Agriculture is still a relevant economic activity for a higher percentage of the population than the national average. In such regions, the rural economy develops by combining different rural resources, such as agriculture and forestry, and the production and processing of food and other natural resources. Such a rural economy operates with the natural, social and human capital in the area, but less with economic resources and material from outside the region, as for instance, is the case for industrial production in rural areas.

Jämtland is one of the Swedish 'forestry-counties', where large parts of the area are covered with forests, as in most parts of northern Sweden. During the last 30 years, Swedish forest products have had to compete with more and more products on the global market, especially when it comes to pulp and paper production. As a direct result of this, efforts have been made both nationally and regionally to find new ways of processing and using wood, for example, through developing bio-fuel that is based on wood. The second project described below shows attempts to find new methods and products that can be manufactured in small firms, using wood from the region. As a result of the competitive pressure on the forestry industry a shift in production towards small-scale local refinement, in contrast to conventional development, is a step towards more ecologically and socially sustainable production. It is a step away from large, industrial production units with high-energy consumption towards more local, labour-intensive production methods.

Socio-Economic Situation in the Study Region

The Jämtland region is located in the northern part of Sweden adjacent to the Norwegian border. With 54,197 km², it is the third largest region in the country (for statistics on Jämtland see: <http://www.regionfakta.com/jamtland/>), but with a low population density. Its population is dispersed over a vast area and only one major city (Östersund) counts as a densely populated area in the statistics. Jämtland had a total population of 127,424 persons at the end of 2004. The population has been diminishing in the last decades. Public and private services, agriculture, forestry, manufacturing and tourism are the main economic activities in Jämtland. About 2,200 farms create work for about 5 per cent of the population (as compared to the 2 per cent statistical average for Sweden). When all small-scale refinement and indirect employment is accounted for, 10 per cent of the inhabitants make their living from agriculture. Forestry is another important part of the economy – the region provides 10 per cent of the felled trees in Sweden and 3 per cent of the population are employed full-time in forestry. Most farmers in Jämtland combine forestry and agriculture as part of a distinctive pattern of life and work in the rural settlements. The region has a small community of Sami people who continue their cultural tradition of reindeer herding in the mountain area on the border between Norway and Sweden. For the maintenance of infrastructure and basic services, special problems emerge when the farms (as in the western and northern parts of the region) are not clustered together in larger villages that can support small businesses, shops, infrastructure and public service institutions such as schools and hospitals.

Northern Sweden has been an important part of the natural resource base, delivering resources during the country's industrialization. Whereas the harsh climate limits agricultural production, there are good conditions for mining, forestry and for extracting water power. Over the last 30 years, industrial production that was based on the abundance of natural resources declined rapidly in this part of Sweden. Paper, mining and steel industries now exist only in a few Swedish production sites. Forestry has also been affected by these changes. It is no longer a major employer, although still an important part of the national and regional economy, mainly due to the income received by local forest owners when they sell their timber. Tourism is a growing part of Jämtland's economy; two of the main winter sports areas in Sweden are located there (Åre and Härjedalen). Tourists – mainly from Sweden and other Nordic countries – usually visit during the winter season to ski and snowboard. Other forms of tourism and rural tourism are linked to the natural resources and amenities of the rural landscape (mountain tours, hunting, fishing), but also to the revival of small-scale food production and processing in the area.

Although the population has been in decline over a long period, and despite the fact that it is not easy to make a living from one single economic activity, Jämtland is often considered to be a pioneering area for rural development because of its strong traditions of regional culture and identity and the close connections between local communities that are jointly struggling to survive economically and socially. The tradition of local community activities and the creation of new

ideas and projects for local rural development, which existed long before the eu formulated its policy for rural development, are described in studies by a lf Ronnby (especially Ronnby 1995).

The Political Context of Rural Development

Institutions central governmental authorities under the leadership of the ministries monitor and control rural development policies: the board of agriculture ('Jordbruksverket'), the environmental protection agency ('naturvårdsverket'), and the national Rural Development agency ('glesbygdsverket'). in contrast to the first two, the National Rural Development Agency plays no role in issuing directions and regulations for rural development but is responsible for monitoring and evaluating all aspects of rural development in Sweden. Regional administrations ('länsstyrelse') include units for all areas of governmental policy and can be seen more as regional branches of the government. although the regional administrations are free to adapt governmental regulations to the regional context, opportunities to actually use governmental policies for innovation are limited by the structure and capacity of the regional economy. the main local institutions for rural development are the municipalities which have a constitutional right of self-government. their autonomy covers only local issues (local planning, schools and other public services, etc.) but not the issues of natural resource management and environmental protection.

Non-governmental actors a large number of non-governmental organizations (ngos), interest groups, associations organized at national, regional and local levels, social movements and networks can be found in Sweden. Some of these have played important roles in rural development for a long time, but are less important today or are seeking new roles, for example, the chambers of agriculture ('hushållningssällskap'). others, especially environmental associations, for example, the Swedish chapter of the world wide Fund for nature (wwf), have strengthened their activities and projects in rural areas in more recent times as part of the development of environmental movements. Furthermore, there are local development groups, initiatives, associations and networks that have played an important role in local community development in Jämtland (Ronnby 1995). the local development groups have formed a Swedish network and a council called the popular movements council for Rural Development (pmc).

a characteristic feature of the projects analysed is their coalition of actors, including the local non-governmental actors, municipal and governmental (administrative) actors directly involved, and the more distant political and administrative actors at national and international levels that formulate rural development programmes or provide funding. the 'long cooperation chain' is a condition of success for the local projects, especially in marginal rural areas such as the case study region. the maintenance of local autonomy and the participation of local inhabitants in decisions about rural development are thus limited, although

still a given: a criterion for the local projects is to limit the influence of external and governmental actors on the core activities that are determined by the rural actors initiating, guiding and shaping local projects.

Supporting structures **before Sweden became a member of the European Union in 1995**, rural development was outlined by the government bill for Regional policy as well as by the counties. Since membership, the Structural Funds have replaced earlier local programmes. The Structural Funds programmes in Sweden during the period 2000–2006 included Objective 1 programmes for less favoured areas such as the study region Jämtland, Objective 2 programmes, and the InterReg and Leader+ programmes (see Eckerberg and Wide 2000). The programmes financed from the EU Structural Funds have rapidly become significant instruments for rural development in Sweden, both in terms of money spent and in number of programmes and projects implemented. The programmes partly overlap with the Swedish rural development plan (RDp) based on EU-Regulation EC 1257/1999, but there is no integrated management of the different programmes. Besides the programmes co-financed by the EU there are sector-specific national policy programmes and Swedish government strategies that affect the development of rural areas – for example, the national environmental programmes unified under the umbrella of 16 national environmental quality objectives. Additionally there are two important components for rural development in Sweden:

Regional Growth Contracts (RGC) RGCs, financed from local and regional sources, aim to coordinate stakeholders to formulate a regional plan for development. A network of stakeholders is formed to evaluate potentials and threats for sustainable economic and environmental development. Gender issues and environmental concerns should have priority in the RGCs. However, several NGOs consider the RGCs to be almost entirely focused on economic aspects, commerce and technology. It seems that the RGCs are based on mechanisms created by larger economic systems and structures of the national economy and are therefore less adaptable to local conditions than the more autochthonic local development groups.

Local development groups Such groups are financed from different sources (local, regional or EU funds that are available to applicants). They are not part of a political programme, although they may become a support structure for different programmes for rural development. The development groups, often rooted in a specific village or municipality, focus on a variety of themes and activities such as festivals, culture, meeting-places, study-circles, road building and maintenance, tourism, fairs and sales, environment and nature, etc. The activities are based on local needs and interests, and since there are more than 4,000 local development groups in Sweden, the capacity to initiate projects is large.

The Rural Development Programme 2000–2006 During the period of analysis the main programme for rural development in Sweden and for the implementation

of Council Regulation EC 1257/99 and Commission Regulation EC 1750/99 was the 'Miljö- och landsbygdsprogram för Sverige 2000–2006' ('Environmental and Rural Development Programme for Sweden 2000–2006': RDP, see Jordbruksverket 2000). This programme encompasses all national and regional measures derived from both EU regulations for rural development. The RDP covers the second phase of 'ecological transformation' of Swedish agriculture that started after Swedish EU membership in 1995 with the Swedish environmental programme for 1996–2000 ('Svenska miljöprogrammet 1996–2000').

The RDP is a national programme shaped by the centralized Swedish state; it is neither regionally organized nor does it pay much attention to the regional differences of agriculture and rural development, although regionally limited measures are part of the programme. Although the policy process is centralized, a broad consultation with stakeholders for the RDP indicates the willingness of the programme to attain a broad consensus in the rural development community about the programme, its objectives and the measures. However, how effective such temporary consultation is as a form of participation of these actors in the process of decision-making is more difficult to assess. Obviously it was seen by most of the actors involved as part of the Swedish policy formulation routine which includes intensive consultation with the target groups, and this consultation is understood as a democratic mechanism for building consensus. The consultation during programme formulation has made the RDP more complex and complicated, not more coherent and more consensus-based. As the programme period ended in 2006, the new RDP for the years 2007–2013, based on new EU Council and Commission regulations and the national initiatives for rural development, will be important for the continuity of activities initiated in the projects analysed.

All institutional structures and programmes described so far influence the local projects described below in manifold ways, although these projects are not necessarily composed of all these institutions, actors and supporting structures. In the development of the rural economy in the region a lot of public and national governmental agencies are involved (in specific 'enabling' or supporting functions), but the important actors and activities to be analysed are the region as an administrative and economic unit, the local community, and the household. A critical criterion for identifying the local character and quality of a project is, how far external institutions and actors determine and decide on the core activities in a project – what to do, with whom, and for what purposes.

The Projects

In the remote area of Jämtland, initiatives and projects for rural development that connect agricultural and non-agricultural activities, support pluri-activity as a livelihood strategy, and consumptive use of natural resources and rural landscape through tourism, are important components of rural development, as the local contexts and the examples of the projects chosen for analysis show.

Project 1 – ‘Sustainable Communities’ (‘Hållbara bygder’)

The project ‘Hållbara bygder’ (hb ; see http://www.bygde.net/hallbara_bygder), initiated and managed by the popular movements council for Rural Development (pmc), is an example of a nationwide project based on local objectives and requirements. The project to promote sustainable communities lasted for three years, from June 2003 to May 2006. Project coordination, workshops, education and knowledge compilation and dissemination are funded through the Swedish RDP with four million Swedish crowns for the entire project period. The funding is supplemented by EU structural funds. The local projects initiated by the village action groups are funded separately by the regional parts of the Swedish RDP, the EU and national and regional sources. Sources of funding vary as do the local projects, objectives and methods of the pilot-groups.

Actors involved in the project The pmc is an umbrella organization for local village action groups. Fourteen pilot village groups are participating in this project. The project is led by representatives from the village action groups, the pmc, the Swedish University of Agricultural Sciences (Slu), the Swedish Association of Local Authorities and Regions (Sala R), and regional county administrations. An advisory group with representatives from regional and national authorities and organizations is monitoring the work, while the pmc has the main responsibility for implementing the project. Following the classification of rural actors by Tovey (1998, 24), the actors involved in the project are a mix of rural and non-rural groups. The rural actors are found at local level in the village action groups and in the pmc, while the non-agricultural actors are represented on the advisory board and by the advisors that bring scientific knowledge to the project.

The pilot village groups The pilot groups were already in existence as active village action groups with an interest in local sustainable development. The village groups applied to be part of the project when it was formulated by the pmc, and were chosen on the basis of their willingness to participate in the project. The groups are spread all over Sweden, with only four pilot groups in the northern parts of Sweden (one in Västerbotten, one in Jämtland, one in Gävleborg, and one in Dalarna). The work in the pilot village a mmer in Jämtland is described below.

Main objectives of the project The hb project aims to demonstrate how sustainable development can be achieved in rural communities. Development should primarily be based on local and renewable resources. Important aspects of rural development included are:

- local sustainable development through the use of local human and renewable natural resources to enable long-term social and ecological sustainability;
- knowledge about how local sustainable development can be achieved (analysis of processes, types of knowledge and goals reached);

- knowledge and advice on how rural development on a local scale should be carried out in future (analysis of lessons learned, future objectives and methods to reach them).

the main local efforts to initiate sustainable development, supported by the overall objectives of the hb project, can be seen in the following activities:

- creating a common frame of reference for the 14 pilot projects based on the guiding ideas of sustainability, use of local resources, improving and increasing local rural development.
- creating a network of pilot villages that can exchange knowledge and experiences.
- creating an opportunity for science and local actors to learn from the development process (scientists from the unit for Rural Development at the Swedish agricultural university are following the project to study learning processes in rural development).
- creating an opportunity for local, regional and national stakeholders to plan future projects that support local rural development better than the present RDP.

Types of knowledge used Different kinds of knowledge will be used for this initiative for rural sustainable development, including scientific as well as managerial, bureaucratic and local knowledge (using the broad categories of the Co Ra Son project). As the project is initiated by the pmc with a strong orientation towards local activities and practice, local and practical knowledge is widely supported as can also be seen from the decision-making processes. The 14 village action groups chosen for this project decide how and by which methods they want to develop their area – as long as they stay within the broad theme of sustainability and are using local human and natural resources to achieve development. In this case an abstract idea such as sustainable development, which comes from an international development discourse, is realized mainly through the ideas, knowledge, experience and skills of local people. The village action groups use social networks to gather, exchange and distribute knowledge and experiences between local projects in different areas. Local and practical knowledge should be driving and guiding the development process, whereas the managerial knowledge available in governmental institutions and scientific knowledge is to be used to support the functions or framework of local knowledge when relevant for a project. There is no dogmatic ‘knowledge philosophy’ in support of local knowledge within the pmc and village action groups, however. The hb project is more an example of an open attitude towards different types of knowledge, including scientific and expert knowledge, that are applied according to their practical utility for a project, for the purposes of:

- defining sustainability and gaining knowledge on how local resources can be used in sustainable ways, including methods to achieve desired development in the most sustainable way;
- studying the overall process in the project and understanding the learning process in local development;
- planning and initiating future forms of rural development based on experiences from this project.

to achieve combinations of knowledge forms that are useful for the local projects, village action groups are in contact with experts from public administrations; social scientists help to specify sustainability and to monitor the learning process; and natural scientists help to specify sustainability as a guiding idea and different forms of use of local natural resources as practical approaches to achieving sustainable development. Knowledge from different sources, actors and areas is used according to its practical relevance for the local development processes. practical use is the main criterion of knowledge relevant for rural development; but it is also clear what is expected from scientists – to interpret and make applicable the more abstract framing concepts such as sustainability in a given context of the local economy, culture, knowledge and experience of local actors.

Main results the hb project ended in may 2006. the main results of both the overall project and local level projects in the pilot villages are as follows:

- a functioning network of interested stakeholders has been established, and seminars, courses and workshops have been carried out within the network, strengthening the capacity and interests of local actors.
- A scientific study of learning processes from the Unit for Rural Development at Slu has been done, supporting the knowledge needs and interests of the local stakeholders.
- consultants have been hired to produce an analysis, including interviews with local and regional stakeholders, of how local sustainable development can be promoted in future.

The results in the pilot villages vary – as a result of the different approaches, strategies and objectives that each village has chosen. one of the local projects is described below.

Local Project Description: Ammer Village Action Groups

ammer and Krångede-Döviken are two small villages in the eastern part of Jämtland, in Ragunda municipality. the village action group in ammer was formed in 1995 mainly to purchase and renovate the old village school. now the school, ammergården, is renovated and open for courses, meetings, excursions, etc. the facilities are for hire, as is the village sauna and the sun beds. the 150 members of

the village activity group are engaged in different activities during the year such as festivals, markets and running a mmergård. a mmer has a riding centre with everyday activities as well as tourist alternatives; fishing and camping are offered to tourists and guided tours for hunting or animal-watching. Krångede and Dövikén are two separate villages that have decided to form one village action group. the action group was formed in 1998 and has about 100 members. in a mmer, as in all of Ragunda municipality, more people are occupied in agriculture, forestry, hunting, fishing, mining and manufacturing than in the rest of the county and in Sweden. more men than women are occupied in these sectors; women in this area often work in the public sector and commute to work. the population in Ragunda municipality is aging; not many young people or families stay.

Activities in the project the objective for ammer has been to develop the local area based on existing resources and attractive tourist spots by adopting the sustainable approach in the hb project which supports, for example, variants of 'soft tourism'. the neighbouring village action groups in a mmer, Krångede and Dövikén decided to form a local development project with the local riding centre as their core activity. the objective is to develop the local area to allow the local people to stay and make their living, while at the same time creating attractions for tourists that result in new jobs and opportunities for small-scale business. among the local activities are, for example, new plans for the restoration of a hiking and riding track, the building of several camping sites along the way. a 'Kulturrum' (cultural room) is being developed to make the local history known to the public, with a focus on the use of natural resources (waterpower and timber rafting). more environment-friendly fuel ('alkylatbensin') for snow-scooters is also being developed and tested to minimize damage from scooter use. Special seminars have been held to educate the scooter users, and information boards have been placed along important scooter tracks. Joint efforts to develop co-management for the local area and its ecological conditions have been made by the action groups, in coherence with the overall aims of the project. (Sources: <http://www.ammer.nu>; <http://www.ammeransfiskecamp.com/>; <http://hem.bredband.net/ridklubbenostjamen/>.)

Project 2 – 'Theme Wood: House, Home and Garden' ('Tema Trä: Hus, Hem och Trädgård')

Theme Wood (see <http://www.tematra.se>) is an INTERREG-financed project initiated by Jil u, Jämtlands institute for Rural Development and n t F, n ord-t røndelags Forskning (for the adjacent n orwegian project area) to develop small-scale refinement of wood within the rural areas of the neighbouring regions of Jämtland and h ärjedalen in Sweden and n ord-Sörtrøndelag in n orway (the n orwegian part of the project is not described here). it started in a pril 2004 and ended in December 2006. The project included sub-projects financed through other funding sources. An example of local components of 't heme wood' is given below.

Actors involved in the project the project was initiated in Jilu, a regional centre for rural development in Jämtland, established in 2002, and financed jointly from the county administration, regional municipalities and national sources. The centre has created several activities such as education and training for agriculture, forestry, gardening, food production and wood processing and refinement. Project partners include Norrskog (a major forestry company), LRF (the Federation of Swedish Farmers), the mid-Sweden university, Jämtland Regional Design centre, and the networks 'Specialsågarna' (sawmills) and 'eco build' (wood constructors). A number of small-scale wood refiners (ranging from builders, constructors and craft workers) are participating in project workshops, education, field studies and lectures. Using the classification from Tovey (1998), the local actors involved in the projects represent rural actors.

Objectives of the project the main objective of the project is to develop the local wood-processing industry in the region. Household and garden products are prioritized. There are more than 40 small sawmills in Jämtland, and about 30 small companies are active in different forms of wood refinement and building. Sawmills are experiencing increasing economic difficulties in competing with larger firms at the international level. The main strategy within the project is to enable the small regional sawmills to refine their products and to increase their profits. Finding new methods and products for wood processing is not only key to keeping jobs within the region and the small sawmills, but also to expanding the wood-refinement industry in these companies and developing small-scale wood refinement as a complement to (or replacement for) traditional rural incomes. The project aims to create:

- five interregional networks (one strategic and four operational; the strategic network is led by the project initiators Jilu and LRF and experts from industry and science; the operational networks include some 60 small-scale companies);
- fourteen new jobs within already existing companies and the networks;
- six jobs on farms (to be maintained by transferring from other sources of income to wood refinement);
- educational structures to transfer competence and develop new ideas within Jilu and the Norwegian equivalent.

Types of knowledge used the objective and goals of the project are to be achieved by a combination of methods which indicate the knowledge of importance for the project:

- benchmarking: cooperation with a successful national education centre for wood refinement in Finland.
- internet-based education: the costs of leaving the company temporarily to seek education are high for small-scale entrepreneurs. The possibility to

access knowledge via the internet and occasional weekend seminars will help more entrepreneurs afford education.

- Design as a trademark: a joint assortment of products within the sector 'house, home and garden' should be developed in cooperation with qualified designers. The refined products should be functional as well as exclusive in design and quality.
- Networking activities: Support for existing networks and in the formation of new ones. Competent experts and industry are brought together with small-scale actors.
- Support for new wood refinement entrepreneurs: Advice and knowledge on the mechanization of production, marketing, logistics, new techniques, and the testing of new products.

In contrast to the hb project, this one has a more focused and specialized knowledge base that centres on the theme of wood but still makes use of a variety of knowledge combinations:

- Local and practical knowledge found in traditional methods for refining wood is revitalized, for instance the traditional method for timbering a house.
- Expert knowledge from wood-refining entrepreneurs in other regions, countries and in larger scale production is transferred, also expert knowledge on aspects of design, selection and business development.
- Scientific knowledge is used as a form of expert knowledge by selected scientists that are actively engaging in construction, technique and education.
- A mix of managerial, scientific, expert and practical knowledge is used to develop educational programmes, courses, workshops and seminars that deal with all aspects of small-scale wood refinement.

The 'philosophy of knowledge use' in this project is similar to the one in the hb project with a focus on practical applicability – and in this case: market-oriented goals. The project follows a pragmatic approach – all knowledge is relevant that can be applied in a practical local context of rural development.

Main results ~~the~~ **the project was still running at the time of study, however, some significant results are clearly visible:**

- All networks have been formed and are active, both strategically and operationally.
- The number of jobs created and kept was uncertain, but at least two new businesses have started, more have been initiated.
- Courses, seminars, workshops and fieldtrips have been carried out both in Sweden and Norway.

an example of a local result in Jämtland is described below.

Local Project 'Theme Wood': Development Unit for Timber Building

Krokom Jilu, Jämtlands institute for Rural Development, is located in Ås in Krokom municipality in Jämtland. The specific local factors influencing the socio-economic situation in Krokom municipality (adjacent to the regional capital Östersund) include closeness to a major urban centre. The women in Krokom municipality are mainly employed in the public sector (education and health care), whereas the men are mainly employed in manufacturing, construction and agriculture, forestry, fishery. This pattern of work and income diversification at household level can be found in many rural communities in Sweden.

many inhabitants of Krokom commute to work in Östersund. Jämtland is experiencing depopulation in the municipalities further away from Östersund, and from the areas without larger villages. The project described here is designed to improve conditions for small-scale refinement of wood in all types of rural areas, helping local entrepreneurs to start businesses even in remote areas, thus strengthening the local economy and social structure.

For the project it is important to revitalize local traditions – wood refinement has been a part of the local economy and tradition in the region before industrialization. At that time wood processing was a natural part of work on the farms and in husbandry, combined with forestry, hunting and fishing. After industrialization, wood refinement continued to be used as a skill in households, most often when new buildings, tools or ornaments were needed. The project links this household tradition with today's need for diversified rural livelihoods and fills the local gaps created by the concentration and commercialization of the forestry industry producing for distant markets.

Local project base Jilu, as a centre for rural development, including wood refinement with a speciality in traditional timbering methods, combines undergraduate education in agriculture, food production, forestry, wood refinement and gardening, with shorter courses. It is also a meeting place for regional entrepreneurs, experts, scientists and people working in the educational system. *Jilu* is creating a development unit for timber building to strengthen and develop knowledge of mechanized timbering methods. The development unit includes a production line for mechanized timbering; cooperation with the educational programme for construction engineers; and other new building methods.

The local project is funded through EU Structural Funds for Objective 1 areas. It started in January 2006 and ran until December 2007. The total funding amounts to 3,995,800 Swedish crowns; 2,188,700 Swedish crowns are funded by the EU, 1,807,100 Swedish crowns from national public funds.

It should be noted that Ås already hosts Eldrimner, a national centre for small-scale refinement of rural products, especially food products (Bruckmeier and Höjarsen 2002). Eldrimner started as a rural development project but has grown from

its success to be a national centre for knowledge about small-scale refinement. t his initiative stimulated others; also the Jilu project to develop a unit for timber building should be seen in relation to existing activities, experiences and capacities in Ås. New and better jobs in the small-scale refinement sector as well as positive spin-off effects in the education and rural development sector are the rationale for the project.

Comparing the Rural Projects

Actors and Objectives

t here are several similarities between the two examples given above which underline their quality as rural projects that make use of local resources, develop new economic activities for the rural population outside agriculture, and stimulate cooperation and networking to capitalize on the experiences, knowledge and capacities available in the area. Rural actors are the participants in both projects which aim to use the neglected resource of local knowledge and the natural resources available for local rural development. both projects also demonstrate the difficulties involved in developing the local economy in rural areas and in using rural resources. In the first project the diffuse and broad scope of activities supported by the project shows how difficult it is to identify activities that can support a larger number of people. in the second and contrasting project, the focused theme and the use of wood as a resource to stimulate new local economic activities show the limits of rural development both with regard to specific resources and economic actors. both cases show that strengthening rural communities through new, non-agricultural economic activities under the conditions of the Swedish study area (remote, thinly populated) cannot simply happen through exogenous change by:

- providing support for the foundation of new small enterprises or
- motivating entrepreneurs and enterprises to create new branch offices or plants in the countryside.

t his approach to modernization in rural areas has not always worked successfully, as the crisis of the cap in the 1990s and the reform efforts since then to diversify and broaden the strategies of rural development and to turn towards strategies of indigenous development, have shown. instead of transferring the industrial and 'productivist' development model to the countryside, elements of another strategy can be seen in both projects, echoing prior discourses about endogenous rural development (although this is not the guiding ideology of the projects), and what is discussed today under the umbrella term of sustainable rural development. t he projects, with all their differences, include two main components:

1. the idea of developing the economy from the rural and regional resource base (in terms of natural, human and economic capital).
2. The idea of strengthening the influence and knowledge of local and rural populations in the use and management of natural resources.

this is not a fully elaborated and programmatically formulated new development strategy for rural areas, and few of the Swedish actors involved are interested in making their projects and the basic principles of these into a new philosophy of rural development to be transferred and practiced in other remote areas. this is probably of more interest to governmental actors and scientists who are seeking new ideas for what is called 'living rural communities' and ideas that they try to use in their conventional logics of 'best practice', transfer and the spread of innovations to other rural areas. the projects have moderate ambitions and simple aims. one of their guiding ideas is to make use of external assets, expertise and funds to strengthen available local skills and capacities. the ambitions are also moderate in the sense that the projects support the continuous struggle to maintain living rural communities with a minimum of people, economic activity and resources.

In the first project, local inhabitants are organizing action groups that formulate the objectives for their own small-scale projects. the local action groups consist of people from different backgrounds and different economic or professional fields; the overall objective is to achieve economically and ecologically sustainable development using local resources. what that means in the concrete situation becomes clear only through the description of specific objectives and project tasks formulated in relation to concrete work activities (for instance restoring a hiking track or building campsites). the objectives combine local needs with the expectation of attracting tourists – every single activity is also a way of increasing the attractiveness of the local area by using the amenity of landscape as a resource for development additional to productive resource use. in this project, local and practical knowledge at the village level is supplemented with expert, managerial and scientific knowledge that is supplied and transferred through the national network pmc .

In the second project, a group of rural and small-scale producers are targeted – the saw mills and wood-processing firms. The actors involved beyond the producers, are experts and scientists from the region, and the objective is to strengthen the local saw mills through diversification and improved product quality. Small-scale wood refinement is seen as a way of increasing profit and combining local natural resources and traditional knowledge to manufacture modern quality products. increased production in the wood sector is even seen as an option for other rural inhabitants to supplement their incomes. traditional knowledge from craftsmen is combined with modern techniques, using expert and scientific knowledge. Setting up a knowledge centre at Jilu in Ås is clearly intended to help combine the knowledge forms into practical work – and it is based on the success of the centre for small-scale food production already in existence in Ås.

The first project is more diffuse and multi-faceted in its aims, the actors involved (many and manifold local groups) and activity areas. It is more difficult to see how this project results in concrete and lasting economic activities for strengthening the rural economy beyond the expectation that this will happen through more rural tourists. The project is one for 'continually generating solutions', not for developing one specific theme, product or resource as in the second project.

Project Discourses and Practices

In the first project the discourse between the actors involved is an example of a network-based discourse about local or community development that involves local and non-local, rural and non-rural actors in different roles – as 'supporters' and 'implementers'. The themes guiding and driving the discourse are those of 'local power', 'cooperation' and collective action, 'building living communities', or, in the new political rhetoric, building 'sustainable communities'. All themes centre on the core issue of mobilization and participation of local actors. This can be seen as a core activity of sustainable rural development, but not its only one: projects are not sufficient examples for sustainable rural development because they organize some form of local participation or cooperation, as do most projects supported and funded by the eu. Beyond the more political and organizational questions of the new local movement, a dialogue about the future of rural areas and rural civil society is developing through such networks, movements and projects. This discourse is characterized by the combination of expert and local knowledge and has a history dating back to the 1980s in Sweden when local development movements also formed in the countryside, especially in the study region Jämtland (Ronny 1995), with the aim of rebuilding local society. This discourse is still strongly inspired by the objectives and ideas of the rural movements of the 1980s and 1990s, although these local movements have changed somewhat in the past decade and since eu membership. The local movements that emerged during the former process still exist, organized now in the pmc mentioned above; they have changed their aims and ideas somewhat in reaction to the new experience of opening rural areas to international influence and to contacts established through eu-membership.

What characterizes the movements as local and rural movements (not as movements of 'incomers' or urban dwellers and commuters) is that they include the rural population groups, but also that they are much less based on pioneering forms of a new sustainable local economy and society that emerge in eco-village movements or organic farming and let S projects. In contrast to these 'back-to-nature' projects that are often initiated by urban dwellers, the rural movements and projects of the kind analysed here develop from traditional forms of rural economy and livelihood and their innovation is to maintain or revitalize traditional production and knowledge in an attempt to demonstrate that these can be part of a long-term development strategy for rural areas, not knowledge and practice devalued through modernization which cannot be used any more. Their ideas include revitalization

of traditions, skills and forgotten local knowledge and practices linked to hunting, fishing, agriculture and local handicraft, and building and managing the agricultural landscape. However, there is neither the 'romanticizing' of rurality, tradition and simplicity nor the pioneering and change-oriented ambitions associated with other kinds of projects.

The practices of the actors involved and their roles can be derived from the core themes of the discourse. In both cases the project-type of activity (as activity limited in time that requires the periodic founding of new projects) defines the perspective of action and time: although limited through funding periods, the time horizon is an indefinite one that allows short-term activities to be connected with long-term goals of (sustainable) rural development. The projects are not oriented to creating or founding new enterprises although this happens as part of their activities, but more to process- and network-oriented types of support, information and cooperation, as, for instance, the training and resource centre at Jilu mentioned above.

Knowledge Types and Actors

By developing resource centres and meeting places for actors representing different interests and carrying different knowledge, capacities and experience, the Jämtland region is contributing to building a unique network-based culture for sustainable rural development – without programmatically using this term. This is done by combining different knowledge forms in 'transdisciplinary' knowledge use processes (to introduce a new epistemological term that, however, would never be adopted by the rural actors doing that) that include the range of local, expert and scientific knowledge available in the region. What makes the different knowledge forms connect is not their complementary quality in an abstract, definitional sense, but the people interested and involved in the projects. Scientific and external managerial knowledge do not flow into the projects if there are no active and engaged scientists and bureaucrats participating in them – and in this way the 'extended local quality' of rural development projects is maintained by the principles of personal presence and oral communication.

Dominant knowledge forms in both projects are variants of expert and local knowledge rather than scientific knowledge. When experts and scientists are involved in the projects they are mainly persons from the region. This underlines that both projects are dominated by rural actors and their interests. Scientific knowledge is less needed for projects that are driven by experiences and routines available among the rural population. Such projects create chances to revitalize tacit knowledge in rural development; tacit knowledge has to a large degree been lost during the modernization process, especially in agriculture, resulting in 'expropriation' of peasants and farmers in the sense that they are more and more dependent on bureaucratic decisions and expert knowledge, while their own expertise and experience counts less and less. Through the strengthening of tacit knowledge, projects such as these analysed here can be seen as part of a

process of what has been described in ecological research as ‘enhancing social-ecological memory’, which includes the different roles of knowledge producers and users (such as carriers and retainers, interpreters and sense makers, networkers and facilitators, stewards and leaders, visionaries and inspirers, innovators and experimenters, entrepreneurs and implementers, followers and reinforcers: see berkes, c olding, Folke 2003 368 ff.).

Success and Risks of Non-Agricultural Projects

From the project examples it seems too early to formulate conditions for success and failure of non-agricultural projects for sustainable rural development, with all the varying interpretations of this idea by rural actors. the projects analysed are targeted towards temporary solutions and should give rise to impulses, ideas and examples rather than ready-made solutions that can be copied. Some lessons of experience that are more reconfirmed than learned as new lessons are ones that have been reported from earlier examples of rural movements in the region (Ronny 1995, 244 ff., relating to results reported by Ålmas): how important it is for success that local people and rural inhabitants take the initiative; it is also important that local communities and municipal administrations create an enabling environment by supporting the projects with regard to administrative, legal, etc. advice and support; external support and stimuli such as from governmental or eu institutions and policies can be helpful for RSD-projects, but the external support can neither replace the local actors nor take the dominant and directing role in rural sustainable development – that would be the end of the process.

a more recently developing element of the projects is information technology (IT) and Internet-based communication. IT is of specific, not yet sufficiently studied, significance for developing rural economies, but in the projects analysed here it remains an infrastructure, not a dominant part – although more and more farmers and enterprises in the area use such technologies. the projects analysed are based on more conventional resources and production or processing technologies for innovation or the revitalization of the rural economy.

The local village groups in the first project analysed demonstrate a local and participatory perspective for development. in their case local knowledge about socio-economic and natural resources is used to reinforce local capacities. in the network of village action groups all participants use and exchange their local knowledge to interpret and translate other local experiences and needs. a lso, in using expert knowledge to design projects or apply for funding, the local practical perspective is never lost. t his local perspective has both problems and advantages. problems include lack of knowledge about how to market attractions in the region and the competition between them. a dvantages include detailed knowledge of local resources, local autonomy and focus on local everyday needs.

t he other project is grounded in a major rural resource, wood. h ere a successful example from small-scale food production (eldrimner) is emulated. t he idea of creating a joint n orwegian and Swedish project was developed in a bureaucratic

environment, using knowledge from management and education, but still, local traditions and knowledge are necessary to the project. Traditional craftsmanship and designs have become commodified. Lay knowledge is used to create products that can be marketed as part of folkloristic history; the craftsmanship and uniqueness of the products are inevitable parts of the end products. This project is more likely to create work for entrepreneurs. The use of local knowledge and tradition might very well strengthen both the value and the identity of products and producers. On the other hand, the expert knowledge used to create the project may not suffice to establish sufficient interest and local support for the project. Additionally, there is a risk of over-estimating local tradition for commercial and market purposes.

Conclusions

The main conclusions from the case studies need to be related to the type of rural areas that characterize the Northern Swedish study area – remote, thinly populated rural areas that suffer from a weak economy, lack of investment, and out-migration of the population or of firms.

1. The rural actors and their practices exemplified in the two projects are actors, inhabitants and experts who, for different motives and reasons, live and want to stay in the rural area. Also, therefore, they are willing to and interested in becoming actively involved in new economic activities to improve their livelihood. The success of such projects can weaken or stop out-migration from rural areas. A counter-trend towards re-migration from urban to rural areas is happening in various regions in Sweden, but hardly in forms that can be understood as strengthening rural communities, villages and their economies: more in the form of building a ‘commuter economy’ in rural areas close to urban and metropolitan centres as extended suburban areas.
2. The knowledge forms of importance for projects that strengthen the rural economy and allow for more sustainable rural development vary locally. They imply manifold combinations of different knowledge forms, in which, however, more local and managerial expert knowledge than scientific knowledge is important. The characteristic processes of knowledge building and learning that occur during such projects can be described as rebuilding and strengthening of tacit knowledge. This process, however, needs to develop much further (and not decoupled from other knowledge forms) before it can be seen as a core component in rural development, with rural knowledge societies developing through transdisciplinary knowledge. Local ecological knowledge is often an important but still not fully recognized component in such projects which show how rural areas provide the natural resource base for society. A debate about the interpretation of sustainable development happened in the projects as part

of the knowledge sharing process, not as a core activity but rather as a division of labour where scientists took the ‘advocate’ role to interpret a concept and local people contributed with ideas and knowledge about how to use natural and other resources in ways that better met their interests and needs.

3. the framing policy conditions include as core components: networks between rural actors (such as the pcm) and networks between rural and non-rural actors, bureaucrats and scientists – the latter in the form of ‘long cooperation chains’ that make projects successful in creating the enabling conditions for funding, administrative, legal and knowledge support, and that convey local interests for realization within a large, formalized political system. policy implementation, monitoring and evaluation happened in conventional ways, determined by the cooperation between state agencies and EU institutions – but this policy process in the limited sense is not the core component of the governance process that emerges with such projects. with their innovatory components they go beyond such policy mechanisms in order to find new and better ways of using and managing natural and other resources in rural areas for the wellbeing of people and ecosystems. this is sustainable development in practice, however, without programmatically using that notion or following a new idea. For the local rural actors sustainable development turns out to be something which is self-evident, which they have always done, and which dates back to local traditions and knowledge of resource use. The policy and scientific discourses about sustainable development are not the creative part of the development process, more a necessary component to realize local interests in a complex society.
4. although realized within a non-federal and centralized political system, the cases give examples of governance strategies in rural development that can be described as sustainable development through a ‘bottom-up’ approach (centred on strengthening the role and the participation of rural inhabitants and local producers and resource users in resource management). this is not yet an advanced process or a solid empirical message: it emerges from ‘exemplary verification’ in single projects that cumulate towards such an idea. But the cases are also specific with regard to their contexts and this is hardly visible in generalized governance models. as has been mentioned before, even with the local initiatives and ‘bottom-up’ strategies the ‘administered’ nature of the projects is visible through the municipal and regional administrations involved, and through their dependence on external funding from national or international programmes and funds. For the success of the projects, the influence of external actors and funds has been kept limited; in their core activities they contribute to maintaining local identity and culture.
5. a non-agricultural economy need not be an economy independent of agriculture but can be built upon economic activities that simultaneously

strengthen the role of agriculture or the primary sector and local producers. This is the specific feature of both the projects analysed here, and this may be seen as part of a more general model for sustainable rural development which can be described under the strategy of sustainable rural livelihoods.

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Poland: Diversification and Different Contexts of Knowledge – The Case of Polish Rural Areas

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Introduction

Along with the political and economic transformation in Poland in 1989, agriculture and rural systems also began to face many changes. The agricultural strategy Poland adopted at the start of this systemic transformation created conditions for farming development and accentuated the need for the dynamic development of rural areas (World Bank Task Force 1990). The United Nations Development Report on Social Development (2000) *Development of Rural Areas in Poland* stresses the fact that the future of Poland depends on whether rural areas can be incorporated into the mainstream of state development. The rural development issues it tackles are presented from the point of view of human development. 'The point is that conditions need to be created to extend the range of human choices ... human development requires political freedom, guarantee of human rights protection and active partnership between the society and state authorities as well as activities aimed at environment protection and economic development in harmony with the environment' (iii).

However, the social and especially economic situation of farmers and agricultural owners as well as the rural population during 15 years of systemic transformation inspired different assessments and interpretations among researchers, politicians and stakeholders themselves. There continues to be significant cognitive discourse. While the structural diversity of Polish agriculture is not questioned, problems of the character, pace and progress of system transformation are much debated. In their analyses of strategies adopted by the Poles as a result of social change, Giza-poleszczuk, Marody and Rychard (2000) point to the following key aspects: (1) Poles entered the period of reforms with a specific set of habits and customs which worked in the past but were no longer effective in the new institutional climate; (2) new conditions involve new and changed individual opportunities in new markets and in particular spheres of social life; (3) individuals can take advantage of the new institutional opportunities if they have the appropriate resources (age, education, flexibility, emotional intelligence, etc.).

As with so much of the country, rural areas in Poland have been subject to many intensive and multi-level processes of diversification over the past 12 years.

For instance, agriculture is undergoing constant changes both as regards ownership structures and types of land cultivation. Among other things, these processes have caused a reduction of farms engaged in agricultural activity and a substantial increase of farms where land holders live from non-agricultural incomes. As a consequence, the structure of farmers' sources of income has dramatically changed (the number of people who live exclusively or mainly from farming has decreased by about 30 per cent). According to the 2002 census more than half of rural area inhabitants do not work on the land at all and only 6 per cent of rural area inhabitants live off the land. However, the scope of economic diversification of rural areas, if compared with existing needs, is still very insufficient (Wilkin 2007).

In the past, as Duczkowska-Małysz points out, Polish rural areas managed to survive for decades due to diversified forms of farming, their various functions and the nature of communities. Such diversity was their strength. Nevertheless, today and in the future different forms of labour, structure and resources will be needed. 'even the most structurally backward rural areas enjoy a sort of *backwardness allowance* in the form of a landscape with exceptional values, preserved land, historical and cultural landscape. Its preservation is a priority for the EU' (Duczkowska-Małysz 2007, 33). The author does not call for intensive industrialization or urbanization of all the regions, but she emphasizes that all communities need to make a conscious choice about their development path on the basis of their knowledge and opportunities. She also stresses the need to learn new patterns of behaviour '... not only individual, but also collective and extra-family behaviour ...' (Duczkowska-Małysz 2007, 32).

It should be emphasized that modernization is not only a new institutional system but also a change of activity '... of individuals, categories, and social groups, as there are new patterns of thought and judgment, new adaptation strategies, new ways of coping with reality' (Ziółkowski 2000, 38). Quoting Szczepański, 'to focus only on creating political and economic organizations – just as in the nineteenth and twentieth centuries – is not enough to solve the countryside and agricultural crisis. What are needed are creative and autonomous individuals, able to embrace new visions of reality, compatible with the emerging global and universal order of the European economy' (Szczepański 1992, 94–5).

Different Contexts of Knowledge: Two Cases

The main aim of this chapter is to analyse the changes that are taking place in rural areas of Poland where agriculture is no longer the sole pillar of the local economy. The research examines the strategies undertaken by local communities to find an alternative source of income and considers how these strategies are related to the idea of sustainable development and how innovative they are. The dynamics of knowledge in this context are of special interest.

In Poland the CORASON research project was carried out in two regions – the Małopolska and Łódź regions. Both are characterized by a disadvantageous

agrarian structure and a high level of unemployment. In both regions one can observe the rapid development of private, non-agricultural enterprises after the fall of the communist system in 1989, as was generally found throughout the whole country. The non-agricultural sector in the regions concerned is still relatively weak and consists predominantly of small businesses employing less than ten people (shops, factories, etc.). In such a situation, creating alternative sources of income for rural communities is one of the top priorities both for local authorities and for the inhabitants themselves. Two different strategies are illustrated in the case studies described here.

The first case – Raciechowice municipality in the Małopolska region – shows on one hand the rather conventional means used by local farmers to search for alternative sources of income, and on the other hand, efforts by local authorities to create rural business incubators and develop a new branch of the local economy. The second case from Parzęczew Municipality in the Łódź region looks at a project for using renewable energy resources – willow production for bio-mass. Each strategy is followed by different actors and appeals to different types of knowledge.

Co Ra Son distinguished between the following (analytical) categories of knowledge: scientific knowledge (knowledge based on research, general laws, universal knowledge, and systematic knowledge produced by institutions like universities, research institutes, etc), expert knowledge (knowledge based on scientific knowledge but influenced by a managerial knowledge, found mainly among scientists interested in applying their knowledge as well as among various experts and consultants), managerial knowledge (organizational knowledge, strategic knowledge, knowledge of leadership and social systems dynamics, used mainly by politicians, administrators, project officers, managers, various types of decision-makers), local/lay/tacit knowledge (life-world knowledge, traditional knowledge, indigenous knowledge possessed by rural inhabitants), practical knowledge (mix of local and expert knowledge used every day by rural inhabitants).

In the research for the cases described here, different sources of information were used: various types of documents as well as in-depth interviews with individuals involved in the analysed projects (the representative of a particular ngo and/or of the local government, farmers, etc.).

Case Study 1

Non-Agricultural Economy in Raciechowice Municipality (Małopolska Region)

Raciechowice Municipality is situated in the south-east of the Małopolska region, a distance of 40 km from Krakow. The total area of the municipality is 61 km². The population density is currently nearly 97 persons per km². The community has a typically agricultural character, with almost no industry. It is well-known for its well-developed orchard production. Raciechowice municipality is the

biggest centre of fruit production in the whole Krakow area. it produces up to 20 thousands tonnes of different fruits annually, mostly apples, but also plums, pears and black- and red-currants.

the development of non-agricultural economic activity in this municipality should be seen as a result of various efforts undertaken by local authorities. in fact, the project under consideration might be perceived not as a typical single project but rather as a set of policies advanced to coordinate various activities by local entrepreneurs and to help to implement various initiatives. as the head of the local administration said during a personal interview: 'in the municipality nothing happens accidentally. economic changes have been stimulated by the purposeful efforts of local authorities.' therefore it is worth describing and evaluating municipality economic policy.

the break point in the history of non-agricultural economic activity in the community can be pinpointed as 1989, i.e. the collapse of the communist system and the beginning of major political and economic changes in poland. Since then one can observe significant growth in non-agricultural economic activity in the municipality area. three groups of entrepreneurs have been visible in this area of activity, the former farmers, former poultry producers (poultry production was one of the major agricultural activities in the area before 1989 and also in the first few years afterwards), and newcomers making use of some advantages offered by the local authorities in order to promote non-agricultural economic development.

The first group represents the most traditional way of developing non-agricultural economic activity in rural areas undergoing post-communist transformation. Some farmers came to the conclusion that their farming activity did not result in a sufficient income. Therefore they decided to supplement their income with trading activities, establishing small local shops in their houses. however, around 1996 the number of such small businesses increased so much that some of them were forced to close because of falling incomes. the second group, the poultry producers, withdrew from poultry production and switched into various types of services (stonecutting, carpentry, producers of garage gates, bricks, etc.). they used their poultry houses as spaces for their new businesses or even rented the facilities to other entrepreneurs. This is still a significant part of non-agricultural economic activity in the municipality.

Stonecutters are a good example of this vibrant activity. there are three such businesses in the local community, all quite sizeable. two are run by local people (two brothers), the owner of the third is a newcomer who specializes in marble, offering products to churches, for example. The two local firms have focused on the production of grave markers and headstones as well as pavements and walls. local people working as stonecutters might be treated as a legacy of stonecutting activity in the area because of the stone quarry that existed in the area. today the quarry is defunct but the tradition and skills remained in the area and they were helpful to such businesses.

the last group of entrepreneurs has been formed by newcomers trying to open businesses or move existing businesses into the area. many people who are

involved in the non-agricultural businesses in the locality are no longer farmers at all. according to the head of the local administration, 'today non-agricultural activity is not a supplement to farming but is carried out instead of farming.'

Raciechowice municipality has developed a special policy to attract entrepreneurs into the area. in 2003 a local law was established offering local tax cuts to entrepreneurs who decided to move their businesses into the area. as a result some small businesses from neighbouring municipalities and even from Krakow (the capital city of Malopolska) moved to Raciechowice, establishing eleven new job positions. this local authority policy was developed in accordance with the local policy of preserving the natural environment. businesses that might be harmful to the environment are not allowed to open. local authorities also try to encourage the development of small businesses cooperating with the larger ones located in the 'special economic zone' which was established some years ago near Myślenice. Local entrepreneurs are also encouraged by local authorities to join the regional chamber of commerce in order to exchange experiences with other non-local businessmen as well as to get an opportunity to participate in various training sessions and workshops organized by the chamber. according to the head of the municipality administration, non-agricultural economic development has to be encouraged and supported by local authorities to get positive results. The first wave of spontaneous development of small retail services from the early 1990s is definitely over now and nothing more can happen without such support from local and regional authorities. therefore, the authorities launched the local strategy for economic development in 1995. they created a local information centre especially for entrepreneurs, providing them with some legal or architectural advice. the centre also offers some training and courses for unemployed people as well as an opportunity for them to meet with entrepreneurs looking for workers.

Non-agricultural economic activity may be seen as a significant and visible phenomenon in Raciechowice. according to the census, 261 businesses were registered in the municipality in 2002. ninety per cent of them belonged to the private sector. the remaining 10 per cent were registered as public entities, including four cooperatives. the tendency to establish new businesses was quite high at the beginning of the 1990s, but slowed down in the second half of that decade. however, a net increase of new businesses is visible. compared to the year 1995, the number of businesses in the locality has increased by almost 20 per cent.

Retail businesses and transportation services predominate among the businesses. other types of businesses include bakeries, carpentry, production of construction materials, and tinsmith shops. other services, including small hotels, tourist services, and business support services, as well as financial and insurance services, still form the minority of local businesses. almost all businesses belong to the 'small' category (less than ten employees). the largest one gives work to 40 people. A significant part of the local labour force is employed in public administration, education and health services.

the 'Kitchen centre of business Support' in Raciechowice municipality was a local government initiative. the idea was to create the base on which a new

branch of the local economy could be built. with the help of a special grant, the old school building was turned into a 'business incubator' where local women could find the necessary production space and offices to start a food-processing company; thus, the inclusion of the word 'kitchen' in its name. t his ambitious plan, however, never materialized. Two main reasons for this were the insufficient number of women willing to engage in the project and the strict laws regulating food processing which made small-scale production unprofitable.

t he authorities, undeterred by this failure, decided to use the newly created 'centre' to develop other ideas for non-agricultural economy. Firstly, it became the headquarters of a producers' group established by the fruit growers (Raciechowice area is famous for its apple orchards). l ater, the centre attracted companies from outside the municipality. b oth the marketing agency and the sewing factory that are currently using the building have provided new jobs for the local community. in that sense the creation of the 'business incubator' has contributed to the development of the non-agricultural economy. a lthough the enterprises are not run by locals, as was originally planned, they offer an alternative source of income in this predominantly agricultural area.

t he project implemented in the Raciechowice community might be considered an unsuccessful initiative launched by the local authorities, and two basic reasons can be identified as key causes of the failure. Both are connected to the shortage of different types of knowledge as well as proper social capital. t he local authorities simply could not find a sufficient number of local women ready to organize an initiative and work in the 'incubator'. m oreover, those who were eager to be a part of the project did not have proper knowledge of cooking recipes traditional to the area. m oreover, the strict sanitary laws regulating food processing and production processes made the whole idea unprofitable. Therefore, we might stress that a lack of local, tacit knowledge as well as a lack of administrative and managerial knowledge concerning the legal regulations resulted in the collapse of the whole initiative.

t he local government strategy is to foster the activity of companies in the community. it can be done either by encouraging the local population to start businesses or by attracting investors from outside. t he case of the Kitchen b usiness Support c entre links both alternatives. o riginally, it was a project to create favourable conditions for local residents to start food-processing production. t he idea, which was very much embedded in a strategy to make use of local knowledge, failed to materialize. b oth external (legal regulations) and internal factors (insufficient response from the local population) contributed to this failure. in our opinion, the lack of social leaders/activists who could act as intermediaries between the authorities and inhabitants has been an additional negative factor. t here was no 'endogenous social movement' in the community. t he local authorities' initiative, being a typical 'top-down' approach, turned out to be unable to encourage a wave of entrepreneurship. t he general conclusion seems to be that a 'top-down' model is not an appropriate tool in attempts to make use of local knowledge. w hen there is no 'bottom-up' initiative from the local population, the

creation of even the most sophisticated infrastructure by the government will not bring a satisfactory result.

On the other hand, the actions of the local authorities in Raciechowice were quite effective in attracting external investors. The difference is that such external actors build their businesses without using local knowledge. For them, the favourable economic conditions created by the local government are sufficient (low taxes, infrastructure, etc.). In this respect, 'top-down' approaches are successful, as in the end they contribute towards the development of the non-agricultural economy through providing new jobs.

Case Study 2

Innovative and Alternative Directions of Local Development: Willow Producers for Bio-Mass Collection and the Construction of Bio-Mass Heating System in Parzęczew Municipality

Parzęczew Municipality is situated in the northwest of the Łódzkie region, close to the Łódź agglomeration (which is 27 km away). The municipality has 5,462 inhabitants in an area of 10,390 ha. The population density is 53 persons per km². The municipality has a typically agricultural character, with 87 per cent of its inhabitants employed in agriculture. There are 860 individual farms in Parzęczew, with an average size of 9.5 hectares.

The municipality is divided into four functional zones: an agricultural area, an urbanized (built-up) area, an ecological area (forests, waters), and an area of development which is designed for investments and economic activity and is also connected with tourism. The most important project planned for, of whom the fourth area is the creation of a huge reservoir (of 220 hectares) and a water sports centre with an accommodation base. The local government is seeking an investor to undertake the project. The municipality is prepared to invite investors who would like to engage in business activities in the field of tourism and recreation, as well as pro-ecological and food-processing industries.

There are 238 economic subjects in the municipality, and their spheres of activity are as follows: 44 per cent in trade, 10 per cent in transport services, 9 per cent in building, 7 per cent in tailoring, 5 per cent in processing of wood and only 2 per cent in industry (others spheres – 23 per cent). The trend of the local economy is towards the development of services, mainly trade and services connected with tourism. An Agro-incubator Enterprise operates in Parzęczew Municipality and supports entrepreneurship (there are five such organizations in the rural area of the Łódzkie region). Among its tasks are training and advisory services related to the development of small and medium-sized enterprises (SMEs), help in the creation of new firms, securing funds, etc.

Parzęczew municipality could be considered an example of an innovative milieu in the region because of the number of innovative projects that have been

carried out there over the past five years (this is the local government's period of office, which expires this year, 2008). As a result of structural and organizational changes as well as contributions from active specialists, the municipality over a short period of time became an area undergoing intensive transformation. The establishment of an Office for Structural/European Funds in the region and the provision of ongoing training for young specialists have led to numerous successes in obtaining European funds and managing investment projects (the municipality budget doubled in size over a three-year period).

The local authorities in Parzęczew Municipality are very active and undertake many interesting and innovative initiatives and actions, such as building local partnerships within the LEADER+ pilot programme. Also worth mentioning is a project entitled 'Common trademark – Taste of the country', which was part of the Local Government Partnership Programme in 2000–2001. The aim was to improve the competitiveness of local food producers and to create a common trademark for food products produced in the municipality. The effect of the project was to strengthen relations between local entrepreneurs and the local authorities, although in fact the shared trademark 'Taste of the country' isn't used because of a lack of bigger food producers in the municipality.

A strategic objective for the municipality is sustainable development, understood to mean that 'we do not only support entrepreneurs or concentrate on education or road building. The municipality development should provide all inhabitants with an opportunity to pursue their plans, this is what "sustainability" is about. There should be something for everyone, for entrepreneurs, investors, education and farmers. In fact, such a municipality should be able to solve all problems and meet all needs. The mission of our municipality is very broad: the Municipality of Parzęczew is friendly to the environment and investors, it is safe and provides good living and leisure conditions for the inhabitants of Łódzkie Region' (Jp, representative of the local administration).

It should be emphasized that the community, both at the time of radical political regime change in 1989 and after ten years of political transformation, was considered to be a region of minimum non-agricultural activity. Agricultural activity dominated. It was assumed that certain unfavourable infrastructural and demographic conditions in the majority of rural areas as well as the great distance from cities made it impossible to create favourable frameworks for pursuing non-agricultural economic activities. In the previous regime of a centrally planned economy, dairying dominated the region, and when demand for milk significantly diminished, a lot of privately owned farms were deprived of their main source of income.

One of the innovative schemes undertaken in the Parzęczew Municipality was the production of willow for bio-mass, which provides an alternative source of income for local farmers. Such actions are the results of both EU and national policy. The most important legal regulations that favour development of the bio-power sector include EU directives on the promotion of electricity produced from renewable energy (2001/77/EC), on common rules for the internal marketing of electricity and on the promotion of the use of bio-fuels or other renewable fuels

in transport (2003/30/ec). a national government document adopted in 2005, *Energy Policy of Poland until 2025*, points out that renewable energy development should be based on bio-mass and that the share of liquid bio-components in the liquid fuel market should gradually increase. according to the *Rural Development Programme for 2007–2013*, the ‘importance of renewable energy production in the Republic of Poland is growing systematically. the share of renewable energy in the total energy production was almost 5.5 per cent in 2005. it is expected that the share of renewable energy in the fuel and energy balance of the country will have reached the level of up to 7.5 per cent by 2010’ (Warsaw, July 2007, 87). Poland has great potential for the production of renewable energy by agriculture.

however, the development of bio-power is still mainly associated with the production of fuels, thermal energy and electricity on an industrial scale. it is estimated that in 2005 the demand for bio-mass amounted to 4.6 million tonnes and this is supposed to double by 2010. however, the market for energy materials as willow or straw is still very fragmented. power plants are only beginning to sign contracts with willow growers.

The Strategy for Development of Renewable Energy Resources adopted by the government on 5 September 2000 stipulates that by 2010 about 140–170 thousand ha of arable land will be used for energy purposes, whereas in 2004 it was only 7–9 thousand ha. energy plants will soon become a vital part of agricultural bio-mass crops. Interest in this type of farming has grown significantly since 2005 when subsidies for energy crops (ordinance of the minister of Agriculture and Rural Development of 17 August 2005) were agreed. there are also new possibilities for providing financial support to farmers who start growing energy plants (The National/voivodship Fund for environmental protection and water management). growers of willow (*Salix viminalis*) and thorn-free rose (*Rosa multiflora*) receive subsidies provided they have a hectare of land. producers who only process willow or rose on their farm do not receive subsidies. they have to sign a multi-year contract with a processing plant. Financial support for energy-plant production comes from the state budget (€55 per ha).

nevertheless, the local energy market is still in its infancy, even though smaller installations owned by the municipality could be based on local green energy resources from nearby fields. This agricultural bio-mass could also be used for heating systems in houses and utility buildings. moreover, since avoiding transportation of bio-mass over long distances is strongly recommended, and growers need to have a contract for the bio-mass they produce, it seems that a local market is becoming an immanent part of the project.

the *Communication on Prospects for Use of Alternative Energy Sources in Łódź Voivodship* was adopted by the local government in autumn 2003. the ‘Bioenergia’ Programme on Methods of Supply and Use of Renewable Sources of Energy implemented by the bioenergia consortium and under the auspices of the Ministry of Agriculture and Rural Development and the Marshal Office in Łódź is in line with that communication. as its authors emphasize, ‘the programme is one of the first complex projects aimed at replacing existing methods of energy

supply with ecological methods in Poland ... it mainly concerns the plants to be used as fuel to produce thermal energy, i.e. willow and energy grasses ... another element of the ecological chain is use of boilers and other heating units adjusted to bio-mass burning' (Łódź 2004). The main objectives of the project include: (1) Promotion of ecological renewable fuels in the area of Łódź Voivodship; (2) Provision of education and training in the field of renewable energy sources; (3) Research and implementation of new technologies for acquiring renewable energy resources; (4) involvement of new partners to implement project tasks; (5) use of renewable energy sources as a stimulator for economic growth in gminas and gmina associations linked either economically or territorially; (6) prevention of growing unemployment in rural areas; (7) assurance of the project compliance with Water Framework Directive, Natura 2000 and Polish law on environment protection. Thus, the project aimed to foster interest among farmers in the alternative (or complementary) production of bio-mass, to boost (local) demand for bio-mass, to provide growers with an opportunity to sign long-term contracts for bio-mass sale and to develop a local renewable energy sector. Implementation of the project included launching a promotional campaign to recruit producers/acquire areas for energy plant growing in a given area, creating a production basis for bio-mass processing, developing and implementing an ecological energy programme for a local heating provider, and providing long-term contracts for bio-mass producers, recipients and energy managers.

Table 3.1 gives details of the different actors involved in willow production for bio-mass in the Parzęczew Municipality.

The project aims to create jobs, including seasonal and steady jobs in plantation, nurturing, harvesting, bio-mass processing and energy generation. The municipality office signed five- or ten-year contracts with farmers from the Association of basket willow producers for bio-mass collection for the boiler house. The farmers need to have contracts signed in order to be eligible for subsidies. Although the cultivation of willow is profitable for farmers, it is sometimes hard to convince them to invest in willow saplings, which are quite expensive. And while it does not make sense to grow willow on rich soils, on poor soils successive dry years can result in a poor crop. Investment requires courage and some knowledge to be sure that willow cultivation will pay off. In order to gather a group of farmers to take part in the project, meetings were held in every village with nearly all the farming households (800 households) in the municipality. 'There are farmers who are sceptical and do not believe in the success of new crops and stick to traditional ones, although they start asking questions and are interested in our initiatives, especially rapeseed growing for energy purposes' (a K, entrepreneur).

Farmers living in the area have begun to develop an interest in other sources of renewable energy. There are some crops that can be adapted to suit the local soil, and producers are becoming interested in grass species that may be more profitable and easier to cultivate than willow. A project on the manufacture of briquettes from rapeseed straw, cereal straw, with some energy willow and grass is nearly finished.

Table 3.1 Actors involved in willow production for bio-mass in the area of Parzęczew Municipality

Actors involved in the project	
Local Entrepreneurship Incubator (expert and managerial knowledge)	established as a result of local leaders' search for opportunities for non-agricultural economic growth in the mid-1990s. growers of willow and thorn-free rose as energy plants receive subsidies provided they have one hectare of land.
Municipality Of.ce (managerial knowledge)	initiator of the construction of a bio-mass heating system and a bio-mass boiler house.
Bioenergia Company (expert and managerial knowledge)	company with 13 per cent of the municipality holding
Local Leader (local and practical knowledge)	KK, a farmer and a councillor, one of the initiators of the project in the municipality
The Association of Basket Willow Producers (local and practical knowledge)	19 farmers from several municipalities
Regional Authorities (managerial knowledge)	Interest and financial support provided by the Marshal Office and the Regional Fund for environmental protection
Research Institutes and universities (scientific and expert knowledge)	Agricultural Universities in Poznań and Warsaw

it has to be stressed that the local government of parzęczew municipality understands the need for, and importance of, implementing innovative management procedures. according to the governor:

with the department in place we put emphasis on planning the investments we were interested in. everyone kept saying that we were to join the eu and there would be a lot of money. and so we treated the subject very seriously ... we issued various newsletters, interviewed experts in eu issues and so we prepared ourselves. we also prepared our inhabitants for the accession. First of all we were busy with investment projects ... with full documentation including appendices so that our applications were not rejected due to formal mistakes. And in June 2004 the first call for applications for the Integrated Regional operational programme was made and we became an eu member state only in may 2004. the procedure turned out to be so complicated and requirements so high that very few municipalities managed to prepare complete applications on time. From the very beginning we counted on ... correct, properly prepared applications ... it involved a lot of work. all our four projects were adopted for

implementation. Only one more municipality in the Łódź region submitted four applications at the first round of calls. (RN, governor)

The first successful projects, funded by EU Structural Funds, were road construction, construction of a huge water treatment plant, waste dump rehabilitation and the building of an information society ('municipality internet network with public access centres'). All these projects are now being implemented.

The fact that the municipality developed (in July 2005) a new local spatial development plan is a significant indicator of its activity and the importance it attaches to the management of its resources. Without such a plan municipalities:

... cannot speak of investment areas, plots for development, afforestation areas, and sports grounds. Therefore this document is indispensable for development. It took us four years to go through the whole procedure. The plan envisages various developments such as construction of a huge reservoir on the Bzura River (200 ha), a motorway dividing the municipality in half and new investment areas. Now we are meeting potential investors who are interested in areas adjacent to the motorway. If we succeed we can attract a very big investor this year. Talks are being conducted, companies are performing analyses. In general we can say that they find the motorway and the location enticing. They also take into account the development of the municipality itself, openness and our service. It is important since very often things get stuck in administration. It is all about time. If an investor wants to invest, he wants to invest quickly and therefore how fast administration operates is also important. (RN, governor)

The social dimension of sustainability involves social participation and a type of local knowledge. The perspective of the local administration is as follows:

Society needs to be involved in discussions on the municipality development. And it is also about basic knowledge that inhabitants should possess, i.e. a scale of problems and what needs to be solved. Everyone perceives everything from his own perspective and so one village wants to have a road built and another a water supply system installed. There are 24 villages in our municipality and certain priorities need to be set. Although we do a good job still a lot remains to be done. Thus, inhabitants need to be involved in municipality governance. They should know what the administration does so they do not take too much for granted. (Jp, representative of local administration)

The Parzęczew Municipality is a good example of innovative initiatives, and contrasts with other beneficiaries of development projects in this respect. Key actors claim that the success stems from organizational changes in the municipality office, the quality of the personnel (young specialists with expertise in different fields including pre-accession and EU funds), documentation prepared at an early stage (for example, the municipality Development Strategy, a plan for road

construction in the municipality and other technical documentation), a report on inhabitants' attitudes to the municipality, and a spatial development plan for the whole municipality area.

Conclusion

The aim of this chapter was to discuss the questions: which types of knowledge are the main resources for the diversification and innovation processes evident in Polish rural areas; and who are the main actors in those processes. The case studies presented here show how reinterpretation of knowledge and local tradition is becoming increasingly important for development along with an increasing role played by experts and local leaders. These appear to act as innovators or interpreters rather than just 'middle men' or 'channels' for information/knowledge/innovation transmission. In parallel, we want to emphasize the particular role of managerial knowledge in promoting local resources. Producing food, and producing biomass crops, requires not only knowledge of nature, production technology and economic know-how but also knowledge of social, political and system relations, the law and public authorities, and how the state functions. This political, administrative and social knowledge 'may become the most significant factor impacting on the production activities of the peasant, since it determines his/her images/vision of the future, farm development plans, future aspirations and life goals achievements' (Szczepański 1988, 18).

Different types of knowledge can be seen in operation over the period studied here. The generally dominant role of managerial knowledge is probably due to the fact that the cases presented are examples of projects developed largely by local authorities and external experts. This type of knowledge was necessary to implement these projects. However, further development of these projects depends significantly on the development potential of individual communities. Kłodziński is undoubtedly right when he says that it is still popular in Poland to try to improve living conditions in rural areas by modernizing agriculture rather than by encouraging local communities to assess the situation themselves and pursue their own programmes. 'However, we should not expect a fast and satisfactory pace of changes. A deeply embedded mentality will not change overnight. Readiness to cooperate will not appear overnight, either. It requires organic work at grass roots, huge effort on the part of local leaders, clever local authorities and financial backing' (Kłodziński 2007, 101).

The financial factor is important for everyone. As our analysis indicates, local knowledge (the knowledge of fruit producers or of participants in the renewable energy programme) seems to be dominated by economic thinking. 'If an ecological practice .. does not require tremendous outlays or brings obvious economic benefits it is welcome and understood by the community. Otherwise, inhabitants are reluctant or even against certain activities. Obviously this is due to the rather difficult economic situation of the majority of inhabitants (Adamski

at al. 2007, 151). we emphasize that economic factors strongly affect both local and managerial knowledge. calling on both up-to-date and forgotten knowledge resources becomes the ‘necessity of the present’.

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Czech Republic: Regional Disparities and Their Influence on Sustainable Rural Development – A Comparison of Two Different Regions

Věra Majerová

Introduction

The 12 European countries that participated in the research project *Co-RaSon* illustrate the varied nature of European rural space. Each reflects different historical experiences and is starting to experience, positively or negatively, common efforts towards sustainable rural development. Local, regional and national differences do not necessarily have a disruptive influence on that process, but can become supporting conditions in maintaining cultural and biological diversity. Through a comparison of two contrasting Czech regions, this chapter shows the heterogeneous preconditions from which sustainable development can start. Two entirely different regions (northern and southern Sudetes) were chosen for analysis, representing important features of contemporary Czech rural society and showing in an exemplary way the possibilities for its future development.

Rural areas roughly constitute three-quarters of the territory in the Czech Republic. However, only about one-quarter of the population (2,666,000 inhabitants)¹ live there. Rural settlement is quite dispersed in comparison to other European countries. Rural communes are defined as localities with less than 2,000 inhabitants, and constitute 90 per cent of all communes. In the Czech countryside many diverse areas are found. In the past, a number of typologies that try to describe collective features of particular territorial units have been created – particularly for regional planning and decision-making purposes. A typology often used to compare different rural areas is one which brings together aspects of historical development and geographical localization within the basic types of suburban zones, rich agricultural areas, northern (rich) Sudetes, southern (poor) Sudetes, inside the periphery and at the moravian-Slovak frontier.² Conditions for development in

1 Nature Conservation Act 1970, n. o. 63, 19 June 1970, relating to nature conservation; last amended by Act n. o. 59, 25 August 1995.

2 Perlin, Radim.: 'Typologie venkova', in *Český venkov 2003*, Praha 2003, str. 113–20.

Czech rural areas result, however, not only from different geographic locations, but also from many economic and social factors that influence the activity of the population and the building of a knowledge society: demography and population structure, opportunities for education and to use educational qualifications, opportunities for employment or to carry on a business, the extent of cultivation of cultural and social activities, and the strength of local civil society. These aspects are included in the following description and comparison of two regions.

Historical and Contemporary Development of the South Bohemian (SB) and North Bohemian (NB) Regions

The South Bohemian region includes the 'Southern (poor) Sudetes' along the south-western, southern and south-eastern borders of the Czech Republic. The area was originally one inhabited by two ethnic groups, Czech and German. Powerful aristocratic dynasties (Rozmberks, Eggenbergs, and Schwarzenbergs) were the land owners in the seventeenth and eighteenth centuries, and they had a great influence on economic development. Forests and grasslands characterized the less favoured land and mountain areas. A system of fishing ponds was built in the seventeenth century in the Teplon basin in the south-eastern part of the region. Well-organized forest management (particularly timber harvesting and hunting) and pond fishing were economically very profitable. The social structure of the rural population derived from the structure of land ownership. Differentiation of property and, with that, social differentiation was considerable.³

The German population was expatriated after World War II and it took a while before the area was populated anew. A wide frontier zone at the border to the German Federal Republic and Austria was closed to civil life. In the villages in that zone military troops were stationed and ethnically heterogeneous groups moved in – repatriates from Romania, Bulgaria, Volyn Czechs (from the Soviet Union), but also people from the Czech and Slovak inland areas who wanted to gain access to a house or land. No significant industry or infrastructure was created in the region, and there was a massive destruction of cultural heritage (e.g. church monuments) and social ties. Paradoxically, this economically and socially unfavourable situation contributed to protection of the natural environment and allowed for the preservation of valuable fauna and flora.

At present the South Bohemian region (10,057 km², see Figure 4.1) has 625,712 inhabitants in 623 municipalities (of which 45 are towns). The region has the smallest number of inhabitants of all Czech regions, and a population density of 62.2 inhabitants per square kilometre. One-quarter of the area is covered with forests. Geographically, South Bohemia is a closed area with the South Bohemian basin being surrounded by mountains.

3 Franěk, Rudolf: *Některé problémy sociálního postavení rolnictva v Čechách na konci 19. a počátkem 20. století*, Praha 1967.



Figure 4.1 The Czech Republic and the South Bohemian region

South bohemia is considered to be an agricultural rather than industrial area. it produces about 11 per cent of the agricultural production of the republic. more important for the development of the region is its natural environment. t he region is not rich in raw materials. t here are nearly no sources of raw materials for energy production, but there are deposits of sand and gravel, clay for bricks, peat, limestone, aggregates and sand suitable for glass-making. t o preserve the natural assets of the large forests, the n ational park Sumava and the protected landscape area Sumava were established. t here are about 300 small protected landscapes and several protected natural sites. besides the well-preserved natural environment a number of historical and cultural landmarks (castles, tower mansions, churches, fortresses, medieval town centres, rural popular architecture, small church landmarks and so on) are important for the development of the region. a ll of this makes the South bohemia region attractive for tourists.

a fter 1989 the rural population availed itself of the free mobility and open borders with b avaria and austria to engage in legal or semi-legal work abroad or to offer accommodation and tourism services in the area. t his economical potential is considerable and still not fully developed. t he complicated nature of social relations in the region still affects rural development there.⁴

t he n orth bohemia region (Ústí nad l abem) is situated in the 'northern (rich) Sudetes' area. t his region also originally had a g erman population in the settlement zone along the north-western and north-eastern borders of the c zech

⁴ information about the situation of the South bohemia region is drawn from: Rolínek, L., Holátová, D., Řehoř, P., Šašek, M., Kačírek, P. and Hlaváček, P.: Komparace Jihočeského a Ústeckého kraje. České Budějovice, Ústí n. Labem 2006, Studie regionálního rozvoje Jihočeského kraje (author Hrabánková, M. et al.) in: Český venkov 2003, ČZU Praha 2003.

Republic. Historically, the area has been distinctive for its rapid industrialization and urbanization, from the nineteenth century onwards. Light industry and glass making developed from the traditional craft skills of the rural population, but heavy industry also developed: the engineering and chemical industries, in connection with coal mining. Agricultural production quickly lost significance, and rural villages gradually changed into semi-urban domiciles, or their inhabitants commuted to work in the industrial complexes on whose development the region was economically dependant.

The German population was quickly replaced by Czech and Slovak populations in the years 1947–1953. The new settlement strategy for the Sudetes, in combination with socialist industrialization, was rather successful in this region. Large towns developed as economic and social centres, and the border with the neighbouring socialist countries of East Germany and Poland was more open. The seamy side of intensive industrialization was the fast-growing coal mining industry in the North Bohemian soft-coal basin, which after the Second World War devastated a large area, with hundreds of small domiciles being destroyed and ecosystems damaged by pollution.

The North Bohemian region (Figure 4.2) has borders with the German region Saxony in the northwest, the Czech regions Liberec in the northeast, Karlovy Vary in the west, and with the Central Bohemian region and the Pilsner region in the southeast. Its area (5,335 km²) covers almost 7 per cent of the total area of the Czech Republic and has 822,133 inhabitants. Forty-six of its 354 municipalities are towns. The population density (154 inhabitants/km²) is higher than the national average of 130 inhabitants/km². Over 80 per cent of the inhabitants live in towns, the biggest of which, and the centre of the region, is Ústí nad Labem, with 93,859 inhabitants.

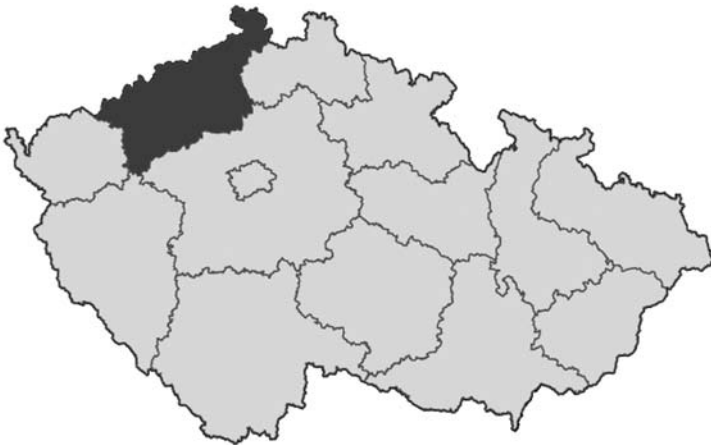


Figure 4.2 The Czech Republic and the North Bohemian region (Ústí nad Labem)

geographically the region is very heterogeneous, with considerable variation in natural conditions, economic structure, density of settlement and environmental conditions. mineral resources are decisive for the development of the region, particularly soft-coal deposits close to the surface. more than 50 per cent of the region is covered with agricultural land, 30 per cent with forests, while water areas make up 2 per cent of the territory. Four different areas are found in the region:

1. a reas with highly developed industrial production, concentrated in the Podkrusnohori region; power engineering is significant here as well as coal mining, engineering, the chemical and glass industries.
2. a reas with agriculture, especially hops and vegetable production. in polabí (an area around the river Labe) and Poohří (an area around the river Ohre) there are fruit-growing areas called the g arden of bohemia.
3. t he Krusne mountains area, which is a very sparsely populated mountain range with limited economic activities.
4. The area around Děčín is dominated neither by industry nor by agriculture, but has interesting localities for tourism.

t he natural environment around the water courses labe and ohre and the n echanicka basin includes some protected territories (with a unique relief of sandstone towns). a nother protected landscape area (with typical neo-volcanic gnarls) is attractive for tourists, and the n orth bohemia region generally has many historical monuments and urban conservation areas.⁵

a s in the South bohemia region, rural development was brought to a halt during the socialist period. Stabilization and social integration of the rural population are difficult. However, after 1989 rural viability began to regenerate, along with more intensive social contacts with neighbouring countries which were not former socialist countries.⁶

Main Differences Between South and north Bohemia⁷

t he following comparison of the two regions is based on statistical data compiled for the c o Ra So n project. t able 4.1 gives a general statistical portrait of both regions.

5 information about the present situation of n orth bohemia region is drawn from: Rolínek, Holátová, Řehoř, Šašek, Kačírek and Hlaváček: Komparace Jihočeského a Ústeckého kraje. České Budějovice, Ústí n. Labem 2006, ze Studie regionálního rozvoje Jihočeského kraje (author Hrabánková, M. et al.) in: Český venkov 2003, ČZU Praha 2003.

6 information about the historical development of regions is mainly based on perlin, R.: Typologie venkova, in: Český venkov 2003, Praha 2003, str. 113–120.

7 Some information presented in this paper comes from the findings of an institutional research project mSm 6046070906 ‘**economics of the resources of czech agriculture and their effective use in the frame of multifunctional agrifood systems**’.

Table 4.1 Comparison of South and north Bohemian regions: Economic indicators

Criteria	Compared Regions	
	South Bohemian	n orth Bohemian
Share of agricultural land	49.2%	52%
number of municipalities in less favoured areas (1 Fa s)	509 (82% of municipalities)	154 (43% of municipalities)
primary sector employment	6.1%	2.2%
Secondary sector employment	41.7%	38.4%
tertiary sector employment	52.2%	59.3%
average wages	15,771 c ZK	16,320 c ZK
g Dp	5.5%	6.8%
g Dp in eu Ro	7,569	7,185
number of economically active inhabitants	314,600	418,600
number of unemployed persons	23,021	73,493
Rate of unemployment	5.7%	14.5%
unemployed longer than 12 months (percentage)	26.5%	51.3%

Source: Majerová, V. a kol.: Český venkov 2007 – Studie Jihočeského a Ústeckého kraje. ČZU. Praha 2007, p. 243.

Differences between the regions which result from past historical events are significant. Urban development happened more rapidly during the transition of the national economy after 1989. The countryside suffered from high rates of unemployment, worsened commuting conditions, difficult conditions for starting enterprises, unsolved restitution demands, a slower renewal of the technical infrastructure, and worsening of the quality and accessibility of social services, among other specific problems. All of these led to out-migration of young and qualified people who could not find suitable work and living conditions in the villages.

North Bohemia is more densely populated than South Bohemia, but conditions of life for the population are worse (e.g. lower life expectancy), making the area less attractive for educated and qualified migrants. The South Bohemian region has worse economic conditions, with a higher share of primary and secondary sector employment and lower average wages. However, there is lower unemployment, a lower share of long-term unemployed persons, and more social stability.

Building a Knowledge Society

One way to develop sustainable rural communities is through improved education and knowledge. The term 'knowledge society' signals a well-educated population that is capable of higher social, economic and ecological adaptability, is less

inclined to extreme ideological ideas, and can better solve the various economic and social problems. The reality, however, is more complicated. The mere existence of education means only that the person graduated with a certain level of schooling, but says nothing about the use of knowledge and skills acquired. Differences in quality among schools can be considerable, and the use of acquired qualifications depends on many circumstances, both objective (their relevance for the national, regional and local levels of development) and subjective (personal character and abilities). Among the objective factors we can include, for example, the work opportunities in the area, the extent of national or EU economic and social support (number and structure of subsidies), and the influence of short- and long-term regional development strategies. Subjective factors include, for example, the ability of a person to use his/her theoretical knowledge in practical life, position in the life cycle (especially in regard to women of child-bearing age), the possibility of using one's education in the conditions present in the village and its close surroundings, personal flexibility, adaptability, ability to collaborate, etc.

Education is only one of the personal components which have a potentially positive influence on future development. Education opens up possibilities which may or may not be utilized in future, but it can operate only in synergism with other personal elements and with external factors. The marked differences among the regions show that external factors take shape over the long term and can influence for decades the economic, ecological or social development of an area. Social integration and the creation of social capital (including capacity building) do not depend only on education levels. If there are good conditions for the use of tacit knowledge, or of the abilities and skills of the population, conditions for social sustainability or the quality of life improve.

The CoRaSon project studied examples of various kinds of knowledge in use by government, institutions, regional bodies, etc., or in the bottom-up activities of local groups. The different types of knowledge observed – political, managerial, scientific, expert, traditional/local – exist in varying combinations, with tacit knowledge becoming more influential under certain conditions, for example, where there is cooperation among all the participants which is significant for future area development.

natural Resource use and Rural Development in the South and north Bohemian Regions

South and north Bohemia have some similar characteristics; however, there are also important differences. At first glance rural development activities are much higher in South Bohemia. A much greater number of projects from EU Structural Funds was approved in the South Bohemian region (505 projects) compared to in the north region (291 projects); however, the volume of financial resources is only c.20 per cent higher in the South Bohemian region. South Bohemian as well as local actors seem to be faster and more successful in finding subsidies for their area. Examples in these regions, which

could show the broad scale of knowledge forms and potential existing among the rural population, were chosen for the case studies in co Ra Son ; the case studies are linked to the use of natural resources as well as resource preservation and the conservation of nature.

Finding comparable examples of projects from both regions is not easy. e very activity for which it is possible to observe the development of actor capacities and use of various kinds of knowledge is influenced by a set of diverse factors. To identify significant factors for rural sustainable development in every case study in the project co Ra Son , a complex procedure of data collection, analysis and interpretation was chosen to optimize the results under the given conditions. t his included a triangulation of methods, using analysis of documents, expert interviews, and interviews with actors and focus groups. in the descriptions presented below, relations between the main actors, the forms of knowledge used, and the activities supporting rural sustainable development are summarized.

In the North Bohemian region (district Litoměřice) a project called ‘t ransformation of agriculture with regard to sustainable development, formation and protection of the environment’ was studied. it started in 2001 and was completely financed by the FAO. The project included the creation of a free movement zone for animals: 45 hectares of agricultural land were fenced off, perennial grassland was created and animals introduced – roe-deer, mouflon for breeding and wild boars for hunting. t he grassland is regularly cut and used for making hay. implementation of the project represents a successful practice of rural sustainable development based on cooperation across a wide network of participants, using and combining different types of knowledge. it is one of the rare cases in the area that aim at changing land use. t he project was evaluated by the institute for e copolitics (a non-governmental organization). a fter its initiation through regional development policy, the later phases of the project were connected with expert knowledge (universities, research institutions) as well as local knowledge. h owever, the whole process is shaped by the local conditions.

a similar interest in developing a rural area brought a revitalization project into the military area Boletice in the Český Krumlov district of South Bohemia. The aim of this project is also to change land use, in a part of the military area, but from less to more and further use, especially through the construction of the largest ski area in the c zech Republic.⁸

t wo other examples of projects to change land use, involving nature protection as the strengthening of bio-diversity, were chosen in both regions. t he one in the North concerned Kubačka hill, located in the Czech Středohoří. Kubačka hill was found to be a valuable biotope where scientific experts identified five endangered animal species (mainly reptiles) and three endangered plant species. a project to build highway D8, connecting prague with berlin, had started in the 1960s in the area, planned and implemented under the umbrella of the state (namely the Central Office of Roads and Highways Reconstruction). Problems escalated when

8 Jakub Husák, Lukáš Zagata: WP3 – Land Use Management, CORASON Project.

Table 4.2 Actors and their knowledge in the South Bohemian region case studies

Actor	Knowledge Form	Activity Initiating Rural Development/ nature Protection
Local government	managerial political traditional/local	Strong cooperation with NGOs (national and local)
ecological association	traditional/local expert	transformation of useful knowledge for rural development
Růžice – association of villages	managerial expert	the association is a rich source of information.
Society for the Renewal of countryside	managerial expert	the association is a rich source of information and it can provide funds for projects.
universities (inside and outside the region)	Scientific	close cooperation based on gathering empirical data and realisation of studies
inhabitants of the village living in cities	expert managerial	contribution is based on strong personal links.

ecological activists showed that the planned highway construction crossed the valuable biotope on Kubačka hill. Eventually two alternatives were offered: the original state plan to build the highway regardless of existing biotopes (to build the road across the hill), and an ecologically adapted proposal to construct an environment-friendly tunnel through the hill.

in the South Bohemian region a case study was carried out in the village Sv. Jan nad malší where two projects for different forms of resource use aimed at nature protection were ongoing. The first is a communal heating plant which uses biomass as its energy source. it provides central heating for several buildings in the village (for example, a local school and a pub). the second is orientated to local traditions, but tries to integrate these with natural and cultural components. as a meeting point, the village green has a strong historical importance in the village, symbolized by the traditional St John of Nepomuk statue surrounded by several lime trees. in cooperation with the State institute of cultural and landscape protection, the place with its statue was listed as an important landscape component.

a South Bohemian example provides proof of the importance of connections. Some countrymen who no longer live permanently in the village are still interested in events going on there; they keep in touch with village residents and make their expert and managerial knowledge available for its development. During the period of rural collectivization and the socialist transformation many neighbourly relations were broken. however, where neighbourly ties endured, this can provide very fruitful support for local knowledge (see table 4.2).

In both case studies, the influences, relations and activities of particular participants were recorded, for both representatives of the state and of the villages

Table 4.3 Actors, their knowledge and interests in the Ústí nad Labem region

Actor	Knowledge Form	Activity Initiating Rural Development/ nature Protection
State (Central office of Roads and highways Reconstruction)	expert managerial	Nature protection is limited by the financial and technical conditions of construction
Local government	managerial traditional/local	nature protection respected in the decision-making
ecological associations	expert political managerial	using all kinds of knowledge to protect nature (except local)
Integro – association of villages	managerial expert	contribute to any kind of project regardless of the nature protection link
Farmers	traditional/local managerial	in cooperation with local government, the regional farmers' association re-orientes farmers towards more environment-friendly farming.

and regional politics, NGOs and universities. The relations between these actors provide examples of building a knowledge society with an emphasis on the ecological, cultural and social values of the municipalities and the countryside.⁹

The other activity which is important for the sustainability of an area and is a major part of land use is local food production. Food production and consumption patterns in the Czech Republic have been significantly influenced by the political and economic changes that emerged after 1989. During the 1990s a market for organic food emerged. In spite of the increasing number of farms participating in organic farming (more than 800 in 2004), the supply is still quite low. On the other hand, demand for organic products is still too low to motivate more farmers to produce organically. The stock company Spojené farmy a.s. (Joint Farms Inc.) connects farms located in the northern and north-western part of the Czech Republic together. Bio-beef is a local product that has a specific meaning of quality; it is embedded in the socio-economic and cultural context of Czech rural development and is produced within the alternative food production system. To call it a local product, however, only makes sense in relation to imported beef products (for instance from Ireland) which compete with the local products.

A case study of the bio-beef system reveals the existence of three basic categories of knowledge (scientific, managerial and lay knowledge), with an emphasis on their mutual relations rather than on their content. It concluded that there is a gap between scientific and lay consumer knowledge: scientific information, which often contains contradictory contents, is more likely to confuse than help to give

⁹ Eva Kučénová, Adéla Ševčíková: WP5 – Nature Protection and Bio-Diversity, co-RaSon project.

direction in issues related to food and dieting. It appears to be a third group of participants, the producers, who – using managerial knowledge – help to create connections between the other two groups. This relationship between the particular knowledge types was obvious in the study of the bio-beef food production system. It is dominated by managerial knowledge, used to manage the entire network. The managers' position enabled them to use selected elements from expert knowledge and translate them to the group of laymen. This practice reflected the methods of simultaneous construction of the object (bio-beef's qualities) and the subject (shaping customers' opinions on quality) (see table 4.3).¹⁰

Searching for further development potential in rural areas can take the form of promoting a non-agricultural economy that can enrich and improve the livelihood of rural inhabitants in areas where agricultural production is restricted. Examples of this from South Bohemia are pottery production in Děbolín and basket production in Suchdol nad Lužnicí; they represent examples of work by people who made use of their local knowledge for economic activities. In the first case, the activities included restoring a farm, providing education in pottery production, and work experience in local manufacture. The development of a profitable business enabled the potter to employ other people and to create a characteristic design for the pottery products, which was attractive to tourists. Local entrepreneurs also played an important role, providing basic services for tourists (e.g. a restaurant) and some additional services (an airport from which to offer tourists a sight-seeing flight around the area), as did organizations with an influence on the social and technical infrastructure for tourism (e.g. Partnership – a non-governmental organization which organizes the greenways programme to support environmentally friendly projects, mainly biking trails with interesting places which are equipped for visitors) (see table 4.4).

The second case study, of basket production in Suchdol nad Lužnicí, is an example of the transfer of a craft tradition from generation to generation. The basket producer learnt the craft from his grandfather, improved it and found a new market for his products. However, the knowledge necessary for this activity, as well as advertising and the managerial knowledge used for developing rural tourism, is rather limited. Nevertheless, such business activities are, or are likely to be in future, involved with local LEADER actions, which operate as networks of local actors, political-administrative bodies, and experts and interest groups in collaboration with the departments of the central bureau. This strategy for rural development, which is new to the Czech Republic, focuses on local actors and on forms of local social and political capital for development, or, more precisely, on the selection of actors engaged in development projects. Local power groups could evade market mechanisms by cooperating with local LEADER networks, thereby tending to monopolize resources and create a kind of local corporatism.¹¹

10 Eva Kučerová, Lukáš Zagata: WP6 – Local Food Production, CORASON Project.

11 Eva Kučerová, Adéla Ševčíková: WP7 – Non-Agricultural Economy, CORASON project.

Table 4.4 Actors and their knowledge in the Děbolín case study

Actor	Activities	Knowledge Type	Source of Knowledge
entrepreneur key actor	Design of products, rooms, halls, professional-artisan skills	expert, 'inner knowledge' (talent)	local, imported
helping family member	accounting, works on pc, organising	expert (?), lay knowledge	–
Student, later assistant	management, organising, projecting work	Scientific, expert	imported
locals	organising, contribution through the knowledge of local tradition, history and knowledge of old crafts and everyday traditional activities	lay, expert (when it includes old technologies)	local, traditional
non-governmental organisations	Support of projects	expert	outside (national, international), imported
entrepreneurs	additional services (mainly for purposes of tourism)	expert	local
media	Distribution of information, indirect advertisement	expert	Regional

Another pottery case, in the Maříž Cultural Centre, is located in a border area of the Jindřichův Hradec district in South Bohemia, about one kilometre from the Austrian border. The main aim of this project was to update the production system and to link the production of the original ceramic with other activities: a restaurant and accommodation which will attract tourists and visitors to the locality. The project aims to restore the traditional handicraft production within the locality and to encourage the development of new forms of rural tourism using modern information technologies and drawing on the cultural potential of the locality. This project is part of a micro-regional development strategy which has the following priorities: development of tourism, maintenance of current cultural activities, development of new possibilities for cultural activities, and development of rural areas. According to the micro-regional development strategy, the development potential of the locality lies especially in the maintenance and development of its rural character and in the use of cultural and environmental qualities of the locality. All the participants (especially the ngo Spin and the main partner involved, Original Art Ceramic Maříž), however, are non-local. Given these exogenous innovators, local actors do not play the main role in the project. Local people appear to be quite passive and afraid of innovation coming from outside the locality (see table 4.5).

The North Bohemian project Píšťany International Tourist Marina is situated in the village of Píšťany, near the town of Litoměřice on the shore of Lake

Table 4.5 Actors and their knowledge in the Maříž case study

Actors	Knowledge
Main actor – private entrepreneur (Original Art Ceramic Maříž)	mainly expert and managerial
ngo Spin	managerial
Jihočeský Region, municipality Slavonice, micro-region a ssociation of b order municipalities and towns of the District Jindřichův Hradec	managerial (not important)
missing actors	lay/local

Žernosecké. The lake is a well-known recreational area offering a sandy beach, swimming, yachting and scuba-diving in summer and skating in winter. The lake is now connected to the river Elbe by a short channel, thus allowing riverboats to come into it. The project involves providing complete services for at least 46 tourist boats, with a possibility of further expansion of capacity. The services will include a safe harbour with electricity and water supply, fuel taps, and ecological disposal of waste and oil products. Hotel-type accommodation for crews will be provided together with catering and the retail sale of grocery and boat supplies. The existing local infrastructure is thought to be reasonably strong and will also contribute to the further development (see table 4.6).

The leading participant and initiator of the original idea is an entrepreneur who worked as a marine captain. Other important actors include the mayor of Píšťany village, some local people, regional government, and national government institutions, in particular the ministry of transport and the Elbe waterways management. These participants provide expert and managerial knowledge. Local people are among the most important participants involved – especially for their encouragement of the project by referendum and the representation of local knowledge.

This is an example of an attempt to develop the economic perspective within rural sustainable development, but it also has some significant positive impacts on the local ecology. The project has won acceptance and support from the local

Table 4.6 Actors and their knowledge in the Píšťany case study

Actors	Knowledge
Main actor – private entrepreneur	mainly expert and managerial
Mayor of Píšťany	Strong lay/local and partly managerial
ministry of transport, management of the Elbe waterways	managerial (not important)
Local people (by referendum)	lay/local

people, which may indicate a higher social sustainability. The outcomes are already becoming visible before the project is finished. The locality is ready to practice a completely new activity, while making better use of its natural resources. From this point of view, the economic effectiveness of the project could be seen as less important than the sense of innovation it has brought.¹²

The last case study presented here, from the village Sv. Jan nad malší (South Bohemia region) focuses on the use of bio-mass as an alternative energy source for heating. Here, waste from woodworking (sawdust, wood shavings, bark) as well as special solid fuels (wood splits, wood pellets, briquettes) are used. The idea of heating by bio-mass was introduced to the mayor of the municipality by the ecological organization Ro Sa. The goal is to connect all the houses in the municipality to this kind of heating. The advantages of using bio-mass do not only lie in the fact that it is a new energy source. The growing of bio-mass has broader consequences as it could contribute to reducing the greenhouse effect and saving fossil fuels. The trees improve the landscape and enable effective use of the land. Last but not least, the use of bio-mass creates new jobs. The Czech-Slovak School of Rural Renewal located in Sv. Jan nad Malší has contributed extensively to spreading information about the use of alternative energy sources. The school was founded as a centre for cooperation by self-governing Czech, Slovak and Austrian municipalities in the framework of a programme of Countryside Renewal (see table 4.7).

The key actors in this case were the regional administration, representatives of the villages, NGOs and universities. Different kinds of knowledge (expert and managerial) were used. The project for heating by bio-mass has a positive impact on local activities as well as on maintenance of the natural resource base.¹³

Discussion

Returning to a point made in the introduction, the varying utilization of actors' knowledge and skills helps to reveal the specific forms which sustainable rural development is taking in both regions. The case studies focused on the development of economic and social potential among the rural inhabitants. However, one important factor was not mentioned: after 1989 the possibilities for building up civil society were reopened. New organizations, institutions and activities, that have reflected and try to express public issues, gradually appeared in both regions.

The areas investigated differ in the number of actors working within local civil society. In both we find that local governments, regional NGOs, micro-regions,

12 Jakub Husák, Jan Žalud: WP8 – Innovative Economic Development, CORASON project.

13 Irena Herová, Jarmila Kuricová: WP9 – Sustainable Management of Rural resources, CORASON project.

Table 4.7 Actors and their knowledge in Sv. Jan nad Malší

Actor	Knowledge Form	Activity which initiates Sustainable Development
Regional administration and local government	managerial, political, traditional/local	Strong cooperation with NGOs (national and local)
School for Renewal of the countryside	traditional/local, expert	transforming useful information and experiences from other villages for sustainable development
ecological association Ro Sa	traditional/local, expert	transforming useful information
Růže – association of villages	expert, managerial	association is a rich source of useful information
Society for Renewal of countryside	expert, managerial	association is a rich source of information and it can provide funding for projects
universities (inside and outside the region)	Scientific	there is close cooperation based on gathering empirical data and providing expert studies.

local elites, and communities are relevant actors. Further important actors are non-locals, natives of the village, and universities.

Their contribution can be seen at both economic and social levels. The economic sphere is connected with employment of the local population and the creation of an entrepreneurial milieu, both of which contribute to improving the standard of living of the population. The enhanced social life contributes to the territorial integration of inhabitants; it creates a fellow-feeling within a municipality and with other people.

Micro-regions and local governments use managerial and political knowledge. These actors are able to develop personal relations in political networks, to obtain and provide relevant information from other political institutions, and to contribute to the financial support of projects and the preparation and submission of development projects.

Local elites make use of managerial and local knowledge. In both regions the village mayors are among the most important local actors. Community activities are devoted mainly to sport, culture and hobby activities and use a basic managerial knowledge to organize interest groups.

In both South and North Bohemia there are universities which contribute through scientific knowledge to rural development. Their role in helping the spread of knowledge was found to be useful in all our case studies.

The projects presented here create new economic and social environments in the regions. However, some questions remain to be asked: Which of all the activities described above can we consider to give persistent support to the regions? What criteria of sustainability are the most important? And is the historical role

of regions so strong that their influence on sustainable rural development must be taken into account more in future?

Of course, not all such questions can be answered from the Czech case studies for the CoRaSon project, where primarily quantitative data have been used. A thorough investigation of the knowledge potential of the rural population and its relation to sustainable development of rural areas is a very difficult research task. But reflecting on these questions after the case studies helps to identify some important factors for rural sustainable development. The network of human relations in the rural areas studied is not constant but changing, influenced by family and neighbourly relations, the historical experience of the older generation and the stimuli of modern life. It is also influenced by economic life conditions, generational conflicts, cultural traditions and changing value systems. Every new strategy can be empowering or distorting and an ideal balance between stabilizing and destabilizing elements is never achieved. In the situation and time given for our case studies, not all the consequences of human activities can be estimated (neither by people themselves, nor by the scientists studying their lives). Some patterns of social development are known and we suppose that they will continue to exist in the same way also in future. The order of rural life is created above all by personal contacts among people. And from the importance of personal contacts it can be presumed that strengthening local activities and the use of local ideas, capacities and resources will in the long term be more successful and will result in sustainable development more reliably than external intervention. The precondition for that is a social environment where it is possible to maintain human relations and fruitful cooperation among all rural actors.

Summary

This chapter gave some examples and categories for basic indicators of economic and social regional development. But we should remember that the indicators show only an actual state or short-term trend that may change in unforeseen ways. It would be better to compare indicators in a time series, to observe development trends and to bring a representative choice of case studies for more in-depth comparative analysis. However, such time series and information is not sufficiently available at present, where sustainable rural development and projects for that are just at their beginning. Nevertheless, the information from the comparison of the two regions and some important projects within these allowed us to summarize some important points about their prospects for further development and the importance of different knowledge forms.

- The long-term development trajectory of the regions is shaped by geographical location, the character of the residential system, and traffic infrastructure connecting residential and work places.

- Historic events after World War II, especially the changing and resettlement of populations, significantly influenced both regions. Post-war development proceeded in different ways and formed the current socio-economic structure, which is also the point of departure for future sustainable development.
- The development of the North Bohemian region was more significantly influenced by repopulation after World War II. The industrial character of economic activities formed the social and population structures and migration.
- The more restricted economic possibilities found in the South Bohemian region manifested positively in a long-term development perspective that allows it to tackle the challenges of sustainable development. The region did not attract social groups of inhabitants with a high migration potential, which stabilized population development. Socio-economic development was slower but more stable and has less negative characteristics.
- We can find in both regions a sufficient number of examples of how to build a rural knowledge society from the assets available; utilization of all kinds of knowledge, experience and capacities; and linking participants at all levels – to different extents and in different constellations.

The process of long-term development of both regions is very similar in the main outlines derived from the comparison of the regions according to their history and present development (high significance of expatriation, completion of settlement, migration), but the concrete activities and events differ. Education grows at a different pace as well as unemployment and development possibilities. The comparison shows (taking all precautions for methodological limitations and lack of specific data into account) what is important in supporting development in both regions: stabilization of the population structure (in terms of age structure, balanced in- and out-migration, and educational qualification); and allowing the inhabitants to make use of their knowledge and abilities, so that they can practice realistic development activities in the region and gradually overcome the unfavourable conditions prevailing at the beginning of the transition to sustainability.

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Hungary: Nature and Culture – Resource management and Knowledge use in a hungarian micro-Region

Bernadett Csurgó, Imre Kovách and Boldizsár Megyesi

Introduction

This chapter presents different forms of resource management in a hungarian micro-region.¹ As the post-socialist restructuring of the economy, especially in agriculture (Kovács, Zsuzsanna and Váradi 1999), proceeded and spread over all regions in Hungary, evidence shows that implementing the new forms of resource management in this transforming economy was extremely gradual and did not necessarily imply continuation of knowledge forms and practices used prior to capitalistic transformation. New forms of knowledge, mainly managerial, have gained priority and importance; however as Csurgó, Kovách and Kučerová (2008) have pointed out, use of all kinds of knowledge is necessary for long-term and persistent sustainable development. The absence of local knowledge, in particular, causes problems and failure to reach sustainable development goals, and it appears that in post-socialist economies managerial knowledge tends to be more powerful than local knowledge.

Analysing methods of resource management in the Mezőtúr micro-region, we focus on two main types of resources: natural and cultural. Although Bruckmeier and Tovey (2005) use the term in a broader sense, we use their ideas as a starting

1 The Mezőtúr micro-region can be found in the southeast part of the county; it has two important centres, Mezőtúr and Túrkeve. The most important sector of the economy is agriculture that is quite stable and productive. The population of the small region is decreasing; however, since this micro-region was created not very long ago, we do not have comparative data from the former period. Mezőtúr is an excellent wheat growing area – there was a mill until 2003, but it was closed for economic reasons. In the region, fruit and vegetable production was less important: farmers and locals produced horticultural products not only for themselves, but also for the food industry, thus there are orchards up to today. The climate is dry. It is like the well-known hungarian puszta. The soils are heterogeneous: grasslands, soils good for ploughing and used by arable farmers, and dry sometimes sodic soils. The towns in the county were famous for their milling, and the neighbouring cities are famous for their animal husbandry based on the grasslands and on the grain production of the region.

point for our analysis. They define two methods of resource management: innovative natural resource management and conventional natural resource management. conventional resource management encompasses methods which do not assure the sustainability of resources over the long term: over-use of soil, damage to the natural environment, but also methods which take no care of the sustainability of local communities. the methods of innovative resource management aim to preserve natural resources and also develop local human capital and local communities.

We define three methods of resource management: *conventional* resource management, *traditional* resource management and *innovative* resource management. conventional resource management typically overuses both cultural and natural resources, and does not consider the long-term effects of its activity on local social relations or human capital. even if it is based on local natural or cultural resources, by overusing them, it destroys them.

traditional resource management is based on local cultural and natural resources. it uses traditional, local methods to exploit the resource; the practice of resource use is learnt within the community and the family, during socialization. this method of resource management does not aim to preserve local cultural or natural resources, but most traditional techniques used to be sustainable in their original environment. Despite that, nowadays, as ecosystems have also changed, these methods sometimes result in ecologically non-sustainable resource management, because they intensify processes unfavourable to vulnerable ecosystems. actors do not consider the results of their acts and their natural resource use is not premeditated. From this point of view this method of resource management used to be typical on peasant farms; according to Chayanov (1966), peasants focus on reproduction rather than on economic accumulation. also, the authors of *Europe's Green Ring* (Granberg, Kovách and Tovey 2001) argue that it is not changes of farming methods, but 'changes in subjective attitudes' that indicate 'de-peasantization'. as peasant farming contracts, traditional methods of resource management are also disappearing. new initiatives like organic farming do not reproduce but rather reinvent the vanished methods, thus these belong to another type of resource management.

innovative resource management methods are also based on local natural and cultural resources. actors using these kinds of methods consider the effects of their activity; in this sense they are reflexive, and take into consideration both the intended and the unintended results of the resource management methods. thus, innovative solutions do not overuse natural resources, but preferably help to conserve nature and to develop local communities by involving them in the economic activity or in territorial development. the initiatives described in some chapters of *Europe's Green Ring* on 're-peasantization' are oriented to innovative forms of rural development. they mention many initiatives which aim to involve locals by subsidizing small- and medium-size enterprises in artisan industry, tourism or small-scale agriculture. Several eu policies have similar aims (granberg, Kovách and Tovey 2001). It is also well-known that, due to recent social changes

and consumer concerns about food safety, niche markets are developing which create opportunities for this method of natural resource management. The theory of 'cultural economy' (Ray 1998) points a way towards innovative methods of cultural resource management.

The case studies from the CoRaSon research also provided a long line of initiatives which use innovative methods of rural resource management. For example, the *Castro Verde's* Zonal plan and a *agri-environmental Scheme* in Portugal illustrates how innovative farming methods can contribute to the conservation of local natural resources, and thus to ecological and social sustainability. The scheme was set up to help farmers in declining rural economies. It is an agricultural cooperative using environmentally friendly methods. It involves methods to protect local bird life and the local dry grasslands. (Rodrigo et al. 2006) The case of a Czech pottery maker presents an example of innovative cultural resource management. The potter established a pottery production business by reinventing tradition. She does not only sell pots, but also offers different services for tourists: accommodation and courses on pottery (Kučerová and Ševčíková 2006).

This chapter analyses seven different examples of economic activities: agricultural farms, tourism initiatives, and local enterprises linked to rural development. The analysis pays special attention to the aims and results of the activity, discusses the role of actors and the external financial sources of the activity. The changes of network relations and the knowledge forms in use are also central issues for the analysis. In defining different knowledge forms we draw on the ideas of Bruckmeier (2004).

Forms of Natural Resource Management in the Mezőtúr Micro-region

Different actors use different types of knowledge to manage natural resources. After identifying the relevant natural resources here, we analyse the relations between nature and agriculture, then between nature and tourism. Nature-based tourism presents examples of non-traditional management of natural resources, while traditional forms of natural resource management are connected to an agriculture that is based on both natural resources and cultural heritage. We analyse the resource management patterns of three different farms. The first is a classical family farm, although not small. The second is a limited company, which uses not only traditional agricultural but also innovative methods. A third case follows, which is an example of a collective way of using natural resources.

Rural tourism connected to nature is the significant new form of natural resource management in the region. We present the key actors, their resource management and forms of knowledge use. Then we analyse the techniques which have been utilized to manage the recreational use of natural areas. Rural tourism in the Mezőtúr micro-region is based on the value of nature, and has a strong connection to nature protection. Nature-based tourism provides untouched nature to tourists as a rural good.

n atural Resources

n atural resources make the area suitable for both tourism and agriculture. t he topography of the Jász-Nagykun-Szolnok County where the Mezőtúr micro-region is situated is perfectly flat. The flora and fauna are rich; for this reason there is a great deal of protected land in the region. t he area is rich in surface waters (the most important rivers are the b erettyó and the Körös), thus the level of groundwater is high and there is a significant danger of floods from inland waters. Mineral resources are not significant, but the land hides substantial reserves of thermal water. o riginally this area was mainly covered by deciduous forests and meadows which have gradually disappeared. a part of the research area is under conservation (it belongs to the Körös-maros n ational parks). t he micro-region is characterized by several backwaters which make the landscape colourful. t here are many protected species of plants and animals, the most important of which is the bustard. t he natural conditions in the micro-region favour tourism, but the potential is not fully capitalized. n ature-based tourism, which is a kind of rural tourism, has a strong tradition in the region. t he natural environment is an important attraction for tourists and also for locals. Fishing, cycling, horse riding, canoeing are the more popular activities. in the backwater areas local inhabitants and also newcomers have summer cottages. Rural tourism is not organized by special tourist enterprises, but mainly as an individual activity, and it is not important as a sector of the local economy. n ature-based services developed spontaneously (n emes 2005).

in the last two decades, the proportion of uncultivated land reached 21 per cent of the whole territory of the county, while the proportion of arable land fell by 5 per cent to 60.5 per cent. yet agriculture and the food industry are very important sectors of the Hungarian economy, especially of Jász-Nagykun County. Most of the output from agriculture (75–80 per cent) is processed by the Hungarian food industry, which was privatized quite rapidly in the early 90s. Now 93–94 per cent of these companies are private corporations owned by h ungarian and multi-national companies or individuals. a lthough food production has not fallen rapidly, the globalized character of the food industry and the increasingly restrictive food legislation make it extremely difficult for small-scale food processors, and also for small farm owners, to enter the market. a lso, the numbers of employees in the agricultural and food industries and agriculture's share in gross output and gross domestic product have declined over the last fifteen years.

The Cases

c onventional natural resource management aims at market-oriented production resulting in profit. The success of this kind of management depends on the volume of production and on good economic networks, but it does not assure the sustainability of nature and in the long term it results in over-use of soil.

conventional natural resource management needs managerial knowledge and activities based on lay knowledge and on traditional practices of land cultivation.

in the case presented here, the family farmer produces wheat, barley, sunflower seeds and corn. the farmer has no employed workers but his wife helps him with administration (she was a book-keeper in the former collective). they sell most of their products to three wholesalers, participate in the programme of a big integrator company, and are founders of a limited company, together with 40–50 other farmers of the region. this company produces high quality wheat; the production method is determined for the farmers and helps the members to sell their products. Sometimes the family sells products into european or hungarian state intervention. the farmer has no preference for local mills and processors, but looks for the best price and conditions, although he did say that dealing with the local mill made his life more comfortable. he and his wife are now about 60 years old. the parents of both previously worked in agriculture, first as ‘private farmers’, then in the cooperative. their families were quite poor and they had very little land. later they themselves also worked for the cooperative; the husband was an engine fitter. In 1992 they were able to leave the cooperative; they bought a tractor, and for years the man worked as an entrepreneur who ploughed and did tillage work for farmers who had no proper engines and tools of their own. in the mid-90s the family realized that machine ownership was spreading, so they started to work on their own fields and plough land. as they did not have too much land they had to rent more. now they farm about 250 hectares; about 50 hectares are meadows, the rest is arable land. Since 1992 they have bought another tractor, a combine harvester, and other necessary tools. The purchases were mainly financed by bank credit, but also from a Sap and RD subsidy. they feel that it is very hard to plan for the future and that they are at the mercy of the wholesalers, the Kite² and the always-changing laws and decrees of the state. they no longer keep animals. their agricultural practices were learned at home and they use traditional lay knowledge in their work. the husband ignores the agricultural methods they are told to use: crop rotation, the time of sowing, where to sow a specific crop, when to start protecting the plants, and so on. in his decisions he uses traditional and modern³ agricultural knowledge that he learned in the cooperative. His wife is responsible for the farm finances, a situation often found in the hungarian countryside, as csurgó (2002) showed. in this work too they use elements of traditional knowledge forms and knowledge forms that originated from their previous workplace. their resource management practices are determined by this mixed knowledge set (Kelemen, megyesi and Nagy 2008).

this case shows that even a modernized and specialized farm is affected by structural changes in agriculture, creating insecurity around development and

2 Corn and Industrial Crops Production Cooperation – one of the biggest agricultural companies in hungary; functions as an integrator/subcontractor organization.

3 the knowledge form of the green revolution, which could be seen as modern agriculture.

planning. in terms of natural resource management, this means that the conventional form of resource management – following the criterion ‘market first’ and in the absence of short food chains (Kováč and Megyesi 2006) – does not allow land to be used in sustainable forms, even though different forms of knowledge are used. the farmer has traditional local knowledge which could be the basis for traditional and sustainable resource management practices but it is overshadowed by pressures from a capitalizing market.

Innovative Natural Resource Management

innovative forms of natural resource management imply caring for nature. we can identify two main aims for the methods which have been used in the micro-region to manage use of nature. The first has a strong connection to agriculture; agricultural production is the main purpose but it is accompanied by concern for nature (gatzweiler 2005). the purpose of the second type is to protect the natural environment, including many forms of nature tourism. tourist activities are controlled to minimize negative environmental impacts. both methods are strongly connected to environmental sustainability.

innovative natural management connected to agriculture aims at market-oriented production but with concern for nature, as in the case of a limited company studied for co Ra Son that illustrates how big enterprises can participate in the process of nature protection. whether this new type of agricultural production with elements of nature protection can succeed strongly depends on the support system available. Such resource management using scientific knowledge about nature protection is, in this case, strongly influenced by the commitment of the leader of the enterprise to environmental sustainability, coming from his personal attitudes, experiential knowledge and traditional practices.

the limited company, a private corporation since 1995, farms 1,900 hectares of agricultural land. The main crops are wheat, rapeseed, corn, sunflower and white and indian rice. the enterprise also integrates the production of several smaller farms (both private farms and limited companies) through the provision of machinery and financial services and the purchase of products from a further 1,500 hectares, approximately. these products are sold mainly within the region to plant-oil manufacturers and mills.

the company participates in the national a gri-environmental programme (naep), in the subsidy scheme for environmentally Sensitive areas, by cultivating the meadows on 390 hectares of its land in such a way that it contributes to bustard protection. it produces alfalfa on this land, following the strict rules laid down by the central agencies. on this land production is less important than the aims of nature conservation. the company purchased proper machinery to be able to farm according to the rules prescribed. the manager of the company also has a private organic farm, thus he has information about organic methods. but he assumes that it is not profitable to convert the whole of a bigger farm to organic methods. in this example, agricultural production is divided in two parts: one is focused

on the market, and produces huge quantities using conventional methods, whilst the other is driven by nature and environmental conservation aims. However, subsidies make this part profitable as well.

The market-driven production is based on traditional resource management using methods from the late 1970s ('green revolution' methods). The most important knowledge form in this activity is scientific knowledge. The manager of the company is a professor at the local agricultural college. He has broad scientific and managerial knowledge, but does not use local knowledge. Both his educational experience and the status of the farm as a private company ensure that the use of managerial knowledge is dominant.

In the 'nature-conservation division', resource management takes a different form, but here too the most important knowledge form is scientific. However, on the integrated small-scale farms, traditional methods based on local knowledge are reintroduced, for example, in animal husbandry, in the grazing system. Through this process the company shares its own knowledge with other farmers – not only practical knowledge related to farming methods, but also managerial knowledge in helping to sell products (marketing) and to gain subsidies. The traditional grazing system almost vanished in the last 50 years, but the company does not use organic farming methods, for economic reasons (there is no market for organic products). This case shows in particular the dominance of the expert knowledge of a manager who uses his scientific specialization to successfully manage different forms of agricultural production, both arable crop production and conservation of nature; in contrast to the farmer in the first case, the limited company follows criteria for protecting and caring for nature.

The second type of innovative natural resource management has strong links with tourism. The techniques used in the micro-region to manage recreational use of natural areas have two main goals. The first is the organization of supply to manage the tourism destination, and disseminate the goods and services of nature. The second is to control tourist activities and minimize the negative impacts of touristic use. This is an example of resource management which is strongly influenced by ideas of sustainability.

Körös-maros national park is the main nature conservation authority in the region. Part of Mezőtúr micro-region, as already mentioned, belongs to the Körös-maros national park. Local governments, civil organizations and also tourism institutions have links with the park. However, while the local government contacts the national park Directorate only if it is legally forced to do so, for example, on occasions of land-use planning, the local Tourinform Office tries to establish good cooperation with the national parks because nature-based tourism is the main tourist activity in the region.

A local NGO, the Hungarian Nature Conservation Association, is closely connected with the national park; it runs a locally initiated project in cooperation with the national agriculture-environment programme. Its main objective is to revitalize traditional forms of agriculture and to rehabilitate the landscape. Although these goals are mainly related to nature conservation, the project aims to improve

local society and livelihoods as well. The ngo hopes to improve conditions for stockbreeding in the grasslands by encouraging farmers to breed sheep. This could furthermore create a basis for tourist attractions (outdoor shepherd museum) and small processing enterprises producing local products (cheese, wool, etc.).

Körös-maros national park is the centre of knowledge for nature protection and also nature-based tourism in the region. Natural resource management in the park includes techniques of nature protection with strong connections to tourism. This type of management of nature has a double goal, first to protect nature and second to popularize ecotourism as an environmentally friendly form of tourism. Indirect techniques of nature protection, using elements of education and leisure activities, are linked to tourism; tourist activities are used as indirect methods of nature protection. This management form needs scientific and managerial knowledge.

Körös-maros national park management uses direct control in the form of rules, regulations, permits and charges to prohibit or restrict human behaviour which may be detrimental to the natural environment. Examples include banning certain activities; setting speed limits; requiring permits; closing off areas. Indirect techniques used to reduce the negative impact of tourism include, for example, educational programmes for children and festivals for families meant to transmit nature protection values. These programmes about the natural environment help to protect the environment but also increase the enjoyment of visitors. The managers of the National Park use their scientific and managerial knowledge to organize such tourist programmes, and they not only use but also transmit their innovative methods through their networks with local government, tourism authorities and civil organizations, thus acting as a mediator. The national park case shows how activities for nature protection shift if the land is not used for traditional agriculture that produces sustainable landscape management involving elements of local knowledge. Sustainability in nature protection requires additional activities, using scientific and managerial knowledge, to keep the land 'alive' for humans and nature, like nature tourism, education and awareness-building among the population.

Traditional Natural Resource Management

Traditional natural resource management is based on traditional practice and behaviour connected to nature and natural resources. It illustrates how locals use nature without considering the consequences of their activities but still do not destroy natural assets to a significant degree. Traditional resource management has usually survived in household farming.

In the socialist period, an estimated 40 percent of family food production did not go to the market but was consumed by the household members of the producers (Kováč 1994). However, the food-supply chain underwent radical transformations after 1990, and supermarkets now offer a broad range of foods like anywhere in the EU. But self-supply is still one of the most important reasons for small-scale

agricultural production today. Rising rural poverty and unemployment, and the traditional knowledge of multi-sectoral, pluri-active income creation as part of the rural way of life give renewed importance to self-provisioning. production for self-supply is mainly vegetables, poultry, pigs, fruit and grapes. Food production is of primary importance, and although households also get food from shops or the market, there is no food chain directly linking consumers and the products of those mini-farms. in the production process itself, while new technologies are gradually being applied, predominantly traditional knowledge is still used.

there are two types of self-provisioning farms in Hungary: traditional and leisure farming (Kováč 1991). In the case of traditional farms, the place of production is the garden around the dwelling house – the courtyard – and the goal is to produce as much food as possible for self-provisioning. Leisure farming started decades ago when several thousand plots of land were parcelled out around cities as well as in tourist areas, increasing the number of second homeowners. Leisure farms, gardens, holiday plots, hobby gardens, vineyards are also bases for self-provisioning food production. the extent of local food production is still enormous. In 2000 the Central Statistical Office registered around 1.6m households (46–47 per cent of all households in Hungary) as producing some kind of food; 700,000 households below the statistically recognized ‘farm size’ were producing food. of the 900,000 households with land of over the minimum ‘farm size’, only one-third produced food for markets, while nearly 70 per cent produced food for self-provisioning. Forty per cent of Hungarian households produce food for self-provisioning and two-thirds of commercialized farms also produce food for household consumption. the fundamental role of 40 per cent of commodity farms (so called ‘peasant type farms’) is production for the market but, as traditional peasant farms, they also consume some of their own produce. the duality of commodity and self-provision farming enables the farms to survive unfavourable political and economic changes.

Part-Time Farm for Self-Provision

the part-time farmer family have a hobby farm at the backwater where they own a summer cottage. they cultivate land, produce vegetables and fruit for the family. if they produce a surplus they sell it at the local market. they have strong local networks and can sell their products in their neighbourhood. they use lay knowledge based on practices learnt in the family during socialization. Food security is also based on lay knowledge used traditionally in the local community. they use chemicals as they learnt to do during the practice of family production and do not take care for the environment or nature protection; their activity has a double goal, first agricultural production for the family and second recreation of the family. the natural environment is nevertheless an important attraction for them. Fishing, cycling and canoeing are popular activities for the family connected with their hobby farm. agricultural production and recreational activities connected to nature are traditional activities among the local population.

in agriculture, innovative resource management methods are dependent on subsidies, thus these new methods provide income for the farms alongside conventional methods, while traditional methods aim at self-provisioning although they could be the basis for a local food production system.

According to the example of part-time farming presented here, the criteria for natural resource management and the knowledge used for that are derived from pre-socialist peasant practices and leisure farming in the socialist era. But this knowledge does not provide a stable basis for farming as can be seen from the gradual increase in the use of modern technologies. The subsistence orientation of agricultural production for self-provisioning is not a guarantee of environmentally friendly management practices, but this type of farming and the small scale of its production make such practices more likely to be maintained.

Forms of Cultural Resource Management in the Mezőtúr Micro-Region

The Mezőtúr area is not extraordinary in its natural environment or built heritage. However, it has something that can be used in development: a cultural tradition manifested in the region's pottery. A broad concept of resources (Brockmeier and Tovey 2005) allows us to regard this cultural heritage as a human resource, based on a special local knowledge. Indeed, pottery is no longer a relevant industrial factor and cannot be understood as an economic resource in a narrow sense. However, as an important element of the image of the area and as a possible catalyst of tourism, it must be taken into consideration. After describing the resource we list the most relevant actors and resource management forms in the pottery business and in the development activities related to it.

Resources for Pottery

The Mezőtúr region is situated in the Great Plain near the River Körös. The importance of the river lies not only in the nearby national park created to protect the ecologically valuable backwater system, but in the clay soil of the flood area, used in the famous local potteries. Relics of clay pots originating from pre-historic times have been excavated in the region, but the modern history of pottery started in the sixteenth century based on excellent raw material. Traditional pottery products were sold beyond the regional boundaries. The medieval guild system was reorganized in 1817 and this reform opened a period of economic boom. In the late nineteenth century there were more than 100 workshops. The years 1880–1890 were the classic period of Mezőtúr pottery. Local masters adopted glazed decoration in the middle of the nineteenth century and the glazed crocks became outstanding products of this period. The characteristic colour of this golden age was the 'royal-yellow' base with red, green, brown and blue flowers on the jars, crocks, big plates and kettles.

The turn of the twentieth century was the first period when a shift in style towards a *renouveau* was documented. Then the pottery style was renewed by the master craftsman Balázs Badár who saw new market demands emerging. The longstanding history of pottery art in Mezőtúr is the result of continuous reinvention of a local tradition, in the course of which professional skills were saved, improved and inherited.

Following the capitalist transformation, the Túri Pottery firm was established in 1991 on the basis of traditional local pottery. With time, the firm turned towards Western markets, a shift that required a new production profile, technology and business policy. In the 1990s the firm employed 70–100 people, introduced new mass production technology and sold a large majority of its pots on western European markets. Multi-national supply chains, such as organized by IKEA, sold pots that could no longer be considered traditional. At the turn of the millennium IKEA transferred the mass production of pottery to Romania and in 2003 the firm was liquidated. Today, about a dozen small pottery enterprises remain, producing different kind of pots, jars and plant pots, mainly for tourists. Although some are successful, most of them have serious problems in marketing. The story of pottery making in the region suggests that local production of culturally significant products is difficult to maintain in an economic environment where big companies dominate and the markets are non-local. Tourists visiting the region do not provide a sufficient market for the artisanal products which also cannot be sold on niche markets.

Conventional Resource Management

Conventional use of cultural heritage aims at market-oriented production. Actors in this kind of resource management use traditional knowledge as a base for their activity and develop a profitable business. The result is profit without any connection to original cultural tradition and local community. The success of this kind of resource management depends on good economic networks and the creation of a market for products. The most important knowledge for this kind of resource management is managerial knowledge, the basis of business activity. The actors use skills and knowledge based on local tradition but they do not take care for the sustainability of cultural heritage.

The Kovács Manufacture Pottery illustrates well the conventional use of cultural heritage in our study region. This is the biggest pottery firm, employing 12 potters and semi-skilled workers. They produce 600 prototypes, mostly terracotta plant pots, traditional folk art ceramics and pottery goods. Mass production of terracotta plant pots is the basis of their profitable business. The owner of the firm is the Kovács family, where all the family members are potters. The husband and his wife studied pottery at the Mezőtúr Pottery Cooperative; their daughter is a potter artist who studied at Moholy-Nagy University of Art and Design in Budapest. They have good contacts and networks. Most of their products are exported, for example, to England. Their main aim is growth of production as their production depends on

market demands. Their production is very flexible – they can produce high quality art products and mass produced articles. Their success is rooted in good human resources (the firm employs a good manager and also a noted artist) and good economic networks. This case illustrates one potential solution for the dilemma of local handicraft mentioned above. Local resources as well as knowledge and skills can also be used for strictly market-oriented and commercialized pottery production. However, in adopting this route they significantly change their nature and context, so that it can almost be said that local and traditional knowledge are ‘expropriated’ here by scientific and managerial knowledge.

Innovative Resource Management

innovative use of cultural heritage ‘develops’ the tradition, gives new elements to traditional processes of production and ‘reinvents’ traditions. The main purpose of the activity is market-oriented production, but it tries to sustain local traditions in the form of cultural practices and knowledge use incorporated in artisanal products. Actors in this kind of resource management recognize new market demands and have the inspiration to create new styles. Their production is always based on the local tradition but its success depends on flexibility to react to new demands. The actors need networks and a good position in the broad network of pottery makers of the region. There are two important knowledge forms that this kind of resource management needs, knowledge of traditional pottery making and the managerial knowledge which is the basis of market-oriented production.

Magi Cseh is one of the most famous leading potters who was born and raised in Mezőtúr and is living and working there. Her life and career reflect the successful combination of excellent knowledge of pottery tradition, good marketing skills and adaptability. She studied pottery at the Mezőtúr Pottery Cooperative and learned the art of traditional pottery making from professional masters. Since 1985 she has worked as freelance potter in Budapest. Between 1981 and 2005 her traditional clay pots were displayed at over 30 exhibitions and she has received several awards acknowledging her work. She innovates continuously, for example, she travelled to Austria and learnt new styles, the blue dotted pots that are now very popular. She says that blue pots can be considered as a reinvention of traditional forms or colours, but this is a tradition from the thirties and not from the classical period. She does not simply reinvent tradition but reconstructs tradition. Her pots successfully compete with low-price Chinese, Oriental and Eastern European products, but she is not eager to introduce pottery styles fundamentally differing from tradition in the Mezőtúr region. Magi Cseh’s example shows a particular form of successful exploitation of a cultural and artisanal tradition such as pottery: although the market determines what is produced there is still flexibility and the possibility to learn new practices and to create new demands through creating and acquiring new styles and forms of products. In this case the cultural and aesthetic transformation of the product creates more opportunities to maintain and creatively develop local cultural traditions. It seems that this is only possible in

multiple roles such as those enacted by magi c seh, as designer, artist, artisanal producer and manager. innovative use and management of cultural resources involves components that can be found in the traditional variants of resource use exemplified below.

Traditional Resource Management

traditional use of cultural heritage results in the conservation of cultural tradition. actors practising this kind of resource management use traditional techniques, develop local tradition, use some new elements, but this does not mean the reinvention of local tradition. their activity aims at market-oriented production in traditional form. they produce high quality folk art products, but they have never mass produced articles. the success of this kind of production depends on the scientific knowledge of the producer and his or her reputation as a traditional folk artist.

István Gonda is another potter who started his career in the Pottery Cooperative. although recently he almost stopped making authentic folk pots, he is famous for his artistic pots. He says that the works of Mezőtúr potters are sold in souvenir shops at a high price in budapest and in other tourist regions of h ungary, and local handicraft industry does not benefit much from it. In these shops the tourists buy smaller size products with which they can travel easily and they prefer global motifs to traditional ones, for example, Japanese tourists like rising suns. he tried marketing traditional plates, but when he paid a visit to the budapest shop, he discovered that all his works had sold except for the traditional folk ones. he makes beautiful ceramics and uses local traditional motifs. his works are accepted by the official jury of ethnographers. His success is based on his reputation.

Summarizing and comparing the different cases of resource use and management found in pottery production in the region it can be said: in Mezőtúr not all potters are successful. the successful ones offer special products and bring their products outside the region. although local natural resources are suitable for pottery, now pots are made of non-local clay. potters often travel together to buy raw material in the capital or elsewhere on the market. the activity of local potters based on local traditions – that is the resource they can use in their work. As the example of magi c seh shows, continuous reinvention of traditions is a key success factor. the example of István Gonda shows another way in which high quality products find their way to the market. The third model is mass production by the Kovács family – they produce simple and cheap pots for everyday use, without aiming at artistic quality. the common component of all three enterprises is that their main market is outside the micro-region.

the cultural tradition of the micro-region is manifested in the region's pottery. Referring to the *culture economy* concept of Ray (1998) – the (re)valorization of a place through its cultural identity – we suggest that Mezőtúr fits his category of *product identity*. Ray's theory emphasizes the commodification of local culture when a territory or culture is encapsulated in its products. Mezőtúr pots can be

marketed directly or used in the marketing of the territory together with other historical or environmental components.

Summary and Conclusions

From the case presented above of different forms of rural natural and cultural resource management, drawn from the Hungarian case studies for co Ra Son , some conclusions can be derived that show the possibilities and limits of using and managing rural resources according to the broad dimensions of environmental, economic and social sustainability.

All the examples presented – natural resource management through (or linked with) agriculture, rural tourism and recreation, nature protection, and cultural transformation of resources as in the different variants of pottery – reveal *specific dynamics of sustainable resource management in a still transforming post-socialist economy and society*. Sustainability in rural development and resource management is something that constantly needs to be interpreted, sought and fought for, involving great efforts and intensive work, not only through policy programmes, but much more by the rural and local actors, in difficult situations where the pendulum goes back and forth between two criteria – ‘market and livelihood first’ or ‘local resources first’. The different management variants found in the case studies – conventional, traditional and innovative resource management – show through their variations in the cases reported that sustainability in all aspects is difficult to achieve. Furthermore, there are, characteristically, trade-offs between the three goals: priority given to market-oriented production and profit parallels neglect of nature and the natural resource base. The achievement of sustainable resource management goals is mediated through the management styles and practices chosen by the actors, and here the actors and individual farmers or local entrepreneurs have a certain room to manoeuvre and some choice. It is not necessarily the case that specific forms of resources go together with sustainable or unsustainable user practices. More important than property rights in resources seem to be the concrete practices of resource management and the different forms of knowledge used to manage a resource in sustainable ways and in the long run. That this could be shown to some degree from the case studies reported here is an important result for further debates about rural sustainable development, when looking at the rural actors involved rather than at the policy programmes.

The cases of natural resource management in the Mezőtúr micro-region allow the following more general conclusion: one form of natural resource management – through certain practices of production like agriculture, through non-productive use as in tourism or nature protection – is often not sufficient to manage the resources in a region in sustainable forms. In studying a local community or region, the different practices of resource use and management and the varying management styles should be seen in their complementarity or interaction; some forms of management block each other, others go together.

the cases also allow the following more general conclusion: cultural transformation of local resources that evolved through traditions of small-scale artisanal production of goods with a local and cultural image is still continued and developed in rural areas and by rural actors who have the knowledge and skills to produce such goods. It is, however, visible from the pottery practices reported above that innovation – as combining traditional knowledge, production practices and goods with new ideas, styles, clients, markets outside the region – is a key factor for the continuation and long-term practice of using and managing cultural resources. The dynamics of cultural resource management, where links with local nature, although embodied in the product, become less visible, require more in-depth and comparative analysis than could be done here.

The case studies suggest that sustainable management of natural and cultural resources in rural areas is not only difficult to achieve, but probably more difficult to maintain in the longer term. Although it was not possible to study and analyse the cases more deeply and through follow-up studies, to see whether and how temporary success of management practices is maintained over time, the cases show rather clearly that most resource management practices at the level of farms or local enterprises are preliminary, temporary solutions and are unstable practices, with high uncertainty about their continuation. Among the examples from farming it seems significant that even successful farmers (as the first case of the farmer family shows) do not know about their near future and say it is always difficult to plan, which is an everyday stress in an insecure economy.

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Italy: practical Knowledge and institutional mediation in a controversial case of clam Farming

Giorgio Gotti and Francesco Silvestri

Introduction

The delta of the Po River in Italy shows a situation typical of rural areas: a high presence of agriculture in the local economy, low population density, lower income and education levels, and a high presence of informal employment. At the same time, the connection between land and sea has created a unique environment in this area, made up of lagoons, small islands, and closed fresh water basins. There are two regional parks in the delta. Besides beach tourism and sea fishing, various kinds of fish and shellfish farming emerged in the late 1980s in the area, as a major case study of diversification. One of these is clam farming in the Goro Lagoon. That activity represents an exemplary case of the fragility of local institutions when faced by rapid change (North 1990).

The introduction of a major innovation, namely a new type of clam from Asia, brought sudden wealth to the inhabitants through the intensive cultivation, industrial transformation and export of the product. A local consortium was the pivot of all the operations. However, a rapid and unexpected environmental crisis, resulting from a loss of oxygen in the lagoon, provoked a collapse of the clam farming with severe consequences for the social and political balance of the community, highlighting the weakness of a development path not based on sustainability. In every step of clam farming history an important mediating role has been played by experts and scientific institutions. They introduced the new variety of clam, they taught how to farm, but they did not deal with environmental problems, ignoring the fact that in a sensitive ecosystem such as the Po delta, the salinity and oxygen conditions of water can change abruptly. Gaps in knowledge distribution and the failure to adapt practical knowledge to innovation almost brought about the collapse of the entire system within a few years. But the crisis enabled new institutions to arise, keeping the Goro economy alive, and still using knowledge as a lever. In recent years a more limited clam cultivation and industry has been re-established which is based on a more shared knowledge between local people, development agencies and scientific institutions. Moreover, knowledge is again an important resource for the control of environmental conditions and to

permit alternatives to fish farming, allowing a new diversification in fields like rural tourism.

The case shows in a paradigmatic way the interdependency between experts, cooperative and public bodies, and the ambivalent role of social capital. To treat such a complex, 'constellational' subject in a coherent way, in Sections 1 and 2 we describe the territorial and institutional framework within which the story takes place, while in Sections 3 and 4 we explore the role played by different *knowledges* for local development and environmental sustainability in the Goro case. A final section sums up the main points of the case study, emphasizing the importance of the concept of practical knowledge and the role of institutions in developing a sustainable development path.

Territorial Framework and Fishery Filière in the Delta

The area of the Po River delta is divided between two administrations: the provinces of Rovigo, in the plain zone of the southern part of Veneto region, and Ferrara in the north-eastern Emilia-Romagna. Although both regions are included among the top 25 European regions for labour productivity and rate of employment, the provinces of Rovigo and Ferrara have structural problems and show an unemployment rate higher than the regional mean. It's worth noting that both sub-areas in Rovigo and Ferrara are recognized as EU 2000–2006 Objective 2 zones.

The Po delta represents the largest wetland area in Italy and is one of the most important in Europe. It covers a surface of about 1,300 km², extending along 130 km of low sedimentary shores which form a crescent around the north-western Adriatic Sea. The Po delta territory is almost completely below sea level, except for its banks, beaches and sandy dunes. The Volano-Mesola-Goro Station, representing the southern strip of the area, is the only territory of the Po delta park in the Emilia-Romagna region to be really of interest to the delta active branches. It includes a wide range of natural habitats of European interest.

Both the Venetian and the Emilia-Romagna delta show typical trends for rural areas, with a high percentage of unemployment, related to regional averages, and with an important proportion of the active population involved in primary activities (European Commission 1988; Osti 1998). In this scenario the Goro municipality is quite an exception if we look at the 20-year trend of the unemployment rate: this fell from 6.6 per cent to 4.5 per cent in the period 1981–1991, but rose again to 6.5 per cent during the period 1991–2001. The reason is the incredible boost in shellfish farming (namely clams, but also smaller-sized mussels) in the Goro Lagoon, which resulted in substantial job creation in fishery, and then the crisis in the sector from 1993 to 1997 which resulted in the firing of many workers. Differentiating the active population by type of work, we have a very high

percentage in the primary sector in Goro (57 per cent) because fishing and fish farming has been most relevant to that area.¹

Fishing and fish farming have great economic, historical and cultural importance for the coastal municipalities of Veneto and Emilia-Romagna. In the northern delta, open sea fishery employs 350 workers, while the number of fishing boats in the province of Rovigo is about 250 (2001 census). Between Po di Maistra and Po di Goro (two branches of the Po River delta), workers in mussel farming constitute almost 1,500 labour units; in the whole province, generic fishery employs some 2,000 persons, associated in the 28 cooperatives that make up the *consorzio delle cooperative pescatori del Polesine* (consortium of Polesine Fishers' Cooperatives). Since 1999, the fish production and processing system in the Venetian Lagoon (Chioggia) and delta is recognized as an official district by the regional government, according to the national laws on productive districts.

The shellfish filière in the delta, as for the whole Adriatic area, consists of different levels. At the first level, producers, mainly fishers' cooperatives or consortia, manage the stocks and harvest shellfish when they reach the proper dimensions. The product is then sent to a gathering pound called a Purification Centre, where mussels are subjected to decantation or to purification from pollutants. After this phase, the product is managed by an *expédition centre*² officially appointed by the European Commission, which sends it on to industries where it is processed and canned, or directly to fish markets to be sold as fresh product.

In the northern delta, revenue from these operations has been valued at about €60 million in 2004. The quality level is very good; thus, this consortium certifies the quality (ISO 9001) and eco-efficiency (ISO 14001), while products such as the 'true' clam of Polesine,³ mussels from Scardovari, the blue fish and eels of the Po delta, and the grey mullet of Polesine, are all labelled with the 'typical goods' seal by the Italian Ministry of Agriculture (De Pin 2002).

In the southern part (Emilia-Romagna), fishing has historically dominated the Goro Lagoon, Comacchio and the sea in front of these two municipalities, until the modernization of fleets and boats permitted fishing in the open sea. Fishing has always been a subsistence economy: it did not fully ensure the welfare of fishermen, who were forced to take on other activities during the winter such as harvesting reeds and renting hunting posts inside the lagoon. Thus, fishing is an activity deeply rooted in the traditional heritage of these places, evolving over time towards professional forms.

Since the 1970s, fishing – linked to fish farming, the topic of the case study that we will develop in the next section – has become the main activity for revenue

1 In Italian Census statistics, fishery and agriculture belong jointly to the Primary sector.

2 Usually, Purification Centres also act as Expedition Centres.

3 'true clam' is the translation of the common Italian name of the *Tapes Decussatus*, the only autochthonous clam species living in Italian waters.

production in goro: with 753 industrial units (census 2001), the sector covers 72 per cent of the total productive units at the municipality level (at the provincial one, fishery is just 2 per cent); if we add in Comacchio, this rises to 96 per cent of local units and 98 per cent of employees of the province of Ferrara as a whole. So, we can say that fish production depends almost entirely on the units found in this area.

A deeper analysis of the fishing fleet in Goro in the last ten years underlines some relevant aspects of fishing in the southern delta. While the number of boats is rising (+25 per cent between 1992 and 2001), gross tonnage remains unchanged; as a consequence, mean tonnage fell by 20 per cent, with a pivotal period in the triennium 1995–1997 when the number of units grew by 30 per cent while the mean tonnage fell by 24 per cent. The change is due to the explosion of clam culture inside the goro lagoon, an activity with a low entry threshold (in terms of both financial capital and skill) that needs boats with a lower tonnage; many people – even from outside the fishery sector – chose this activity, transforming goro in the most important place for clam production of Europe in the 1990s.

Nowadays, conditions for the clam filière in the whole north Adriatic sea are uncertain on both the supply and the demand side. On the one hand, production problems are linked to the presence of abusive agents (both outside and inside the official cooperatives' system) operating in the sector; this situation generates excessive purchase offers, with negative consequences for market price equilibrium, and for the hygienic conditions of the non-controlled product. On the commercial side, policies for market segmentation and differentiation are implemented, based on certification and tracking tools such as voluntary ecological standards and quality-origin labels. At the moment, on the demand side, willingness to pay for a certified product is not high enough to justify investments in reputation. However, the main producers of the delta area have already started the certification process.

Diversification and Innovation: Shellfish Farming in the Goro Lagoon

Fishing on the open sea and in lagoons, as mentioned, has always been an important sustenance source for Po delta communities. For almost 40 years, however, fishing left room for another activity, linked to it, but at the same time more similar in work organization to agricultural practice: this new activity is fish farming, in particular mussel and clam farming. mussel farming started in venetian delta lagoons, but it became internationally famous due to the development of goro production in the 1980s and 1990s. it is a paradigmatic example of the way local skills, scientific knowledge and practical experience can join together to generate development in a rural area.

Fishing has always been the main economic activity in goro, and for this reason in 1962 this little fishing centre obtained the status of a municipality, parting from Mesola which is a typical agricultural area. The first local fishermen's association was founded in Goro in 1931, a fascist-period guild of fishermen from which,

after the Second world war, developed the Fishermen's consortium (copego , *Consorzio Pescatori di Goro*), a crucial institution for later events. At that time in Goro a highly specialized occupation was well developed: this is fry (early fish) fishing, which prompted people from Goro to look for fry even in Mediterranean waters near France and Spain. Like many traditional specializations, this kind of fishing requires skill in treating fry before selling them to fish farms in Veneto. Nevertheless, after some years the diffusion of laboratories made it simpler and cheaper to provide laboratory-bred fry, so that the local practical culture linked to this kind of fishing disappeared.

Up until the early 1970s, copego was the Goro community's point of reference, influencing all aspects of local social life. COPEGO carried out not only the typical activities of a professional association, but also social activities and mutual aid. In the middle of the last century copego was so omnipresent that it helped the sons of fishermen to attend school, supported poor families, and organized holidays, so that COPEGO could be identified de facto with the local civil society.

In 1968, an event happened that would change Goro's history forever: local fishermen found a natural stock of 'true' clams (*Tapes Decussatus*) in the bottom of the lagoon. Skills to develop this new activity are simple and easy to learn. copego tried to give some guidelines on cultivation and marketing to its members, but despite this, exploitation resulted. In a few months in Goro, what Garret Hardin defined in a famous and frequently quoted paper as 'the tragedy of the commons' (Hardin 1968) occurred: absence of property rights allowed the clam's stock to be exploited with no attention to the physiological growth of the resource. By 1974 the natural bank was almost completely exhausted.

Although the consortium tried to establish some rules, inadequate understanding of how to enjoy a common good (seen as something to exploit before someone else would do the same), mutual mistrust among operators, and lack of managerial knowledge, resulted in rapid consumption of the clam stocks. Even so, something of that transitory experience remained inside the local community. The importance of not depending totally on open sea fishing, with its high level of uncertainty, the importance of programming one's own work oneself to make it year round, promoted the idea of diversifying fishing activities. Not only clams were found in the lagoon, but also mussels stocks, whose exploitation followed some sustainability principles, such as harvesting just a quota of the total resource. Then in 1973, COPEGO invested in building a decanting pound, for the purification of mussels before they were marketed. In any case, these were not lucky days for the fishing sector: a cholera fever epidemic in southern Italy depressed the consumption of sea food, shellfish in particular. Nevertheless, mussel culture developed in Goro and fish-farming skills improved.

It's quite difficult to explain why the same virtuous behaviour in managing one shellfish species (mussels) wasn't applied in the same area and at the same time for another kind of shellfish (clams). As a matter of fact, mussel management needs less attention: mussels develop at a higher rate and in a shorter time than clams;

furthermore, traditions in dealing with mussels were more rooted in every lagoon, where fishermen used to drive stakes into the ground to be 'colonized' by live mussels (while clams grow in the sea bed, needing more specific conditions for water temperature); finally, local markets were accustomed to mussel consumption, while there was a lack of culinary tradition for clams. For all these reasons, a kind of tacit, non-codified knowledge⁴ in dealing with mussels was more developed in comparison with the clam situation, on which first managerial, and then scientific, knowledge could root (see below).

As studies and experiments blossomed, over the same period the idea of transforming fishermen into a kind of 'sea farmer' became quite popular – buying seeds in specialized centres, planting them in fields in the sea bed, and harvesting products when they were ready. The research areas were linked mostly to fish and fry, but the techniques began to be applied also to shellfish. The easiest to treat in this way, as already said, are mussels, whose traditional 'farming' on wooden stakes have recently been complemented by more sophisticated technologies, like long-line pipes in the open sea. When it was decided to start mussel farming in the goro lagoon, the earlier lesson from the clam stock exploitation seemed to have been learned: in order to regulate harvesting, coordinate the commodity supply and achieve a favourable position in relation to dealers, in 1976 five cooperatives decided to join *copego* and not to exceed production quotas assigned by it. Managed on principles of economic rationality, mussel farming showed good results and it was decided to transfer this experience to clams.

The first experiments were made in 1982 with *Tapes Philippinarum*; just three years later about 10 tonnes of clams were harvested, rising to 22,000 in 1991 when it represented 80 per cent of national and 70 per cent of European production (Carriero, Paesanti and Rossi 1992). Such a rapid and unexpected growth caused management problems that spilled over into the local community: the low level of expertise needed to become a clam producer encouraged everybody to join the new business, mostly young people who left school as soon as the law allowed them to do it.

Within a few years, *copego* had changed its nature: it became the national leader in the clams market and was also able to succeed in the international market. In this way, it played the role of supply side monopolist, becoming an important stakeholder in this area, able to affect local government choices. Changes in business dimensions and in the income of the society, which grew from 10 to 40 million Euro, were not followed by improvement of professional and managerial skills, so that *copego* was responsible for many mistakes, in selecting clients (with problematic insolvencies), out-of-budget expenditures, unjustified hiring that increased its manpower to 150 units, heavy but almost useless investments, and so on. There was a rapid rise in its deficit, and the consortium management soon revealed itself as inadequate to drive such a complex machine.

4 For the concept of tacit knowledge see Polanyi 1974; Nonaka and Takeuchi 1995; Conti 1997.

When in 1992 a ruinous environmental crisis cut 60 per cent of production, which was repeated the following year and in 1996–97, the whole system imploded. *Copego*, which was already in the eye of the hurricane because of some legal enquiries, lost its authority and more than half of its members (640 out of 1,200). Nowadays, *Copego* has been reorganized, and has returned to its original economic vocation. It is still influential at the local level, being the only owner of a decanting pound, but it is not a pervasive structure any longer. New consortia have emerged (*FederCoPesca*, *AGCI Pesca*) as a demonstration that *Copego*'s monopoly on the market and on local civil society is over.

In spite of these dramatic events, fish farming is still the main economic sector in Goro, the activity that still generates employment and welfare for the inhabitants. Nowadays the Goro lagoon is divided into a plantation and weaning zone for *Tapes Philippinarum* seeds – called a nursery – and field plots which are allocated under a four-year license. As the number of requests for plots is rising year by year, the crisis of the 1990s appears to have been overcome. Harvested production is growing: from the minimum in 1998 of 1,834 tonnes, in 2002 production reached 4,521 tonnes and 6,222 in 2003, a year in which the recovered environmental equilibrium conditions coincided with favourable weather and climatic conditions. During recent years, moreover, a habit has developed of following market demand, with peaks in the summer season, in December and, although lower, for the Easter holidays.

As a consequence of the crisis, in recent years Goro has lost its supremacy in the shellfish market: less coordination among suppliers, the rise of traditional competitors – first of all Chioggia, which now supplies almost 65 per cent of the national market, relegating Goro to 11 per cent – and of Mediterranean newcomers (Tunisia, Egypt), have facilitated the passage of market power into the hands of the dealers. This situation makes it possible for the international price to depend on the volume of demand, which can fluctuate over a year by as much as 400 per cent according to the season (from €1.65 to €7 per kg). In addition, the dominance of the demand side over the supply side is encouraging individual producers not to comply with the assigned quotas, and to sell products on the black market, which some observers have valued at 30 per cent of all exchanges.

If we trust official data, which most likely underestimates it, the revenue from the clam sector in Goro is significant, at around €40 million per year. The future of this sector requires a production line that is based on quality, a condition strongly linked to environmental conservation of local habitats. The sector's willingness to get out of the chaotic management situation, and to fit in with more qualitative controls, is shown in two recent initiatives: EMAS certification of the Goro Lagoon, and assignment of an EU protected geographical indication label to Goro clam production, both of which are soon to be approved by the European Commission. The latter is particularly important because it introduces mechanisms which work both as signals of risk of market failure (akerlof 1970; milgrom and Roberts 1986) and as guarantees and traceability of a product usually associated with risks of bad quality and dangers to health.

Chronology of Shellfish Farming in Goro Lagoon

- 1968: true clams (*Tapes Decussatus*) are discovered in the lagoon.
- 1973: building of the decanting pound for mussel purification.
- 1982: introduction of a foreign very productive clam (*Tapes Philippinarum*).
- 1992: first anoxic crisis of the lagoon.
- 1996: managerial and financial crisis of Fishermen Consortium (copego).
- 2004: the procedure for Goro's lagoon EMAS II certification started.

Knowledge Contribution to Fish Farming

Shellfish farming in Goro is a good model of the relationship between knowledge and local development: its origin, exogenous to the local geographical system, is deeply rooted in scientific knowledge which spread to Goro because of the action of some 'knowledge mediators' (piore 2001).

In the early 1980s, when 'clam-fever' began in Goro, advanced competence in fish-farming in Italy was located in the Venetian Lagoon, particularly in Chioggia where both the ichthyology centre of Venetian Lagoons (centro ittiologico Valli Venete, CIVV) and the Italian Society for Artificial Fish Reproduction (Società Italiana Riproduzione Artificiale Pesce, SIRAP) were established. In the same period, a group of researchers from the consortium for Development of Fishery and Fish Farming in Veneto (consorzio per lo Sviluppo della Pesca e dell'Aquacoltura del Veneto, coSpav), began to study farming perspectives on bivalve shellfish in Chioggia.

The director of coSpav was an American scientist of Italian origins who, having some experience of clam farming in the USA, Spain and Portugal, decided to experiment with the plantation of clam seed acquired abroad in two Venetian delta lagoons; while results were unsatisfactory in the first water shield, in Caleri's lagoon the seeds took root and a clam population grew up.

Among interested observers of the experiment there was a neo-biologist, a graduate of Ferrara University and an employee in copego's decanting pound. Thinking that Caleri's experiment could be replicated in the Goro lagoon, he asked for scientific support from his former thesis advisor and used his own contacts inside copego to establish a new and experimental clam plantation in Goro. When they were ready to buy the first stock of seed, they discovered that no factory treated *Tapes Decussatus* – the true clam typical of Italian waters – any longer; rather than quit the experiment, they decided to shift to a similar but Asian species, *Tapes Philippinarum* (aka *Tapes Semidecussatus*), but without considering potential environmental problems that might be brought in by the introduction of an alien species.

after a poor start, the goro experiment showed itself to be a great success, unexpected in its dimensions: after a year, new seeds generated by the population planted in 1985 were to be found everywhere inside the lagoon. clams from the philippines have stronger tolerance of anoxicity, salinity variations and parasites. they produce much more spats per female and record a higher growth rate, almost double that of *Decussatus*, making it possible to meet commercial sizes in two years, while the autochthonous species would need at least three or four.

From that moment on, relationships between producers, scientific units and universities (mostly the universities of Ferrara and padua) became continuous, in terms of experiments on seeds and fry, although neglecting the impact that an ecological crisis could have on such a massive monocultural activity. moreover, recognition of the importance of knowledge for clam farming improved local school attendance, although still dramatically low. Despite such undeniable social progress, the sector still has problems: management skills are insufficient to direct this important economic activity and it is still difficult to convince local producers of the importance of ecological balance for the sector's sustainability.

Despite its obvious labour-intensive character, what really distinguishes clam farming and determines its productivity is the nature of the knowledge-based activity involved: started as a result of an intuition, adjusted through R&D, lab experiments and field tests, it imposed a sharp discontinuity with the past and developed a mechanism easily replicable in other places (David 1998).

transferring innovations from the place where they were originally fashioned to other sites where they can be reproduced and used can involve high adaptation costs, particularly if the scientific knowledge that favoured the innovation has no complement in the local lay knowledge. in that case, the role played by 'cognitive mediators', i.e. agents belonging to the expert knowledge world, capable of managing complexity and implementing theory in practice, so that innovation can be reproduced at a low cost even in a context far from its origin, is fundamental.

in our case study, cognitive mediators between the innovators (c oSpa v researchers) and the users of the innovation in the goro lagoon were experts from the university of Ferrara, in particular the young biologist employed at copego . he was able to understand the potential of clam farming in goro, to convince a local community where entrepreneurship and trust were very scarce resources to join a common project, and to help local producers to see its profitability.

a part from the important activity of cognitive mediators, effective diffusion of a knowledge-based innovation is subject to interaction among three drivers (Foray and mairesse 1999): the existence of a value to be extracted by the innovation, a regulatory institution allocating the value among the different actors of the filière according to a *vector*, and, finally, a *mechanism to multiply* the innovation many times in a profitable way. The third driver can be augmented by new investments in knowledge at a local level and by endogenous features that transform a decreasing returns factor such as value into an increasing one which overcomes the constraints of path-dependency (David 1985).

The three drivers are naturally in conflict: the value that each agent wants to extract from the innovation may not fit the distribution vector proposed by the regulatory institution, while the multiplying effects assured by the strength of social networks can conflict with individual maximization of the value extracted from the innovation (Rullani 2004). A *s* for sustainable development, equilibrium for a knowledge economy is a compromise between three pure objectives: the private objective of value maximization, the social goal of best allocation among the different agents, and a third objective of maximizing the number of times an innovation can be efficiently multiplied.

Besides the contribution of the cognitive mediators, to consolidate the innovation at a local level requires a 'practical knowledge' contribution. This is a different concept from the previously mentioned 'tacit' knowledge because of the strong ethical element it incorporates. Stemming from Gadamer's reprise of the Aristotelian concept of *praxis* (Gadamer 1975), practical knowledge, '... is in some way related to awareness of what it's "right" to do, before that of what is "useful" ... it's deeply rooted in a territory, it can change, it can evolve, it can renew even through imitation, but it can't be imported'.⁵

It is a kind of knowledge used in understanding, rather than in changing, reality, oriented to evaluating the effects produced by action. Unlike technical knowledge, practical knowledge does not generate artefacts and tools, but it creates the conditions for success, interpreting situations, dissipating ambiguity and anticipating problems that could arise. It is a relational kind of knowledge, embedded in the relational networks of local agents.

While the evolution of technical knowledge is mostly the result of intellectual effort, changing practical knowledge is a social issue. It means reconsidering cultural heritage and local identity, modifying interactions within the network and reallocating power in the social system: new actors and groups arise, new relationships among formerly isolated agents strengthen and a social change process takes place (Botta and Vino 1999).

In Goro during the 1990s, the system imploded because innovation was abrupt, and there was not enough time to bring about the necessary changes in practical knowledge and in the structure of local values. As a consequence, the compromise balance among the three drivers was unable to resist the centrifugal force of opportunistic behaviour by different maximizing agents. The regulatory institution (Copego) was neither effective nor authoritative enough to impose a common objective. As a typical oligopolistic cartel with unaligned interests,⁶ the Goro system crumbled into a situation where those who defected from the compromise were able to grab gains.

To impose cooperation on oneself, the pay-off from agreement must be higher than the pay-off from competition and defection. This happens when the value

5 Botta and Vino 1999, p. 52 (our translation).

6 For a complete review of oligopoly and strategic behaviour in economics, see Tirole 1988.

from innovation rises, forcing the boundaries of *nil-sum* games. This happens in markets where the agents consider not only monetary, but also immaterial items, among their goals (von Wangenheim 2004). Such a situation is more frequent in communities where social capital is robust, where social networks are strong and trust is a shared value (Cersosimo and Wolleb 2006). In Goro, in contrast, social capital does not play any significant role: COPEGO's pervasive presence blocked the development of any other social multiplier, as witnessed by the almost total absence of voluntary associations and social cooperatives. In the absence of robust social capital as a factor for development, the prestige of the regulatory institution could be used to enforce cooperation; but when the ecological crisis broke COPEGO had already lost its credibility, trying to get consensus through 'favours' to the political sector, and ignoring the systematic elision of rules by its members.

The clam farming case in Goro reveals another important issue related to knowledge-based activities: the huge difference between generating innovation and replicating it, which concerns innovators' capacity to maintain their monopoly or quasi-monopoly *vis-à-vis* new comers. Since replication costs are far lower than production ones, in the absence of a full property rights system, new movers can exploit the innovation without bearing the costs of research and development, in this way generating a higher profit.

This is what happened in the middle of the 1990s, when other sites in the northern Adriatic Sea replaced Goro as leaders of the European clam market (Boatto, Silvestri and Rossetto 2005).

Knowledge Contribution to Environmental Sustainability

After the earlier period and the years of consolidation, the contribution of scientific knowledge to fish farming in the Delta area began to be directed to environmental monitoring and improving ecological conditions which were required for steadying the economic activities.

Ensuring the right quantity of oxygen for shellfish farming in the lagoon depends mostly on water exchange between Po di Goro fresh water and open sea water. While sea water is of good quality, the fresh water brings in nutritive substances, worsening hydro-equilibrium inside the lagoon. In fact, a too low level of salinity and a too high concentration of nutrients characterizes most parts of the lagoon. Moreover, alluvial materials brought on with Po di Goro waters are mainly responsible for sand covering the lagoon, reduced water flows and, consequently, rises in temperatures and in the growth of seaweeds.

The anoxic crisis in the 1990s, and the fragmentation of authority in many public bodies on so complex a subject (Po River Magistrate, province of Ferrara, municipality of Goro, Land-Reclamation Consortium, Italian Military Navy, National Ministries), along with the restricted dialogue between them, indicated by 1995 that there was a need to create a new special authority to govern the

scientific and technical problems of the lagoon. A professor from Ferrara University was nominated as chairman and scientific leader of this authority, named the 'consortium for goro lagoon management', which brought together the municipality of goro and the province of Ferrara.

The consortium was able to raise funds to carry out the important tasks of cleaning, periodical upkeep and hydro-dynamic recovery inside the lagoon, but because of conflicts between the Goro Municipality and the Province of Ferrara it was dismantled in 1997. In the same year, a new anoxic phenomenon put the goro case at the centre of national attention, and the Italian government decided to appoint a commissar with extra-ordinary powers to solve major environmental problems. Investments made possible by this new officer and his special funds rapidly produced results, and since then no anoxic crisis has emerged, while clam production has grown continuously.⁷

In 2003, at the end of the season of 'extraordinary intervention', a new committee for environmental management of goro lagoon was established, a body inclusive of local authority delegates (from the municipality, the province of Ferrara and the Emilia-Romagna Region), representatives of the main Fishers Association, and a technical body constituted within the environmental assessorship of the province of Ferrara (goro lagoon board). In the subsequent three years the committee facilitated annual works of land management, resection of the lagoon channels and restoration of hydraulic functions. These activities have been coupled with the establishment of a sophisticated monitoring satellite controlled system, managed by the goro lagoon board; the system provides real-time information about hydrometric levels and the chemical and physical composition of water in different places in the lagoon.⁸

Today there is growing environmental debate about clam cultivation and harvesting. The abandonment of manual rakes system for practices based on the use of mechanical rakes, such as hydraulic dredgers and vibrating rakes, has

⁷ This event is a further denial of the relationship between environmental conservation and local income, as claimed in the environmental Kuznets curve (eKc) proposed by Selden and Song 1994. Clam stocking in goro reveals the importance of environmental investments for spreading successful economic activities; but strong investments for lagoon preservation and water monitoring are not driven by an increase in local welfare and revenues. A part from the rhetoric of eKc, severely criticized by many experts in recent years (Tisdell 2001; Zaim and Taskin 2000), in our case study we could see the reverse mechanism: it was the risk of irreversible environmental catastrophe, anticipated by a series of anoxic crises, that led to the claim for new public investments in environmental quality, after the sector's revenues collapsed.

⁸ The monitoring system is based on a series of bathymetric plummets, connected via GPS to a data processor, and completed through the acquisition of satellite photos (QuickBird); all data are transformed into GIS coordinates and laid down on maps. Information is used to verify the morphological evolution of beaches and sand-banks, marine life and hydrodynamics, but it is even shared via the web with local stakeholders, like fishery associations and operators.

brought about unavoidable negative environmental impacts on the morphological processes and marine life functions of the lagoon. Similar problems are being faced in the venetian delta, both for mechanical harvesting and the maintenance of internal hydrodynamics (o nofri 2005).

Practical Knowledge and Institutional Mediation

In this chapter we have concentrated on shellfish farming activity to understand how a different kind of knowledge mix was able to impose in a short time a non-agricultural activity in a rural area such as the po River delta. at the present time, producers know they must pay greater attention to environmental conditions inside the lagoons: past anoxic calamities seem to have educated people in the sector about the importance of keeping strong control over water quality, hydro-dynamics and the morphological evolution of coasts; otherwise, the whole system could collapse at any moment. we can see a practical demonstration of this new awareness in the establishment of a permanent technical body to monitor ecological balances, with the support of provinces and universities, and in the diffusion inside the system of some voluntary instruments of environmental certification.

Shellfish farming is outward-oriented, since clam production is sold in national and international markets, and it incorporates large innovations, with a tangible modernization of the local fishery filière. Thus, it is not surprising that shellfish farming needed a strong injection of expert and managerial knowledge to develop. it was exactly the lack of managerial expertise that gave rise to the dreadful bottleneck that risked the collapse of the entire sector in the 1990s.

The Goro fishing and fish-farming case showed how awareness about the importance of ecological conditions gradually entered the consciousness of local stakeholders and public bodies. environmental problems in the goro lagoon moved from a top-down perspective – with a governmental commissar given special powers of intervention – to a more local one, even if not exactly bottom-up: since 2003 a new committee, consisting of local public bodies and fishery associations, has replaced the commissar in monitoring the lagoon and in deciding on protection initiatives.

Thus, shellfish farming has brought a new awareness in the local community, linked with governance and capacity building on the one hand, and with sustainability on the other. obviously, the process is still in progress and is quite far from a definitive and satisfactory result (see Figure 6.1).

the goro story also allows us to test the importance of knowledge for the start up, establishment and development, or – on the contrary – failure, of an economic activity. lay knowledge in the area is represented by many things: traditional fishing techniques; the habit of living with the sea and off-sea resources; specialization in fry fishing; the practice of dealing with the fish farming filière; and learning what is meant by correct management of common goods. into the body of tacit knowledge a robust dose of top-level scientific knowledge has been

injected: important experimental centres on ichthyology have been established in Veneto with links to the international scientific world and the universities of Padua and Ferrara, the technical knowledge of environmental institutes and the internal high-level competency of public authorities.

it is worth noting that the transfer from 'higher' forms of knowledge to everyday ones was mostly due to the interest and determination of someone who belongs to both worlds, the scientific world of universities and experimental centres, and the local world: a biologist specialized at Ferrara university, involved in c hioggia labs activities, but also the son of a local fishing family and employed at COPEGO. a nother 'key character', probably the one who most represents the concept of 'expert knowledge' is the chief researcher at the institute of marine Zoology at Ferrara University, who did not simply act as a consultant or a scientific tutor, but played direct managerial roles, becoming the President of the first Consortium for the g oro lagoon.

what was really lacking in the clam farming experience in the delta, in particular in g oro, was the previously mentioned practical capacity (or practical knowledge), which can assemble different sources of knowledge along with the changing conditions of local economic actors. The main mediator – COPEGO – suffered from inadequacy in its own management, inappropriate pressures from political parties and a paternalist attitude towards local people.

moreover, areas with only 'bonding' social capital (h elliwell and putnam 1995; putnam 2000), institutional weakness, and isolation are prone to shocks caused by innovations; these cause a disturbance that calls for an upgrade of practical knowledge. t hroughout the period of transformation, the system is exposed to great hazards.

in g oro, hazard took the form of anoxia, and it revealed the failure of the regulatory institution and of the local social network. t he local system showed its own inability to manage the growing level of complexity, and – as in many other similar situations – only an intervention from outside could redress this (Lane and Maxfield 1997). New agents arose to save the system from 'bankruptcy': consortia and 'middle level institutions' (a rrighetti and Seravalli 1997, 1999) which were quite marginal for the area up to that time, such as the Regional park c onsortium of the po River delta, lea De R ii and then lea De R+ lag Delta 2000.

u sing knowledge as the main resource, both the Regional park and the lag Delta 2000 tried successfully to enlarge development opportunities for activities different from the clam filière and the fishery sector, mostly correlated with sustainable tourism and environmental valorization. e ven though these activities did not produce the same revenues as the main activity (shellfish farming), they were very important, being based on a network and cooperation approach (Silvestri and b ono 2005). Such new intermediate institutions broke the single-item development path for g oro, keeping variety alive and strengthening the system's ability both to generate innovations and to escape from lock-in (a rthur 1988, 1989; Saxenian 1996).

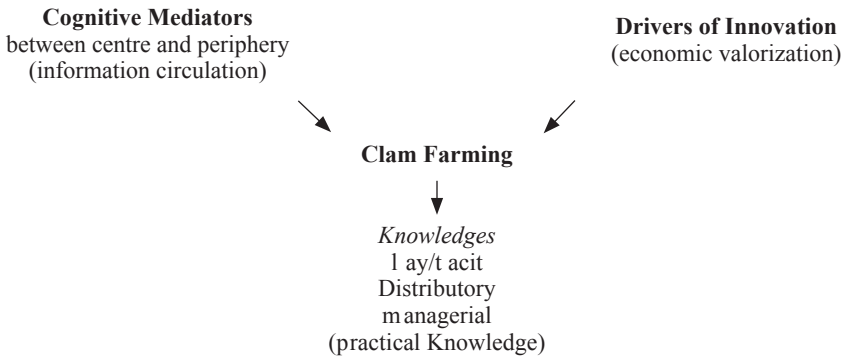


Figure 6.1 The representation of clam farming: Main factors

Today the crisis seems to be partially overcome, due to the redistribution of functions formerly monopolized by *copego* among different agents. In addition, generic knowledge and education levels are remarkably improved in the local community. The strengthening of human capital in the delta, as testified by the higher frequency of university attendance and the higher number of secondary school graduates in the local population, is translated into new attention to environmental problems. On the other hand, a weak point of the system, which is deeply rooted in past lack of competence and low confidence in institutions, is the incidence of the black market (consorzio parco regionale Delta del po and *eco&eco* 2006).

In conclusion, we must consider the crucial role played by so-called practical knowledge. It is a hybrid form including codified as well contextualized or tacit knowledge; but it is not only a good mix of traditionally polar forms of cognition, it also embodies a social dimension, particularly evident in the (weak) capacity of *copego*'s institutions to redistribute the wealth, not only monetary, which is coming from clam farming. At stake was redistribution both inside the fishing sector (with the great problem of free riders) and across other less rewarding activities, like ecotourism and education. The monolithic presence of *copego* affected the whole redistribution process in a negative way. Even if it was established on a mutual basis (consortium), its capacity to ensure a social balance was widely insufficient. That means two things for rural development: first, that local knowledges, even when mixed with external ones, are not able to ensure good management of the entire innovation process; second, that egalitarian ideologies, such as inspired *copego*, are not well equipped to deal with complex situations of ecological crisis and economic differentiation.

Thus, we wonder what mechanisms do allow rural areas to develop through knowledge. Surely practical knowledge is a key factor; it has two components, one ethical, the other linked to practice. The former concerns commitment to the public good, protection of the environment and the education of young people.

the latter has to do with the adoption of sequences of managerial acts (scripts) which are sufficiently flexible to admit the insertion of new bodies. When in the goro lagoon such scripts became less rigidly linked to 'productivistic' goals and hegemonic political designs, a new and more sustainable development path was able to arise.

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part ii
environment and Sustainability
in Rural Development

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ireland: ecologizing Rural ireland? Conflicts and Contradictions Regarding Knowledge for Sustainable Development

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Introduction

‘Rural sustainability’ remains an underdeveloped ideal within irish rural policy. national goals and priorities take precedence over local particularities, producing vagueness and ambiguities in the meaning attributed to ‘the rural’ as a subject for sustainability policies. the emphasis on economic growth as the single most important criterion for success within political networks supports a uni-dimensional understanding of agriculture as the production of inputs for an expanding and globalizing food industry; while the frequent conflation of rural development with regional development helps to construct rural development predominantly as a matter of achieving a more equal spatial spread of employment opportunities across the country. if we conceive of rural sustainability as a movement towards ‘the ecologization of rural practices’ (alphandery and Fortier 2007), this chapter suggests that sustainable development in rural ireland is more likely to be found as an aspiration of grassroots rural networks than as a thought-out goal of policy actors.

the dominance of a positivistic science-based perspective within public and policy understandings of ‘knowledge’, which helps to suppress public debate about and participation in progress towards the ecologization of rural practices, could also be cited as a cause of underdevelopment in irish progress towards sustainability in general. While positivistic and scientific attitudes certainly dominate public understandings of knowledge in ireland, whether that constitutes the most significant obstacle to increasing rural sustainability is the subject of discussion here. a theme running through much recent literature on sustainable development is the quest for a ‘sustainable’ form of knowledge to guide development and/or conservation projects for rural areas and societies. it is fairly widely agreed that what pellizzoni (2003) has described as ‘the traditional politics of expertise’ is no

1 the author would like to thank Karl bruckmeier for his comments on this chapter, which have been very helpful in clarifying the arguments set out in it; responsibility for any inadequacies in these of course remains with her.

longer effective in such projects. in his account, traditional politics starts from the assumption that all policy problems can be defined in essentially technological ways and can thus be settled by relying on specialized knowledge; specialized knowledge is a repertoire of models and approaches which confirm experts as speaking appropriately and pertinently to the problem, and disable lay citizens from doing so (2003: 330). Lay knowledge is understood, in this discursive world, as private, unverifiable, particular, and intertwined with interests that are non-cognitive; hence it is useless as a source of solutions and quite possibly a hindrance to rational problem-solving. or as Kloppenburg has put it (1991: 524), ‘what we call modern science is itself a historical product of a continuous social struggle not only to define science in a particular way, but also to exclude other ways of producing knowledge from that definition.’

That expert or scientific knowledge is itself particularistic and open to influence from non-cognitive interests has been argued by many sociologists of science (Kloppenbunrg 1991, Latour 1993, Wynne 1996, Jasanoff and Martello 2004). more broadly, the whole Mertonian picture of how scientific knowledge is produced – by bounded communities of academic scientists pursuing truth, whose specific methodological and normative commitments make them uniquely capable of generating objective and verifiable knowledge of reality which carries no trace of the particular social and cultural context of its production (Merton 1942) – has been challenged from a number of sources. the close interactions between universities, industry and the state as the key context in which contemporary knowledge production and technological innovation occurs is emphasized by ‘triple helix’ analysts such as Etzkowitz and Leydesdorff (1997). Jamison (2001) alternatively argues that much contemporary knowledge (particularly ‘green’ knowledge) is made by social movements; social movements periodically serve ‘as important contexts for the reconstitution of knowledge’ (ibid: 46) and their creations are then taken up by conventional institutions and translated into economically useful and/or socially acceptable forms. Gibbons et al. (1994) also describe contemporary (or what they call Mode 2) scientific knowledge production in quite different terms to Merton’s. they argue that contemporary knowledge production is increasingly contextualized, produced less as ‘truth’ than for use and application within specific delimited contexts; it deals with ‘real-world’ problems which are characterized by high levels of complexity and uncertainty. Knowledge production sites have become much more heterogeneous, using more open and flexible understandings of research, expertise, competence and skills. the knowledge generated by contemporary experts tends to be hybrid, heterogeneous in origin, characterized by complexity, boundary crossing, and new ‘quality control’ standards which generate new criteria for ‘expertise’ and create new constituencies for its consumption (Noyotny, Scott and Gibbons 2001).

one ‘new constituency’ which receives relatively little attention in these discussions, however, is local lay users of natural resources who are members of local rural communities. but their inclusion in knowledge generation has become a central issue for many people working in environmental sustainability

projects. For some of these, this requirement arises from the normative meanings of sustainability or sustainable development itself. For example, Rist et al. (2007) argue that sustainability requires forms of natural resource governance which are democratic and participatory and which approximate as closely as possible Habermas's account of 'communicative' action. For others (Berkes, Golding and Folke 2003; Stirling 2005) the key issue is rather the robustness of the knowledge used for, and applied in, sustainable development. Berkes, Golding and Folke, for example, point to the gap which 'has developed between environmental problems and our lagging ability to solve them' (2003: 1), and the 'emerging consensus' among ecologists that new and broader approaches are needed, using new conceptual framings and a broader range of disciplines and skills. This goes beyond the idea of a 'post-normal' science based on extending the peer-review process to include lay and local actors (Funtowitz and Ravetz 1991). Berkes, Golding and Folke argue that sustainability research should involve 'processes of co-production' of knowledge (2003: 2) in which 'stakeholders' interact with experts in the process of defining the important research questions and what would count as relevant evidence for answering these. Only this can produce, in situations of high uncertainty and complexity, 'trustworthy knowledge and judgement that is scientifically sound and rooted in social understanding' (ibid: 3).

Co-production of knowledge between 'expert' and 'lay' knowers is central to the idea of transdisciplinarity, an idea which is becoming increasingly widespread in discussions about the new forms of knowledge production found in contemporary society. Transdisciplinarity is still a rather vague and contested idea; the term is used in a variety of different ways which are not always compatible with each other, and it overlaps with a range of other terms such as 'sustainability science' or 'adaptive management'. For simplicity, here we focus on one version which represents it as a type of 'action research' which seeks to realize a new form of natural resource governance (see for example Berkes, Golding and Folke 2003; Rist et al. 2007; Luks and Siebenhuner 2007). In effect, it seeks to replace the 'traditional politics of expertise' with a recognition that there are multiple ways of knowing, evaluating and acting towards 'socio-natural' systems – what Rist et al. (2007) have described as distinct 'ontological knowledge schemes' which embed different representations of 'how things are'. As with Gibbons et al.'s mode 2 conception of knowledge generation, transdisciplinarity starts from the assumption that knowledge is generated in particular contexts of application; but even to define the 'context' itself involves bringing together different perspectives, knowledges and interests and encouraging and facilitating dialogue between them (Rist et al. 2007, Jasanoff and Martello 2004). Transdisciplinary approaches to sustainability experiment with dialogical forms to find common ground between the different knowledges as a basis for establishing regimes of sustainable natural resource use and governance.

Even with this simplified version, some ambiguities still remain. The reasons offered to justify transdisciplinary governance regimes vary, depending on whether an author places greater emphasis on concerns about democracy and participation,

education of the public into a scientific perspective, or robustness of knowledge needed for environmental sustainability. and what is included in governance also varies: for authors such as Rist et al., reformation of governance primarily relates to reformation of relations between knowledges, whereas for berkes, colding and Folke governance is about property systems and access to resources and is a separate dimension to be considered in establishing sustainable management or development schemes. Relations between resource access, and knowledge about resources and their use, are complex and surely need further analysis; nevertheless a focus on knowledges alone seems unlikely to grasp some central problems facing rural sustainable development.

in this chapter i draw on three case studies of projects for sustainable development in rural ireland to explore some of the assumptions, claims and findings made in transdisciplinary research and debate, particularly those concerning 'local' knowledge. t hese case studies were collected as part of the cross-national e uropean research project co Ra Son , and it is important to note at the outset that they did not involve the use of a transdisciplinary form of action research: rather, they all deal with 'naturally occurring' projects developed by and for groups of rural citizens which were studied through the standard and relatively non-interventionist sociological methods of interview, documentary analysis and some observation. part of what makes these cases interesting, i suggest here, is that they concern knowledges for sustainable development in a developed country of the global n orth. t ransdisciplinary research to date has been, not solely, but predominantly conducted in settings from the South where sharp divisions are more easily made between expert or scientific and local or lay knowledges. These divisions are much less easily made in the contexts which co Ra Son studied, as the next section of the paper discusses.

CORASOn and the Problem of 'Local Knowledges'

co Ra Son (a c ognitive a pproach to Rural Sustainable Development) set out to study the dynamics of knowledges found within rural projects for sustainable development. t hus, it assumed from the outset that such projects make use of, or have the opportunity to use, a variety of different knowledge forms, and tried to trace the circulation of these knowledges around the networks of actors associated with the projects and the relations (of social learning, marginalization, opposition or contradiction, etc.) between knowledges within them. early in the project we agreed on a working distinction between three forms of knowledge which we called expert, managerial and local/lay. b ut giving some precise meaning to the ideas of 'lay' and 'local' knowledge remained a constant point of discussion throughout the course of the research. Does anything which could be described as 'local rural knowledge' remain, in the modernized, developed e uropean countries included in the project? and given the criticisms that have been made of dividing knowledge into 'lay' and 'expert' forms (h abermas 1986), is 'lay

knowledge' a useful category in this context? as is discussed further below, the understanding of 'lay knowledge' which came out of the Co Ra Son case studies is somewhat novel: it attempts to grasp, not the 'lifeworld'-based knowledge that is often associated with communicative forms of rationality, but rather a type of empirical and instrumental knowledge which gets its meaning largely by contrast to the scientific, power-based, disciplinarily specialized knowledge on which contemporary modernity has been built. as such, it tends to be marginalized and negatively discriminated in development policies and projects. both 'lifeworld' (practical, tacit) and 'lay' (empirical, non-scientific) knowledge forms occur in what is often rather generally referred to as 'local' knowledge; differentiating between them can help to illuminate different aspects of that.

'Local knowledge' is a concept found across a variety of different literatures, but particularly in development anthropology and sociology on one side and the sociology of science on the other (each, Scoones and Wynne 2005). in the former, it is often labelled or explained as 'traditional', 'indigenous', 'ethnic', etc; in the latter, it may be used interchangeably with concepts of 'lay' knowledge, 'citizen knowledge' or sometimes, 'citizen science'. equally, 'local knowledge' is sometimes explicated geographically, as a type of knowledge which is found in particular places or regions of the world, and sometimes as a particular type or form of knowledge whose characteristics set it apart from scientific knowledge. The complexity and slipperiness of the concept is intensified by the overlap and interference between two pairs of contrasts: 'local' in contrast to 'global' knowledge, and 'lay' in contrast to 'scientific' or 'expert'.

when local knowledge is explained by contrasting it to global, this is often understood as South versus North, or the imperial extension of Western scientific and technological knowledge into areas of the developing world where non-scientific or non-scientized cultures still survive. Berkes, for example, makes much use of the concept of 'traditional ecological Knowledge' or TEK, explained as 'a cumulative body of knowledge, practices and belief, evolving by adaptive processes and handed down through generations by cultural transmission, about the relationship of living beings (including humans) with one another and with their environment' (1999: 8). transdisciplinary research has focused most heavily on the global South type of setting where the idea of contact and interaction between distinct knowledge-ontologies appears to have most purchase. it is not so easy to see how that can be transposed into contemporary European settings where few if any local actors have remained outside the expanding rationalization and scientization of cultures.

where attempts have been made to integrate case studies of local knowledge from both north and South into a single transdisciplinary framework, these often end up implicitly or explicitly giving different meanings to 'local knowledge'. For example, Gadgil et al. (2003) in a discussion of the role of local ecological knowledge in ecosystem management in Sweden, among indigenous people in Canada, and in forest communities in India, address variations in the local knowledge of the Swedish actors as variations in the degree to which they have

adopted a scientific perspective on their local eco-system (the more they have done so, the more they are judged to be 'knowledgeable'), whereas in the other two cases local knowledge is understood as 'traditional' or 'indigenous' knowledge and the goal is to show how this provides an alternative, yet potentially complementary, resource in understanding ecosystems changes to that of science.

an alternative to a 'geographical' understanding treats local and global knowledges as differing in their inherent characteristics and in their dynamics. For example, following Latour's (1987) depiction of scientific knowledge as an 'immutable mobile', Jasanoff and Martello (2004) argue that while all knowledge starts off as local, what distinguishes scientific knowledge is its understanding of itself as universalizable: that is, having a capacity to travel and to reshape all other localities in which it arrives so that these match its own preconceptions. Scientific knowledge, then, provides information which is invariant across any change in spatial or social location, because it offers partial understandings of separated but similar phenomena; 'local knowledge' on the other hand is oriented to complete understanding of specifically situated phenomena and can be expected to vary across local settings. Other writers (e.g. Harding 1986) associate 'local knowledge' with a kind of knowledge production which is fundamentally different from that of science, as knowledge produced through direct personal experience and sensuous engagement with nature and therefore neither universalizing nor essentializing.

a second approach which again focuses on difference in inherent characteristics (although it also has some tendency to associate knowledge and place, through its uptake in much of the regional development literature) identifies local knowledge as 'tacit' (Polanyi 1967), in contrast to the explicit, 'codified' form taken by scientific and other expert forms of knowledge. Interpretations of 'tacit' in this context can differ; but it appears to be widely understood as 'pre-discursive' knowledge, or the sort of knowledge – inculcated through socialization and embodied in our ways of moving, talking and being physically present in the social world – which Bourdieu associated with 'habitus'.

as mentioned earlier, the Co Ra Son research eventually led us to distinguish between 'tacit' and 'lay' as two forms of local knowledge. we used the term 'tacit' to describe what is often elsewhere called 'lifeworld'-based knowledge: knowledge about local social relations and practices which are fundamental to what ethnomethodologists have called being able to represent oneself as a 'competent member' of a community. this sort of knowledge, as Polanyi originally suggested, encourages social cohesion, and is a significant source of social capital of the 'bonding' (Putnam 2000) variety. 'lay' knowledge, on the other hand, is not pre-discursive but is bound up in practices which can be described, explained, if necessary justified by practitioners, and which (as a form of expertise, albeit one which is not often socially recognized as such) may be related as much to social differentiation and hierarchy as to social cohesion. the lay knowledge which concerned us was primarily ecological – knowledges of nature and natural processes, resources and raw materials for use in production. Kloppenborg (1991: 258) links this sort of knowledge to labour processes: local knowledge is 'local in

the sense that it is derived from the direct experience of a labour process which is itself shaped and delimited by the distinctive characteristics of a particular place with a unique social and physical environment'. Later (p. 520) he says that it is 'the knowledge contained in the heads of farmers and agricultural workers', a description which captures much of what the co Ra So n researchers were interested in, although our project included many other rural heads as well (artisan food producers, craft workers, musicians, guides to local terrains, local government officials and members of the 'project class', to mention a few) in its scope.

transdisciplinary research tends (although with some exceptions) to address interaction between two knowledge systems which are understood as parallel but different ontologies. in this way it poses a challenge to approaches which translate 'local' and 'global' knowledges as 'particularistic' versus 'universalizing': it assumes that both knowledges are 'universalizing', both derive from distinctive cosmologies, but they are socially marked by a difference in power and status. the three case studies presented in the next section are offered as an opportunity to explore these differences in the understanding of local knowledge.

The Irish Case Studies

the process of ecologization is neither linear not automatic: 'it is contradictory and will vary from one region to another' (Alphandery and Fortier 2007: 58). Alphandery and Fortier also note that ecologization of rural practices involves attention to 'the ordinary' as well as to the 'most sensitive species and habitats'. Significant rural mobilizations around 'the ordinary' are a constant feature of rural europe, addressing farming and food production, the protection of local livelihoods against the 'ecological marginalization' (Kousis 1999) threatened by external capitalist development projects (chemical factories in 'greenfield' sites, explorations for oil, gold and other resources), and often involving 'alternative' forms of economic development and attempts to preserve or recreate 'community'. using the term 'mobilization' in a broad sense, to include both protest- and project-oriented forms of activism, we can ask what is being contested in these mobilizations, and what if anything does it have to do with science, knowledge, or interactions between expert and lay knowledges?

co Ra So n research demonstrated that such mobilizations are very diverse in character. they could perhaps be seen as having in common a protest against the failure of modernization to strengthen and empower rural actors and livelihoods; they can also be seen as in diverse ways a product of modernization – responding to economic or market innovations, novel conceptualizations of 'progress', citizenship and democracy, new environmental risks and new possibilities for relations with nature, new visions of the capacities and potentialities of 'the rural' itself, which have been made available to them through participation in modern society. the irish research for co Ra So n studied nine separate mobilizations to achieve or enhance sustainable rural development, all of which were located within county

tipperary, the chosen region for our research. tipperary, like the majority of Irish counties, is becoming daily less 'rural' in terms of the proportion of farmers and agricultural workers in its workforce, yet this proportion, at around 9 per cent (in 2002), is still high by comparison with others. Located in the south midlands of Ireland, it is known for its rich soil and for the historical wealth of its cattle and dairy farmers, although centuries of inclusion in export chains for global agri-food circuits have left many of these farmers struggling to find an adequate livelihood, particularly on the smaller farms in its more mountainous border areas. In this chapter, three of the nine case studies, selected to illustrate the diversity in rural responses to change, are briefly presented and then summarized in Table 7.1.

The first case is of a conservationist mobilization in a medium-sized town in the centre of the county. Here a group of local residents, many from a background of life-long leisure interest in hunting and shooting, saw the closure of the local sugar-beet factory on the outskirts of the town as an opportunity to create on its site a wetlands habitat to be a sanctuary for migratory wild fowl such as geese, swans and ducks. They raised funds to acquire the site and started an extensive process of land remodelling to create a system of lakes and ponds, surrounded by appropriate vegetation and lawns, and including a hide for observation, car-parking and a visitor's centre. The goals the group were pursuing were essentially mixed: while their first aim was to create a welcoming habitat for the birds, they also believed that the wetlands could bring economic development to the town by attracting tourists, and that it should be an educational resource for the town's inhabitants, particularly schoolchildren who would learn to appreciate nature through supervised visits to the site.

The knowledge used for this conservation project was predominantly 'lay', in the sense that it derived overwhelmingly from personal engagement with wild birds and their preferred habitats through hunting and shooting activities. It was particularistic, in both senses discussed above – derived out of sensuous engagement with nature, and uninterested in generalization beyond what speakers were personally familiar with. One member was considered by the group to be a 'scientist' – a local secondary school science teacher – but other members who had extensive 'lay expertise' through prolonged observation of bird migratory patterns received the greatest deference. But many of the group appeared to possess considerable local ecological knowledge, talking in detail, for example, about the species which were most likely to pass over or arrive in their area at different seasons, the predators who needed to be controlled and the conditions for food and shelter which needed to be established and maintained. At the time of our research, the group had become somewhat discouraged by their failure to raise the further resources needed to finish the wetlands development. One of the funding sources which they tried to access was from a national agency charged with supporting the conservation of 'heritage' in Ireland (heritage in this case covered the natural and built environments, cultural heritage being the responsibility of other agencies). The outcome of their interaction with this centre of environmental experts is discussed further below.

As this case suggests, it is difficult to draw clear boundaries between conservationist and developmental mobilizations in rural sustainable development projects. This was also evident in the two other cases presented here, although in these, development objectives are somewhat more heavily weighted. The second study is of a group of stallholders at a farmers' market in the south of county Tipperary, and their extended networks of relations with other artisan and small-scale food producers in the region. These activists set out to re-localize food exchanges in a place where farmers had for a long time been encouraged to produce food for export, while consumers, in more recent years, faced a food provision system increasingly based on food imports. Little remained in the area of what could be described as a local cuisine, and many local consumers appeared to have a quite impoverished culinary repertoire. Re-localizing the food system was seen as good for local development, good for the environment, good for small local producers who could access a market which would yield them a fair price for their product, and good in particular for local consumers who would be able to access not just fresh and flavoursome everyday food but also opportunities to learn about food, its production and its preparation. However, the local food project which these actors were undertaking was under constant pressure from state and supra-state agencies who, while benevolently disposed to local food marketing, attached a quite different set of meanings to it – primarily seeing it as an opportunity to 'try out' novel foods which, if successful at the local level, could be groomed and packaged for sale into export food connoisseur outlets.

people involved in this local food network talked in great detail about the production processes they used and their ecological or agri-ecological reasons for choosing these. Only a few were certified as organic producers, but many of the others were either 'post-organic' (using organic production methods but no longer paying for certification) or had taken advantage of opportunities for learning about food production provided by the organic movement in Ireland, such as attending courses, going on farm walks, or interacting socially with organic movement members. Other sources for acquiring knowledge were observation of and interaction with older conventional farmers in the area who still used some non-modern practices on their farms; books; and the mass media. Knowledge was openly shared around the network and network members visited other artisan producers to learn from what they were doing. But some of the people involved also had third-level education in aspects of food science and/or had years of experience of working in the conventional food industry. The knowledge found among this group is hard to characterize in any simple way as either 'lay' or 'local'. They make some minimal use of what might be considered knowledge 'traditional to the locality'; much of their knowledge could be called 'local and lay' in being derived from direct experience of ecologically distinctive local labour processes (Kloppenborg 1991); but this is blended and intermediated with quite formal and codified forms of knowledge passed on through education and work experiences.

The third study concerns a project to develop a type of ecological tourism for rural Ireland. This case involved just three actors: a small farmer, a local builder,

and a local agricultural advisor (extension worker), who worked together to launch a scheme for restoring old farm houses and buildings which would then be rented out to tourists. As agriculture contracts, farm households migrate to towns, and land ownership becomes more concentrated, large numbers of derelict farmhouses and outbuildings appear across the landscape of rural Ireland; while these are often very attractive to urban buyers, increasing planning constraints on housing in the countryside often make them difficult to sell. What was distinctive about this project, however, was that the rebuilding and restoration was to be carried out on very strict ecological standards, while at the same time as much as possible of the traditional architectural features of the buildings would be maintained. In addition, the farmer involved who has a keen interest in artisan foods would contribute his own local knowledge about this to develop informal 'food trails' for the tourists to visit while staying in the restored buildings. At the time when we visited to research the project, however, only one house, on the farmer's own land, had been fully restored; a project website had been set up which was attracting some interest from both tourists and other potential building restorers, and there had been some interest from the national tourism agency in taking up and promoting the scheme further, but this appeared to have subsequently dissipated.

The project again used a blend of different types of knowledges. The builder is passionate about ecological restoration of old buildings and has extensively educated himself about the latest technologies, practices and standards in this area, from house insulation to air flows to energy and water supply, primarily from sources such as trade journals and the internet. He also possesses extensive conventional building skills, derived from working with and observing other tradesmen over his lifetime, in particular building with local stone which is often variable in quality and, if wrongly treated, may introduce damp into the house. Both he and the farmer are knowledgeable about Irish farm architecture, going back to the late nineteenth century and a time which brought in division of estates, tenant ownership and a first surge of new farm buildings. This is knowledge which they have absorbed through a lifetime of living in the locality, talking to other residents and learning about their houses. The third actor, the agricultural advisor, brought to the project not only a dynamic capacity for organization but also significant external networks and contacts and a deep knowledge of EU and national rural development policies which could provide opportunities and resources for this sort of new rural project. At the time of the research (2006), his employing organization was engaged in a campaign to highlight alternative livelihood options to commodity food production for farmers, in the light of the EU Single Farm payment policy change, of which the project described here could stand as an example.

Table 7.1 summarizes the case studies selectively in terms of the knowledge and contextual features of most interest to Corra Son: the objective(s) of the project, its socio-historical context and social organization, the forms of 'local' or lay knowledges available, the form of external expert intervention experienced, and some outcomes.

Table 7.1 The case studies summarized

n ame	Wetland Group (Conservationist)	Farmers' Market Group (Productionist)	Eco-Building n etwork (Consumptionist)
Objective of mobilisation	g overnance/citizenship Specifically: purchase and redesign of ex-industrial wetlands area for a bird sanctuary, for local biodiversity education and practice and to attract tourism	a utonomy (from commercial, technical and regulatory controls) Specifically: establishment of a local food distribution system (food staples), provision of 'better quality' food, provision of local livelihoods, mobilisation of locals for development	Sustainable economic development (reversal of underdevelopment) Specifically: provision of income to small farmers via reconstruction of derelict farm buildings into tourism rents using strictly sustainable building techniques
Socio-historical context	c losure of sugar-beet factory on site; general economic and employment decline in the small rural town; tradition of game hunting linked to love of wild birds and habitats	'Food desert' locality (export-oriented agriculture, import-oriented consumption); concentration in farming, declining incomes from commodity production	eu farm policy change (removal of production subsidy); availability of old farm buildings from emigration, family contraction, reduction in farm production, etc.
n etwork character	Friendship network (c. 20 members) between hunters and others with interest in wild birds; predominantly male, retired business people, good connections to local notables	11 producer-stallholders with strong mutual and external ties to other alternative food producers; self-governing enterprise, associated with local development group	Small network (three principal actors): ecological local builder; farmer; agricultural advisor, well embedded locally and nationally
Form of local knowledge	Detailed empirical/lay knowledge of migratory water birds in locality, suitable habitats, etc., based on hunting, observation; scientific input from one member	Diverse – learnt from organic movement, 'traditional' farmers, previous employment in food industry, self-education, formal education (in pomology, meat production, rural development)	t raditional building styles and skills plus self-education in sustainable building techniques; social knowledge re. small farm situations
Form of exogenous expert intervention	e cological 'advice' from national agency as a result of seeking funding from it (funding made conditional on adopting the advice)	lea De R interest in appropriating and changing idea of 'local food' to branded products for global markets; commercial, managerial, technological expertise offered;	a dopted by irish t ourism b oard as a pilot scheme for national take-up – advice on marketing, on tourist expectations re. accommodation standards, etc.

Table 7.1 Continued

name	Wetland Group (Conservationist)	Farmers' Market Group (Productionist)	Eco-Building network (Consumptionist)
Outcome of local-expert interaction	correction of local knowledge by external experts; reassertion of authority of science (but local group would like to ignore scientific input if funds found elsewhere)	Mixed – threat to cohesion of network: some deference to and adoption of expert knowledges, some resistance or disinterest	one-way knowledge exchange only (none from project to state agency); project has remained local with no wider replication

Across all the CORASON field research, the projects studied were typically ones where the project network included substantial interaction between ‘locals’ and ‘outsiders’. These ‘outsiders’ were often local government or ngo developmental or conservation agencies, sometimes academic or scientific organizations, and sometimes ‘charismatic’ individuals who had migrated into the area or in some cases had left it many years earlier but renewed their contact with it more recently. In these sorts of cases, it was possible to describe the project network itself as mixed and to identify different types of knowledges with different network members. In the studies presented here, only one project – the ecological building project – fits this description; this small network contains one ‘outsider’ (albeit long resident in the area) and two ‘locals’, and each network member brought distinctive knowledges as well as contacts into the project. The other two cases are striking in the degree to which they are purely ‘local’ mobilizations; while both did receive resources from actors outside the group (in the bird sanctuary case, some funding was made available early on by the local town council to get the work started, and the farmers’ market was also resourced in the early stages by its town council but in the form of access to space and provision of amenities for the market, rather than funding), those actors remained external to the project network itself which is primarily a network of equals, neighbours and friends. I do not wish to draw any generalizations from this, to the effect, for example, that rural mobilizations in Ireland are more ‘communal’ and less guided and directed by outside interests than is the case elsewhere: our selection of projects to research was not a representative sample. Rather, this echoes my earlier argument that rural projects for sustainable development are highly diverse in nature, not just in their objectives, goals and the knowledges they make use of, but also in their organizational form.

Identifying the objectives of a mobilization or project is a risky business; different actors in a network often give different accounts of ‘what we are about here’ and these different accounts reflect the polymorphous nature of the meanings which can be attached to ‘sustainability’ or ‘sustainable development’. A shorthand classification by a researcher of the objective of a project is likely to be rejected or at least qualified by the actors involved. Nevertheless, in Table 6.1 above I have used three very general shorthand categories to capture ‘objectives’: governance, autonomy and development. These need some further explication.

The concept of *governance* reflects the main meaning given to this in the transdisciplinarity literature, which suggests that rural sustainable development mobilizations are primarily attempts to secure expanded governance, or the construction and recognition of new and participatory forms of citizenship, through a contestation of the hegemonic power of science to define ‘how things are’ and what should be done about them.

Of the cases presented here, only the wetlands bird sanctuary project appears to exemplify the sort of clash between an interventionist specialized scientific expertise and local ‘lay’ knowledges of the type most amenable to transdisciplinarity concerns. This local network of aging male friends and neighbours was engaged, as they saw it, in participating from the local level in national policy goals to

protect and conserve bio-diversity. when they looked for further funding for their project, this brought them into direct contact with scientists working within a semi-state authority officially designated as experts in bio-diversity conservation, who criticized some aspects of how the wetlands was being developed and managed. the encounter reveals how the project was differently understood by the two parties: whereas the local network understood it as a 'socio-natural' project with multiple aims (among others, to replace hunting by bio-diversity protection as a focus for local practice and engagement with nature), the funding authority understood it as purely 'natural' and criticized its scientific 'truth' on that basis: it deserved support, but only if brought under the guidance of ecological experts. the local actors were made to doubt their own expertise in creating and managing the wetland, which in turn made them less interested in taking up the expert recommendations. this does appear to be a case where a more transdisciplinary regime of ecological governance, allowing a more equal exchange of lay and expert knowledges and more adequate recognition of the different rationalities and understandings associated with each, would have been beneficial to both sets of actors.

Recent literature on 'new paradigm' rural development (marsden 2003, ploeg and Renting 2004) suggests that contemporary rural development mobilizations can be understood in a different way: not as attempts to realize participatory governance, but rather as attempts to realize *autonomy* for local rural actors, groups and institutions – specifically, autonomy from incorporation into ever-extending food chains or other extractive systems which transfer the value generated by rural labour and enterprise out of the local area and into the hands of increasingly distant corporate actors. 'new paradigm rural development' is a mobilization for autonomous development based on the (re)valorization of local resources (cultural, symbolic and social as well as economic) and distinguished by the attempt to ensure that value created in rural settings remains as far as possible within them for local distribution and re-investment. projects for autonomous development appear to contest, not the dominance of science, but rather a combination of 'eco-marginalization' and economic marginalization, the drain of capitals out of rural areas as they become more and more encompassed within globalizing forms of economy and government which simultaneously transforms these local places into opportunities for extractive capitalist intervention.

a third possible objective is, more simply, mobilization for sustainable *economic development*. in the current context this denotes a concern to increase economic wellbeing, for example, through finding additional sources of income for farm households, but based on a use of resources and a type of enterprise which is understood to be less environmentally damaging, and less socially exploitative in terms of the relations hoped to be generated with both putative tourists and other farmers who could be recruited into the network.

in both the farmers' market and the eco-building cases, the objective of the project is not primarily to introduce an expanded form of governance; equally, the mobilizations are not primarily an attempt to resist an imposition of scientific expertise on local practices. what both have in common is a problematic

relationship with local or national commercial interests, although the dynamics differ in each case.

The farmers' market network is attempting to construct an autonomous system for local food exchange in a context where their project, 'local food', is being appropriated and translated by a larger and stronger network (based around the *le Dé R lag* and its national and transnational networks) which understands it as a route for commercial development of new quality foods for global markets. The problem they face is not the absence of a dialogue between knowledges but the presence of different normative or political commitments (to 'alternative' versus liberal market values and political philosophies). In such cases, attempts to engender 'transdisciplinarity' might well be experienced as pressure towards value compromise; it is understandable that local actors here might desire to achieve 'autonomy' rather than dialogue. It is also difficult to see how the expert knowledge carriers in such cases – national actors in the food industry, marketing and promotional experts – could be encouraged to move towards a more open and dialogical relationship with the local project network. For them, their expertise simply represents a refinement of 'common sense'; they have not experienced, as the natural scientific community has in recent years, an intensive debate around knowledge as 'truth' – indeed such a debate may be irrelevant to disciplines which are concerned not with truth but with efficient action.

The eco-building network, on the other hand, attempted to develop a supportive relationship with a national agency in order to realize a type of rural economic development which, while very innovative in its technical practices, is ultimately conventional in its understanding of development (in this case, increasing the attractions of rural tourism). Believing that they lacked marketing knowledge, their search for access to this brought them into contact with a state agency which first appeared to support but then subsequently abandoned the project. The farmers' market network resists, and the eco-building network seeks, incorporation into a rural modernization project which understands this in mainstream economic development terms; the bearers of this project, locally and nationally, are from disciplines (business, marketing) other than the natural sciences. What these cases highlight is the developmental gains or losses associated with induction of rural labour into wider business and commercial systems and practices. The governance of capitalism, as a material system which transforms both relations to nature and relations to other human beings, may need to be brought more explicitly onto the transdisciplinarity agenda.

Discussion: Transdisciplinarity, Local Knowledge and Sustainable Rural Development

This chapter started by noting some major changes in recent decades in the way in which scientific or expert knowledge is understood to be produced and evaluated. Practitioners of sustainable development, as a knowledge-based set of practices,

have become increasingly interested in debating what type of knowledge can best contribute to its realization. whether their concern is to make knowledge more robust in solving problems in the 'real world' and in specific contexts of application, or because they hold that the idea of sustainability is embedded within normative commitments to participation and the expansion of citizenship, their work reveals a growing agreement that knowledge for sustainable development needs to become transdisciplinary in form. It needs to find ways to allow scientific and lay or local knowledges to speak to each other in developing joint strategies for managing localized natural resources.

transdisciplinarity is still a relatively new concept, and it is better thought of not as elaborated theory but as an unfinished debate out of which many different understandings, not all of them coherent, are emerging. Reflecting on the transdisciplinarity literature through the lens of the case studies presented here, however, two problematic aspects in particular can be identified.

First, the transdisciplinarity literature tends to posit, or create, too wide a gap between the two sorts of knowledges it is concerned with; it represents the 'lay' or 'local' form as knowledge which is quite separate from or unaffected by science, even to the stage of suggesting that 'local knowledge' is produced out of an alternative, systematic ontology, paralleling the ontology of science. whether or not this is tenable in remoter rural regions of the South, it seems to have little validity in developed countries of the north. Rather, what the Irish case studies suggest is that, as with the boundaries between environmental conservation and economic development in project orientations, boundaries between lay and expert knowledge are given little importance and routinely crossed by lay actors. Rural actors characteristically use and act on a 'particularistic and hybridized' vision of their reality, which contrasts with the 'universalistic and purified' (Latour 1993) orientation of those who intervene as experts in that reality.

Forms of knowledge which are boundary-transgressive seem to be normal in these projects, both in single local individuals (autodidacts, or those with formal educational qualifications as well as local livelihood practices), and in small local networks which bring together different sorts of knowledge carriers who learn from each other. particularly in the farmers' market and eco-building projects, the actors involved routinely combine knowledge from a range of different sources – scientific, observation-based, wisdom transmitted from fellow locals or acquired through following their practices, trial and error, and so on – to come up with eclectic and often unsystematized understandings of ecological processes and resources important to their lives and livelihoods. Use of scientific and technological information means that their knowledge is not entirely particularistic; but it is assembled for the purpose of understanding local particularities, and these are characteristically understood in multidimensional ways. 'we hold the view that social and ecological systems are in fact linked, and that the delineation between social and natural systems is artificial and arbitrary' (Berkes, Colding and Folke 2003: 3). it is theoretical argumentation which leads berkes, c olding and Folke to this position, whereas among the rural actors in the projects reported here it

appears rather as a basic assumption which underpins the knowledge and practices they produce. In effect, the case studies suggest that 'lay knowledge' is itself a type of transdisciplinary knowledge, and that it is premised on a understanding of the inhabited world as a hybrid, 'socio-natural' one.

What can be learnt from the Co Ra Son research generally is that simply implanting new knowledge forms and categories into rural projects and discourses is not an effective way of achieving sustainable development or the ecologization of rural practices. Local actors need time, opportunity and a reason to absorb these into their own pre-existing ways of understanding, to test them out and see how they work and whether they are relevant to their own concerns. To that extent, our research offers some support for the argument that mutual dialogue between different forms of knowledge is an essential element in the sustainability process. The support is qualified, however, because the case studies suggest that expanding the everyday occasions through which such dialogue can occur, internally within lay actors themselves, and within their networks, seems likely to be more effective, as a form of transdisciplinary action research, than setting up new dialogical forums in which representatives of each knowledge form can encounter and engage with the other.

The case studies provide little evidence, on the other hand, of transdisciplinarity in relations between the actors within local projects and those who have the authority to intervene in them from outside with advice and support. While lay actors attempt to deploy, relocalize and destandardize knowledges gained from scientific and other expert disciplines in their pursuit of ownership and development of local place, external actors, such as national or transnational agencies and authorities, use their relations with local groups to routinely reassert the value of their own standardized and certified knowledge forms. The 'traditional politics of expertise' appears to be still alive and well in these projects. This is not unexpected, since the literature suggests that transdisciplinarity at this level is only achieved through deliberate, careful, reflexive experimentation by the power holders themselves. However, while transdisciplinarity writers are often illuminating on the sorts of management practices which enable lay actors and local citizens to play a more equal role in the sustainable use of local natural resources, they are generally less so on the question of how to persuade powerful actors – not just scientific experts but also state, 'project class', corporate and propertied actors – to relinquish some of their management powers and expert status.

In this respect, the ambivalence over what is meant by 'governance' within the transdisciplinarity literature emerges as a critical problem. As noted above, there is disagreement over the scope of the term between different writers. The predominant view is that governance concerns the construction of more democratic and participatory forms of citizenship, through a contestation of the definitional power of science as the only valid or rational way of knowing; a more minority position associates governance practices with opening up and democratizing 'ownership' of material resources and social power. In the case studies presented here, it is interesting that only the most 'conservationist' in orientation appears to address

governance issues in the sense this is primarily given in the transdisciplinarity literature; for the other two, the second sense appears much more relevant. Lack of material and social power among local rural actors is closely interconnected with the stigmatized and marginalized status given to 'local knowledge' in state-backed policies for rural sustainable development.

Summary of Contributions of this Chapter to the Key Themes of the Book

Definitions of Sustainable Development at the Local Level

The Irish research suggests that there are some local variations in how sustainable development is understood; these are associated more with how local actors perceive the local conditions which development needs to address, and their own capacities to do something about these, than with objective differences in social, political, environmental or economic conditions between localities (such differences are not extensive anyway, given the choice of a particular region within Ireland for concentrated study). There is a shared understanding across local groups that 'sustainable development' requires 'taking the environment into account' in seeking economic and/or social progress. However, different local groups and networks start from different understandings of what 'the development problem' is within their locality, and are motivated by different interests in and capacities for acting on 'nature'. Thus, for example, some local mobilizations for sustainable development prioritize the conservation of local wildlife, while others prioritize the ecologically sensitive use of natural or socio-cultural resources in their locality.

Policy Development Based on Actor-Networks in Transnational–National–Regional–Local Policy Hierarchies

While this issue is not given close attention here, a general argument running through the chapter is that local networks engaged in rural sustainable development projects are more likely to connect what they are doing with higher levels in the policy hierarchy than occurs the other way round. The case studies discussed here all suggest that national policy actors (and even, in the case of Leanne De R., transnational ones) do not expect to learn new practices for sustainability from their engagement with local groups; rather, they understand their role as correcting the mistakes, inadequacies or knowledge gaps displayed in the project plans and activities of the local actors. Thus, opportunities for developing grounded policies for ecologizing everyday rural practices are substantially missed by Irish authorities and planners.

Policy Evaluation and Revision Arising from the Experience of Delivering Sustainable Development to Local Rural Areas and the Experiences of the Recipients

Following on from above, it appears that little revision or re-evaluation of policy occurs as a result of intervention by national policy actors in local mobilizations for rural sustainable development in the Irish case. Equally, the experience of recipients of these interventions is generally not encouraging: resistance to, or disengagement from, policy authorities and a tightening commitment to the particularized local concern seem to be the most common responses of local networks to external intervention. This is understandable, given what often seem to be temporary and erratic displays of interest by national policy levels, but it does appear to reduce the possibilities of building a broader rural sustainable development platform in Ireland which would attempt to be genuinely participative and open to the diversity of knowledges and resources available amongst rural lay actors.

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Norway: Interpretations of Sustainability Related to Designated Areas

Karoline Daugstad

Introduction

Area designation based on nature and landscape qualities relates to reflections on sustainability. National designations are often related to international conventions on nature, bio-diversity or heritage in different forms. Studies of designation processes and not least of the management apparatus initiating, undertaking and following an actual designation are highly relevant for sustainable resource management.

The focus of this chapter is processes of decision-making and management related to two schemes of area designation in Norway: landscapes protected under the Nature Conservation Act and the appointment of UNESCO World Heritage Sites. In the study area, Geiranger in the fjord district of western Norway, the two designation schemes are linked. Area protection according to national legislation (the Nature Conservation Act) was a prerequisite for Geiranger being appointed a World Heritage Site: the West-Norwegian Fjord Landscape. The chapter will present a case study addressing the development of the two designation processes and how sustainability and sustainable development are interpreted and understood by different actors involved in area designations.

The 'triple bottom line of sustainability' referred to in the Brundtland report states that economy, society and environment must be considered equally (Brundtland Commission 1987). 'Society' is often specified as social and cultural sustainability. Even if other attempts to specify or define sustainable development have been launched, the core of the Brundtland definition prevails. The concept of sustainable development tied to processes of nature protection has, in the last decades, increasingly implied a move from the dominating 'fortress approach' to a 'community based approach'. In short, the fortress approach to protecting and managing protected areas highlights wildlife and ecosystems as the major concern, proposes management as something for experts within the natural sciences, and grants locals no rights in protected areas. The community based approach is geared towards local participation – the principle of subsidiarity – which proposes that protected areas are someone's source of livelihood and that locals have valuable knowledge needed for sustainable management of the protected qualities (Cooke and Kothari 2001; Daugstad, Svarstad and Vistad 2006; Hulme and Murphree 2001).

on the basis of the Geiranger case study the different sustainabilities as well as the different approaches to designations, protection and management will form the basis for a discussion of what emerges as major dimensions relevant to rural sustainable development.

Area Designations

Area designations can take many forms – regulated by law, international standards or conventions, or a status given to a specific site or area with no formal legal status. The two examples presented here both apply to the same area and are, as mentioned, interlinked, but the first one is a process of designation embedded in national law while the latter is an example of international heritage designation with no direct juridical status.

The Nature Conservation Act (n CA)¹

nca is the most important legislative instrument for nature protection in Norway. According to the nca, protection of particular areas of natural habitat and natural features can be given under four categories: national parks, protected landscapes, nature Reserves, and nature monuments.

Since 1 January 2007, 14.3 per cent of the land area is under protection by the nca. Most of the protected area is designated as national parks: 59 per cent, which makes up 8.3 per cent of the total protected land area. Furthermore, most of the protected area is state-owned, due to the fact that as much as one-third of Norway is owned by the state, mainly mountainous areas. The nca states that national parks must primarily be designated on state land. This has been enforced until now, but in the last decade more private land has also been designated. The second largest conservation category is landscape protected areas (LPA's) which make up 34 per cent of the total protected area and 4.7 per cent of the total land area (miljøstatus Norge 2007).

All decisions to designate areas protected by the nca are taken by the King or the government. When it comes to management, national parks have until now been exclusively managed by the state, delegated to the county level (County Governor's Office). LPAs have to some extent been managed by the municipal level and this is also the case for some nature reserves. However, it is in relation to the management of large protected areas that the changes regarding democratization and decentralization are substantial, showing the move from the 'fortress approach' to conservation to variants of community-based approaches (Daugstad, Svarstad and v istad 2006).

¹ Nature conservation act 1970 act, n.o. 63, 19 June 1970, relating to nature conservation; last amended by act n.o. 59, 25 August 1995.

The World Heritage Convention

The basis for appointing world heritage Sites is the 1972 United Nations Convention concerning the protection of the world's cultural and natural heritage and the 1992 United Nations Convention on Biological Diversity, contributing towards the development of a world-wide system of protected areas. The world heritage list is placed under the United Nations Educational, Scientific and Cultural Organization (UNESCO). UNESCO's purpose in relation to world heritage is to encourage countries to sign the world heritage convention, and to ensure the protection of countries' natural and cultural heritage. Further, UNESCO encourages countries that have signed the world heritage convention to establish management plans and to set up reporting systems on the state of conservation of their world heritage sites, as well as help these countries to safeguard their world heritage by providing technical assistance and professional training. The overall idea is that a world heritage status may help build the support necessary for nationally protected areas to maintain their integrity and sustain the inherent qualities on which their status of protected area is founded by lifting their value from a national to a universal level: 'world heritage sites belong to all the people of the world, irrespective of the territory on which they are located' (UNESCO 2006).

However, the notion that the world heritage Sites belong to the people of the world does not imply that managerial responsibility is decoupled from the countries where the sites are situated. It is still a national responsibility to protect areas and administer them (UNESCO 2005). Each country that has signed the world heritage convention is invited to submit a report about the application of the convention and the state of the world heritage sites in the country to the world heritage committee every six years.

Norway has seven objects on the world heritage list. In addition to the west-Norwegian Fjord Landscape² the listings are the mining town of Røros, the Hanseatic wharves in Bergen, the UNESCO Stave Church, the Vega islands, the rock carvings of Alta, and the Struve meridian.

Designations in the Geiranger Area

The case study concerns the UNESCO world heritage site the west-Norwegian Fjord Landscape, more specifically made up of the two fjord systems Geiranger and Nærøy. This site, formally given world heritage status in 2005, is the only site in Norway listed as a natural site. More specifically, the case study relates to the northern part of the world heritage area. This is defined as one of two sub-areas with separate management plans. The northern world heritage area involves two municipalities, Stranda and Norddal. Both are rural communities with sparse populations (3.5 inhabitants per km²), and both have a landscape gradient ranging

2 <http://www.verdensarv.com/>

from the fjord and valley bottoms to mountains of 1,900m above sea level. in Stranda 70 per cent of the municipalities' area is above 600m above sea level, and in Norddal 64 per cent of the area is over 900m above sea level. Norddal is primarily an agrarian municipality while Stranda has a long tradition of industry (production of furniture, clothing, food).

These communities make up the Geiranger hordalen Landscape protected area under the name, established in 2004 after an 18 year-long process of area protection starting in 1986 when protection status was suggested in a white paper (Nou 1986). parallel to the last phase of the conservation process, the designation process for potential world heritage status was initiated in 2001, and successfully completed in 2005. These two processes have, as mentioned, been linked formally. Both processes have triggered tensions or conflicts related to the use and conservation of land and natural resources, the status of traditional agricultural production methods, the intensity of tourism activities, and the issue of which administrative level should be responsible for the daily management of these areas with special status.

The case study is based on three types of material: (1) Study of relevant written documentation of the world heritage process (policy documents, nomination documents, local newspaper articles, etc). (2) nine interviews involving a total of eleven strategically chosen informants in the two municipalities and at the county governor's office: the mayors in the two municipalities Norddal and Stranda, the head bureaucrats responsible for business development and industry in the two municipalities, the leader of the tourist destination company in the area, the project manager/secretary of the world heritage site, the bureaucrat appointed as the former secretary of the local committee preparing the UNESCO application, three representatives from the agricultural department at the county governor's office (group interview), and one representative from the environmental department at the county governor's office. (3) Results from previous research projects carried out in the area by the Centre for Rural Research, especially related to the process of Landscape protected area.

The Landscape Protection Process

The reason behind the status as Landscape protected area is the protection of a special fjord and mountain area with high species richness. part of the special qualities is also the cultural landscape conditioned by agriculture and pastoralism. Given the cultural landscape and cultural heritage qualities a central aim is also to uphold traditional agricultural practices in order to keep the landscape qualities (Fylkesmannen i møre og Romsdal 2003).

The designation process in the Geiranger area took 18 years. Following the white paper suggesting a national plan for new protected areas in 1986, the environmental department at the county governor's office made the first investigations in the area and sent a preliminary protection plan for hearing. This is what Daugstad, Svarstad

and Vistad (2005) have named 'the first protection plan round'. The hearing showed that neither municipality was in favour of protection status and also the agricultural actors and land owners opposed protection status for fear of losing access and the right to use the area in the future. Despite the protests, the county governor recommended that the protection process be continued. The process was put on hold for some years until 2001 when 'the second protection plan round' started (Daugstad, Svarstad and Vistad 2005). A gain a hearing showed that agricultural interests were sceptical about protection; however, the two municipality boards had changed their position on protection from negative to positive, but with local authority management for the protected area as a prerequisite.

A substantial organizational change from the first to the second protection plan round was that for the second round an advisory committee was appointed by the county governor as a means of 'democratizing' the designation process. This change was in line with the general increased focus on subsidiarity and democratization of environmental management, and an example of a more community-based approach to nature conservation compared to a 'fortress approach' (Daugstad, Svarstad and Vistad 2006). The committee consisted of eleven members: four from Norddal municipality and four from Stranda municipality (representing farmers, tourism interests, municipal political and administrative level), and three from the county administration representing agriculture, environment and cultural heritage (Daugstad, Svarstad and Vistad 2005).

The conflicts following in the wake of the protection process in this area is typical of other similar protection processes in Norway where conflicts are connected to the contents of the conservation regulation (which activities will be affected by the restrictions set by protection) and the borders of the protected area. A number of studies on similar cases show that the argument made by politicians, agricultural interests and tourism interests is that the protected area is a necessary source of livelihood, and, in addition, that the cultural activity has formed the cultural landscape qualities worthy of protection and therefore that the cultural activity (here meaning agricultural activity) should be allowed to continue with minimum restrictions (Daugstad, Kaltenborn and Vistad 2000; Daugstad and Rønningen, 2004).

In Stranda the protected area makes up about one-third of the total municipal area which is a substantial figure compared to the status for Norway as a whole, with 14.3 per cent of the total land area under protection by the state. In Norddal the protected area makes up 20 per cent of the total area (Fylkesmannen i Møre og Romsdal 2003).

The World Heritage Designation Process

The prelude to potential designation as a UNESCO World Heritage came in 1996 when the Nordic Council of Ministers published a report from the project 'World Heritage in the Nordic Countries', suggesting that Norway should consider the

west-norwegian Fjord Landscape as a candidate for world heritage nomination. The area was sub-divided into the west-norwegian Fjord Landscape area South and North (Nordisk ministerråd 1996). A central aim for UNESCO is to include the local level in the world heritage processes and the protection of the sites (UNESCO 2006) and in line with this the local level took the next step in this area. The mayors in the three municipalities where the suggested fjord site was located coordinated an approach towards the Norwegian authorities in 2001. The reaction from the government was positive, and the prime minister's office issued a statement in 2002 saying that the Norwegian government would nominate the west-norwegian Fjord Landscape to the UNESCO world heritage list. The Directorate for Nature Management, under the ministry of environment, was given responsibility for coordinating the process towards producing a formal nomination document, a process including reference and working groups at all administrative levels.

The nomination promotes the major qualities in the area as exceptional examples of landform made by movements of water and ice, significant geomorphology, and landforms shaped by active erosion (Møre og Romsdal fylke 2005). However, it was highlighted in the process that the contrast between the 'pristine nature' and the human imprints in nature from settlement and agricultural activity adds to the qualities (Verdsarvrådet for vestnorsk fjordlandskap og Vegaøyane kommune 2007). UNESCO representatives visited the area on two occasions (in 2004 and 2005) to assess the nomination, and appointment to the list was decided by UNESCO in South Africa in July 2005. Local celebration of the designation was held in participating communities and municipalities during the summer of 2006.

The local communities have been visible during the whole process towards designation through the joint declaration of intent from the start by the three municipalities of Stranda, Norddal and Aurland in 2001, and further through participation in different working groups in the years leading up to the nomination in 2004. It is, however, important to notice that it was the national Directorate for Nature Management which formally led the application process.

The work towards nomination relied upon numerous contributions from a number of actors and groupings on the local, regional and national level. The county governor's environmental department was also visible in this process, as they had formal responsibility for the parallel process of area protection through the Geiranger-Herdalen Landscape protected area. The management plan for the area was developed by a local consultancy enterprise in cooperation with working groups with political, administrative and business representation from the municipalities.

The current situation (2007) in the west-norwegian Fjord Landscape area when it comes to administrative management of the world heritage site is still in the making. At present there is one person employed by the tourist destination company with the major task of making world heritage status an asset for tourism development, and the same person acts as secretary for the west-norwegian Fjord Landscape world heritage council. Regarding level of authority for managing the area in the future, it is still unclear if the world heritage area as such will be

managed by the regional level (by the Department of environment at the county governor's office) or by the municipalities.

As documented by Holm, Daugstad and Frisvoll (2007), the status of the Gairanger-Herdalen area as part of a world heritage site has been seen as more positive than the process of landscape protection under the nca . For many, world heritage status implies opportunities for economic development in tourism as it serves as a kind of 'quality branding' for the area, while landscape protection by the nca is associated with lack of opportunities and restrictions on resource use and economic enterprise. This is the general picture. However, there is variation as, for example, the positive attitude to world heritage among tourism actors like hotels and destination companies, while 'the average farmer' sees no benefit from the world heritage status.

Approaching Sustainability

How can the three dimensions or pillars of the sustainability concept be found in the debates about, and attitudes towards, the designation processes, the qualities in the area, and future developments? The aim is not to see to what extent actors use the specific concepts, but to see if reflections on concerns covered by the more academic concepts can be found.

Environmental Sustainability

The informants were asked about their reflections on the notion of sustainability in general. The interviewers normally approached this issue with an open question like, 'What is your understanding of the term sustainability?' The answers given revealed that most informants recognize the term as closely related to the use and maintenance of natural resources, thus placing the term within the first of the three sustainabilities: environmental sustainability. This finding is in line with what Holm, Daugstad and Frisvoll (2007) document regarding understandings of, or approaches to, sustainability, where at the national level, in governmental and ministry documents and strategies, sustainability discourse is mostly tied to environmental sustainability, or at least this dimension of sustainability is made superior to economic and social sustainability.

The informants link a certain time perspective to the notion of environmental sustainability, although of differing lengths. Some speak of securing important environmental values for future generations, implying a perspective of hundreds of years, while others, in a rather pragmatic way, focus on the need to uphold the world heritage status for six years (after which the Norwegian government will deliver a status report for all its world heritage sites to UNESCO).

environmental sustainability, for the environmental department at the county governor's office, is linked to the term natural resources. The concept of resource brings commercial interests into the picture:

Sustainable development – there could be different approaches to that concept. you could use a biological approach, where the goal is to maintain a desired level of biological diversity. a nother perspective is connected to resources, meaning that we should not use too much of the available resources. you could say that you have one environmental perspective and one commercial perspective to sustainability.

going further along a resource-use perspective, the world heritage site is, as mentioned, designated on the basis of mainly 'pristine nature' qualities, and informants agree on the need to maintain its unique geological, scenic and biological qualities. the main threats to these qualities are connected to intensive tourism, with a very high number of visitors in a confined area in Geiranger (700,000 tourists visit the small community of about 250 inhabitants during a few busy summer months). wear and tear from tourists' use of the landscape, and pollution from the large number of vehicles, are the most visible threats to the scenic qualities. informants agree that the most viable solution to these challenges is to guide significant numbers of the tourists to other parts of the area, thus reducing the pressure on the most intensively used areas.

Economic Sustainability

most informants rather automatically diverted the discussion towards the challenges of sound economic development as crucial for the long-term settlement of the area: 'Sustainability could be something different from environmental qualities. we might have to reflect upon the economic side as well' (environmental department at the county governor's office).

an overarching dimension is 'use' versus 'protection' (as in legal area protection status), as the maintenance of an untouched area would be difficult if various types of businesses (like industry, agriculture and tourism) harm the valuable natural qualities: 'nature management and business development will always challenge each other. we would have to balance these perspectives. you should be able to establish new activities in the region, but still consider the maintenance of the valuable areas. i think we would have to go many rounds on these issues' (head of business and industry in one of the municipalities).

the quote above stresses the need for a deliberate policy or attitude that would balance commercial activity and uphold valuable qualities.

most informants stress the importance of traditional agriculture as a producer of landscapes with a variety of scenic and biological qualities, thus including the multi-functional role of primary production in the area. Future agricultural

production has the positive effect of a well-kept landscape, in addition to upholding the infrastructure of manpower, sites, accommodation and landmarks that is connected to traditional production: 'the tourism business and the authorities conclude that there should be people living in the area to maintain the cultural landscapes' (agriculture department at county governor's office).

agriculture is an important sector. it creates the scenic framework for the tourism activities in the area. the problem of regrowth connected to less activity in agriculture is obvious (head of department for business and industry in one of the municipalities).

Some would thus argue that the area needs a range of targeted policy instruments, or even a specific agricultural policy securing future production.

acceptance of small-scale farming must be improved. we need our own agricultural policy, and have been working towards national authorities. these areas are so important for the tourism businesses, and we have to maintain this heritage. hence, we need our own set of policy instruments (mayor in one municipality).

eco-tourism is hailed by many as the future for the area, as farmers and landowners could make a sustainable income by combining traditional farming with new businesses based on lodging, accommodation, local food specialities and outdoors activities.

Social and Cultural Sustainability

when the informants were asked about their understanding of a social dimension to sustainability they quickly turned their attention to the different factors influencing the population in the area. the number of residents is seen as being at a minimum level after decades of slow depopulation, and this trend would have to be stopped if a minimum of welfare arrangements like schools, day-care centres and retirement homes are to be maintained. the immediate solution to this challenge would be to prolong the tourism season from the intensive three-month summer season of today. Designation as a world heritage site is seen as positive in this respect, as experiences from other similar designations show that world heritage status can attract another segment of tourists who normally stay for a longer period of time. one of the mayors sees this development as closely connected to the building of new infrastructure like a new hotel and the establishment of a ski resort. the new infrastructure would provide the basis for an all-season tourism which would encourage locals to live there for more than just three months of the year. a possible development in this direction is also connected to a more stable road connection to the eastern parts of Norway. this road is currently closed during the winter, and it is difficult for tourism businesses to promote their area as an all-year destination when the main access road is normally closed until late may (Storfjordnytt 2005).

connected to social sustainability i could see a development with a reduced number of agricultural holdings. we must establish alternative jobs for those who are rationalized out of the traditional businesses ... e economic, social and environmental sustainability are interlinked (agricultural department at county governor's office).

t he balance of the sexes is also an aspect that can be seen as a concern in relation to social sustainability. t raditional farming is normally dominated by the male part of the population, while women are important in tourism activities and in welfare services. it is argued that a longer season for tourism would secure job opportunities for women, and reduce the importance of the male-dominated agriculture.

What can be recognized as concern in relation to cultural sustainability – in terms of upholding local customs, traditions and characteristics – is expressed as a lack of 'localness' in today's activities aimed at providing products and services for the tourists in g eiranger:

we distribute trolls, swords and knitted sweaters made in t aiwan ... t he food is mainly pizzas and other italian-inspired products. t his is a tragedy in a municipality with long traditions in local food production. l ocal products and local food will give a completely changed added value for the local businesses (mayor in one municipality).

t his informant thus links the local culture dimension to a value-adding strategy.

Discussion: Major Dimensions

t he designation processes in g eiranger and how sustainability can be interpreted in relation to area designations are linked to a wider discourse on rural sustainable development or sustainable resource management. a s we see from the n orwegian case study, the different understandings of sustainability revolve around the level of decision, control and management of the designated areas and, hence, of the natural resources within the areas. h ere there are two major views emerging from the material; what can be called 'the local for the locals', and a different view which sees local resources as something for a wider community.

'The Local for the Locals'

a rguments in favour of local authority and administration for areas of special importance nationally (here both the landscape protected area and the world heritage site) are based on two pillars: (1) the local level's moral right to manage

their own resources and (2) claimed local knowledge regarding the use of resources, areas and landscapes.

as expressed by one of the mayors:

there has always been an understanding that the world heritage designation is something unique. the status is international. those who live in the area and those who should administer the area have a specific responsibility. The most prominent representatives – mayors and the county mayors – should therefore have the overarching responsibility for the administration of the area. it should not be exercised by the county governor, national agencies or ministries.

this responsibility is further linked to local knowledge:

we have area conservation. we have a world heritage site. no one is more engaged in maintaining these resources than the inhabitants in the municipalities and their elected representatives ... no one is better equipped to give exemption from existing legislation than the local administration and local politicians. no county governor or ministry is better suited to this task ... we have no formal competence related to the specific qualities in the area, but we are representatives of all expertises. Most of us have significant competence and would gather relevant material and documentation from the county governor, national agencies and ministries. there is no need to worry as long as we could have an overarching perspective on these processes (mayor in one of the municipalities).

Representatives from the municipal administrations seem to have a more temperate stance towards local administration of the area than their politically elected counterparts. the administrative informants point out that treatment of cases should be equal regardless of whether they are administrated regionally or locally, and that the local view can be too narrow-minded and an outsiders' perspective could therefore be fruitful:

a joint meeting of the two executive committees of the municipal councils agreed upon an intention towards local administration of the area ... my personal view is that this could be a demanding task, and that it sometimes could be fruitful to have someone 'outside' that proposes different solutions ... it could be challenging to both promote new development, and at the same time have a responsibility for restraining damaging activities (head of business and industry in one of the municipalities).

what seems to be clear is that the politicians want to get a larger section of the administrative tasks moved to the local level in order to be able to influence important processes that decide the future utilization of the world heritage status, while local bureaucrats question the level of resources available in the administrative apparatus.

Localized Resources for a Wider Community

the 'bottom up is best' approach as outlined above, which is strongly advocated by local politicians, is opposed by the environmental department at the county governor's office:

the possibility for local administration of the area has both positive and negative sides. the world heritage status is internationally accepted and has a high profile. This demands a high level of competence based on formal knowledge and experience. 'common farmers' sense' is not enough in this respect. Local knowledge and practical experience are adequate when assessments of specific cases are made, but you would often see a close connection between the applicant and the decision-maker [in formal decision procedures at the municipality administration]. this is problematic when you are dealing with issues of national and international importance ... there is a liberal trend in many municipalities ... and most municipalities lack the formal competence as they no longer have any appointed environmental advisors (environmental department at the county governor's office).

this opinion from the formal environmental management expertise at the county level is embedded in arguments for the need for formal education to manage the areas in question, the danger of local needs winning over international obligations, and, lastly, a shortage of competent staff in many municipality administrations. this touches a fundamental issue in policy making; should the locally elected representatives manage issues in regard to local resources, or should regional bodies secure the principle of national equality, where similar cases in different regions are given similar treatment? as shown in the 'local is best' approach, the mayor states that local politicians know how to meet the challenges in the specific area, because the combination of people adds up to a high level of knowledge, thus securing a sustainable form of management of the world heritage site. the representative from the regional authorities claims that managing areas of national and international importance is so complex that there is a need for managers and bureaucrats with specific knowledge of nature conservation, nature management and sustainable use. besides, there is a risk of a shortage of staff with relevant competence at the municipal administration level.

Concluding Remarks

this chapter has presented a case study where two area designation schemes based on landscape, nature and environmental qualities have been at the core: landscape protected area according to the nca and a world heritage Site according to the UNESCO system. Both designations influence the use, protection and management

of natural rural resources and can be placed within a wider debate on sustainable resource management.

in comparing the 'standing' of the different designations, it must be mentioned that they are formally linked because being appointed a world heritage Site requires some form of national legal protection. however, when it comes to how the two designations are perceived, there is a tendency for the world heritage status to be seen as an empowering arena for the development of tourism and infrastructure, while protection by the nca is perceived as a hindrance and an obstacle to viable community development.

in terms of perception of the major qualities in the area (for both designations) and how the area should be managed in the future, there seems to be a common understanding of the Geiranger area's landscape qualities and that the qualities should be maintained. the disagreement comes when the actual management regime is put on the agenda, in relation to who should be in charge of management and what forms of expertise or knowledge are required. Further, this is related to seeing area designations as something 'for and by the locals' as against taking a national or even international perspective.

bringing the concept of sustainability into the picture, the case study shows a local-central pattern. The environmental department representative at the county governor's office is, to a large extent, in line with the national policy focus on environmental sustainability, which can be expected given the county governor's role as implementer of state policy. at the local level, however, sustainability discourse is more related to economically viable communities. this can be seen as a one-dimensional economic predisposition, but it may also be part of what can be called a holistic or integrated view of sustainability: maintaining living communities with economic activities, a living culture and an active social life is the best strategy to uphold and manage natural qualities and environmental sustainability. the priority here is to some extent reversed from that in the national policy documents, although the ideological content may be the same.

what can be learned from these area designations in terms of rural sustainable development? Firstly, area designations cannot be seen as separate from rural policies or rural resource management policies in general. in the Geiranger case, several of the informants stress policies to maintain viable farming as being just as important as area designations – and especially policies to maintain small-scale farming.

Secondly, and in relation to that, sustainable resource management has to do with the degree to which resources are seen as 'pure nature' or as culturally influenced. The landscape protected status in Geiranger is embedded in a dramatic nature gradient as well as in cultural landscape qualities formed by agriculture and pastoral activity. The World Heritage Status is first and foremost tied to the 'pristine nature qualities', but with an additional argument highlighting cultural imprints in nature and viable communities. if pristine nature is seen as the major focus of interest, Geiranger can be further developed into a 'professional world heritage attraction' managed by environmental management expertise and where

locals play a very subordinate role. If, on the other hand, the coexistence of pristine nature and cultural landscape qualities is targeted, local farmers or politicians also become expert managers, and sustaining living rural communities becomes a necessary criterion of success.

Thirdly, and derived from the coexistence of nature and culture approach, some form of participatory rural resource policy needs to be at work. A participatory model, where locals have a say in any major policy decisions in order to uphold viable communities, becomes important irrespective of area designation.

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Germany: Nature Conservation and Bio-Diversity in the Northeast

Rosemarie Siebert and Iutz Laschewski

Introduction

Our chapter is concerned with knowledge dynamics and sustainable rural development in a post-socialist setting in the former German Democratic Republic (GDR). It seeks to reveal the aims, management forms, actors and knowledge requirements found in projects for nature protection and to explore the consequences of such programmes for rural land use and rural sustainable development. We investigate the effects that the sustainable development discourse might have on the knowledge base and management practices used in nature conservation.

Some consensus exists about the significance of knowledge for sustainable resource use and nature protection (Berkes and Folke 1998, Millar and Curtis 1999, Ostrom 1999, Burgess, Clark and Harrison 2000; Curry and Winter 2000, Pretty and Ward 2001; Berkes 2002). However, paradigms of sustainable development differ in the forms and role of knowledge they require. Originally, rural sociologists like Kloppenborg (1991), van der Ploeg (1993) and Wynne (1996) contributed a dualistic typology of scientific/expert vs local/traditional/tacit knowledge that presumed a clash between modern and traditional practices. They argued that local and often traditional practices and knowledge have persisted, and can provide a base for sustainable rural development. The main focus of this literature has been to overcome the neglect of local knowledge and traditional practices. Both are valued as important sources to be deliberately integrated into approaches of rural development and nature protection.

Recent academic discourses have questioned the dualistic typology and called for a wider understanding of knowledge as embedded in social relations (Agrawal 1995, Morgan and Murdoch 2000, Tsouvalis, Seymour and Watkins 2000; Morris 2004, 2006). First, Morris argued that rather than defining attributes of knowledge, it is more important to examine 'social, historical and institutional relations in which knowledge develops and is represented' (Morris 2006, 115). As a consequence, some authors have referred to the concept of 'knowledge cultures' (Tsouvalis, Seymour and Watkins 2000; Morris 2006). In this view, knowledge is a social achievement, something that is produced through interaction in social situations. To some extent, knowledge itself is a collective resource in the form of patterns of experiences stored by organizations, institutions or networks. In this

sense, knowledge formation and ('organizational') learning are the outcome of institutional routines and regulations to collect, process and document personal knowledge (Levitt and March 1988, Willke 2001).

Second, it has been argued that if knowledge is simply defined by certain attributes, it becomes a fixed, material thing, disregarding the knowledge dynamic (Clark and Murdoch 1997). From a sociological point of view, a particular type of knowledge is not defined by its content but by the way it is connected with social relations. *Scientific knowledge* is described as highly de-contextualized, specialized, and 'standardized' (Kloppenborg Jr 1991, van der Ploeg 1993, Wynne 1996) and is supposed to be valuable in many contexts. *Local or tacit knowledge*, in contrast, is highly variable and non-universal. These two types of knowledge generate different types of practices. While scientific knowledge encourages practices to control and standardize local conditions, local knowledge allows control, but in a way that adaptive flexibility towards the uncontrolled is still recognized as a necessary attribute (van der Ploeg 1993, Wynne 1996). The main contextualized/de-contextualized distinction also describes the main rules of knowledge generation and exchange. Local knowledge is generated in practice and can only be weakly codified. Knowledge exchange is informal and based on trust and, therefore, embedded in local networks. Scientific knowledge is generated under extra-local conditions following a Cartesian view of controlled conditions, and it is highly codified, validated through academic discourse and 'transferred' through consultancy and extension services. Hence, scientific knowledge is related to different social orders or network structures (Morgan and Murdoch 2000).

Finally, the social context must be addressed when we discuss knowledge in regard to bio-diversity and nature protection. Most of the research cited has been concerned with knowledge about nature and agricultural production processes. This may have resulted from a preoccupation on the part of researchers with environmental issues. However, as many rural sociologists have incessantly emphasized, nature is socially constructed. 'places are both socially and naturally made through both the actions of the residents and their local natures, and ... by combinations of externalized socio-natural-political forces and ideologies. Nature is socialized just as community is naturalized' (Marsden 2003, 239). Nature conservation from this perspective requires the formulation of some kind of consensus about the definition of the nature issues involved, the valuation of nature and the formulation of socially acceptable means (Frouws 1997, O'Connor 2000). Nature protection and resource management, therefore, also refer to knowledge about social processes and dynamics, economic relations and communication. In the following we refer to such forms of knowledge as 'managerial'. *Managerial knowledge* is made up of a variety of elements, including political knowledge about power relations among different organizational actors, alliances and key actors, and network management.

It has also been argued that the shift towards consumptive land use in modern societies offers new economic opportunities for rural areas (Marsden 2003; Murdoch et al. 2003). Therefore, a 'bureaucratic mode' of rural governance that in recent

years seems to have evolved out of increasing environmental concerns and the need to control the downsides of modern, productivist land use practices, appears to be counterproductive (marsden 2003). with regard to knowledge dynamics, the 'bureaucratic' mode of rural governance shows similar characteristics to modern resource use practices such as modern farming. it is largely top-down and expert-driven and tends to ignore the knowledge of local actors. additionally, it is based on the assumption of a fundamental conflict between economy and ecology and, as a consequence, tends to under-exploit economic opportunities derived from the production of environmental goods. hence, it has been argued that sustainable rural development requires an integrative approach that includes and makes use of local actors and their knowledge.

with this wider debate in mind, this chapter is concerned with knowledge dynamics and sustainable rural development in a post-socialist setting in the former g DR. in the socialist past, societies underwent a fundamental process of rural restructuring. Family-based farming, fisheries, etc., had been collectivized and, since the 1970s, rural society was built on industry-like farm estates that also played a central role in local social and cultural development. with regard to social order, productivism in the g DR had meant a much more substantial institutional restructuring than in western societies. After 1989 and unification, rural eastern g ermany has undergone a process of rapid economic decline, which once again has imposed a new social order on rural society and, at the same time, brought about a radical decline of agricultural production and employment. the speed as well as the scale of the changes have hit eastern g erman rural economies to an extent almost without historical precedent, and are still shaping the nature of rural development (l aschewski and Siebert 2001, 2004). in this chapter we ask, what does sustainable rural development mean in such a context, and what are the knowledge dynamics implied by it?

until now, there has been little work on such issues in post-socialist rural areas in central and eastern europe. this chapter examines a particular rural region in the northeast of g ermany in which the clash between a productivist and a bureaucratic mode of regulation can be clearly identified. This region nowadays serves as the worst example of economically depressed countryside in g ermany, intensively studied by 'experts' from all academic areas. it is facing huge demographic changes, and its rural economic outlook is perceived as almost hopeless. in recent years, such cases have facilitated a debate about rural decline, in which technocratic ideas of a proactive approach to empty sparsely populated areas have gained considerable public attention (berlin-institut für bevölkerung und entwicklung 2006). in such a context, rapid agricultural decline has opened a window of opportunity for nature protection on a large scale (barlösius and neu 2001). particularly during the early 1990s, sites for nature protection were identified to an extent far beyond earlier West German practices.

while the dedication of natural protection sites as such could be considered a success, the case studies reviewed below will show that this process appears to be driven by a perception that nature protection and economic development are

mutually exclusive. Thus, nature protection has hardly been seen as an opportunity for economic development.

Such neglect of local economic conditions has not remained unchallenged. On the contrary, driven by environmental experts, nature protection has often faced strong local opposition and lacked public acceptance (Stoll-Kleemann 2001a, 2001b, 2002). In order to enhance sustainable rural development, it appears that in this particular context a wider process of local capacity building has to take place. This includes the strengthening of civil society and democratic culture, revalorization of nature, mediation of environmental values/changing world views and the invention and creation of new economic perspectives for the rural economy. We will show that local knowledge is often unavailable. Rather, specific local knowledge has to be developed. This requires an institutionalization of learning, such as learning to include local knowledge or to innovate. Managerial knowledge is needed to accomplish that task. The bureaucratic ‘top-down’ intervention, which is so typical of the German system of nature protection, appears to be badly prepared for such a task. Yet other forms of non-local, ‘exogenous’ intervention have been shown to be rather fruitful.

Germany’s Periphery: The Odermündung

The case study region, the Odermündung, is located in north-eastern Germany. It covers two counties (Kreise), Uecker-Randow (UE R) and Ostvorpommern (OVP), in the federal state of Mecklenburg-Vorpommern (MV). The northern border of the region is the Baltic Sea and the island of Rügen, while to the east it adjoins the Polish region of western Pomerania. Historically, the two counties have formed the hinterland of Szczecin – the former German Stettin. After the Second World War, when most parts of Pomerania became Polish, the newly established Polish–German border separated the city of Szczecin from its western hinterland and created new peripheral districts on the German site of the border. Under socialism and up to 2004, this separation was firmly built and remained in place, but the border opened up when Poland joined the European Union in 2004.

From the German perspective, this sparsely populated north-eastern corner has become synonymous with peripheral rurality. The total region has a predominantly rural character and lacks economic centres, although the city of Szczecin is beginning to resume its former role. There are only a few smaller towns (Anklam, Pasewalk, Ueckermünde, Eggesin, Wolgast), the university city of Greifswald and the holiday resorts of the Baltic Sea. The population has been declining rapidly since 1990 due to steady emigration, especially of the younger generation, which resulted in an ageing population (see Table 9.1). However, north-eastern Germany has been experiencing a negative population trend since the 1970s. Prior to that period, the population had increased substantially after World War II, largely because of the settlement of refugees from central and eastern Europe.

Table 9.1 Population in the counties Ov P and u ER, 1970–2004

	1970	1980	1989	1990	1995	1999	2001	2002	2004
ovp	138,125	127,587	123,995	121,538	115,250	115,204	114,618	112,610	111,501
ue R	108,027	101,903	98,348	96,043	89,526	85,086	84,459	81,632	78,794

Source: Re K, Statistical yearbooks mv .

Table 9.2 Employment structure in the counties Ov P and u ER, 2001

	Agriculture and Fishery	Industry	Trade, Tourism, Transport	Public, Private Services	Finance and Estate Services
ovp	5.6	22.8	32.2	30.6	8.9
ue R	5.0	22.4	20.5	44.8	7.2

Source: District Development plans.

the population density in both counties (ue R 52/km², ovp 60/km²) is low, compared to that of mecklenburg-vorpommern (76/km²) and the national average of 268/km². Significant economic disparities exist between towns and rural areas as well as between the coast and the inland regions. intra-regional migration fostered suburbanization. outside urbanized areas, the population is widely spread, often affecting ecologically sensitive areas (Feilbach 2004).

this region does not have a strong industrial history. During socialism, ship-building and fishing were located in the harbour cities of Rostock and Wismar. beside those industries, agriculture and food industries had always been the economic base of the region. After German unification, these economic activities came under tremendous pressure. Since that time, the region has struggled with continuously high unemployment rates of 20 to 30 percent, as well as ongoing labour out-migration (see table 9.2). economic development is comparatively weak. compared with the national situation, the primary sector is still very important. But tourism grew significantly after 1990 and is concentrated along the Baltic Sea and in the nature reserves.

the agricultural and food sectors remain important economic activities. out of about 600 agricultural firms, more than 15 per cent produce organic food. The average size of farms is about 258 ha. more than 70 per cent of the farmed land area is leased. a gri-environmental schemes are used by more than 20 per cent of farmers. Over 20,000 ha are included in an extensification grassland scheme. l arge areas are made up of low-yield plots and set-aside areas, or agriculture has retreated and succession started. on the other side in the river basins, fenland was reclaimed more than 100 years ago and intensified by complex melioration systems during the 1960s; these areas are still used very intensively.

The Polish–German border largely follows the river Oder. From an environmental perspective, this has been a fortunate situation. unlike other main rivers, the course of the oder has remained almost unchanged in recent decades. Since the border was strongly protected, nature could develop undisturbed alongside the river. it is the natural resources of the river wetlands and the river bay that have attracted the attention of environmentalists. in addition, fenland, the smaller river peene and lakes shape the countryside. l arge parts of the fens have been drained to allow intensive agricultural production. t herefore, the focus of nature protection activities is on wetlands and birds. t he great bio-diversity and variety of landscapes are documented in 12 FFh areas of 68,000 ha that make up about 25 per cent of the whole area. Some of these areas (totalling 29,000 ha) are of special interest for bird-species protection, being part of the e uropean network NATURA 2000. Black stork, sea eagle, fish eagle and crane find their specific habitats here. In total, 24 nature areas have been constituted in the county of o stvorpommern and 15 in u ecker-Randow; some of them are older than 50 years, but most have been dedicated in the 1990s shortly before or after g erman unification. Most prominent was the designation of several Nature Protection areas in the waning days of the GDR by its last (and first democratically elected) parliament (volkskammer).

Actors in Nature Conservation

After unification, the institutionalization of nature protection in eastern Germany largely followed the west German model that is characterized by a top-down approach where external agencies implement protection areas in response to external resources. Nature conservation in Germany is the responsibility of regional governments. The national conservation act only provides the framework for nature protection. One important actor is the Federal Agency for Nature Conservation (BfN), which is the central administrative and scientific authority of the German federal government for both national and international nature conservation. It has provided substantial funding for several projects for nature conservation. Nature conservation is also shaped by spatial planning. The planning programmes determine the priority areas and land-use purposes, and they restrict economic activities in those areas.

The federal states have their own state nature conservation laws that ensure the implementation of the federal law and provide the legal basis for most nature protection acts. In the past few years, national policy responses to environmental problems have been strongly shaped by EU-directives, most recently Natura 2000. There is a clear tendency towards the Europeanization of nature conservation policy frameworks.

At the regional level, two main institutions are responsible for nature conservation issues. One is the regional planning association (of which all municipalities and the district government are members) located in the Hanse town of Greifswald; the other is the state environmental agency (Staub) in Ueckermünde.

In the case study regions, there are also a large number of non-governmental organizations (NGOs) dealing with nature conservation or environmental issues. These can be classified into one of three groups: (1) external, and partly international professional NGOs (e.g. WWF, Friends of the Earth, BirdLife) and other private national foundations promoting environmental protection and eco-system research;¹ (2) local 'associations of professionals' (for example, Stiftung Ödermündung, LPV, Förderverein Naturschutz UER); and (3) civic action groups (for example, Inselfreunde, Biubmin). Some of these NGOs also include local communities.

External, especially international professional NGOs and local 'associations of professionals' dominate, while local civil society is comparatively weakly developed. This has both endogenous and exogenous causes. Slow economic development and institutional change have weakened the local potential for civic engagement. Elsewhere (Laschewski and Siebert 2001, 2004) we analysed the weakness of civil society in the post-socialist rural context in eastern Germany. We concluded that rural eastern Germany shows characteristics of a post-paternalistic countryside which, for us, explains the phenomenon of a successful agricultural industry in a weak rural economy. This prospects for the development of civil society

1 Klaus Bahlsen Foundation, Wildlife Foundation Hamburg/Klepelshagen, Succow Foundation, Greifswald, Volkswagen Foundation.

as a crucial element of integrative and participatory place-based rural development approaches have been questioned. However, this view has been challenged by more optimistic arguments that local initiatives and civic engagement exist. From that vantage point, it is the political institutional context that hinders the exploitation of endogenous potential (Bauer 2005, Laschewski and Siebert 2007).

On the other hand, the 'projectization' of rural development approaches as well as environmental policies has favoured those local groups – usually made up of professionals – that possess the skills to write proposals, attract public funds and manage projects. Local 'associations of professionals' provide an example of such skills (Fock 2006, Laschewski et al. 2006). They are characterized by a public-private membership, and their leaders tend to be employees in public administration. They support sustainable development and are motivated by a strong regional identity and very good knowledge of the regional situation. Unfortunately, these private-public networks rarely strive for citizens' empowerment. Their main aim is to maintain institutionalized organizations and to attract external funding.

Important actors in the region include academics who come from various institutions in the region: two universities (University of Rostock and University of Greifswald) and the two applied universities. The existing research institutions represent a huge potential for scientific knowledge in the region. For a long period of time, the scientific experts worked in isolation from the local actors, and projects focused exclusively on ecological aspects. This changed in the last year, when those ecologically focused projects met resistance from farmers, tourism managers, and local communities. In particular, some federally funded projects, so-called model projects, increasingly emphasized local needs and regional problems. Regional policies tried to apply an integrative approach (IKZM-Order, Regionen der Zukunft, Lernende Regionen, Regionen aktiv). Public funds from such model programmes allowed regional agents to initiate some action-oriented analysis.

Hence, there appears to be a positive trend towards cooperation between scientists and regional actors regarding land use and tourism issues. The large number of these projects aimed at integration, social-capital building and sustainability is quite surprising, considering the economic contextual factors. But it is well to remember that the majority of the governance networks and ecological impacts are initiated by external funds and programmes. The willingness to participate in these actions tends to be high as long as financial incentives are given as extrinsic motivation.

Communication and cooperation among the different actors in the case study region is quite different and partly underdeveloped. Communication between the federal government and its agencies, scientists and regional agents is generally quite low. It also seems that relations between universities and the federal government are much weaker than those between researchers and regional decision-makers. With appropriate policy implementation and increased efficiency of public funding the federal government could enhance the knowledge exchange between local actors and experts. Regional promoters complain that programmes are developed without taking into account the different needs at the regional level, and without considering

the impediments to their implementation. In contrast, relations between localities and regional planning or environmental agencies are well developed.

The Cases

In the following section we describe four specific cases that reflect the two prototypical approaches to implementing nature protection in the model region Odermündung. The first two case studies are examples of the use of ample external funding and expertise to realize exclusively ecological project aims. In these projects, neither economic nor social aims are included. These projects use the purchase of agricultural land to remove it from production for ecological considerations. Substantial public funding exists for these types of projects, yet they do not consider the concerns of persons affected by this land-use change. These projects are strictly isolated from their rural surroundings and development (e.g. tourist activities), thereby being reduced to their ecological functions. In general, these nature protection projects are not integrated into sustainable rural development strategies, and the potential for synergy effects remains unexploited. Private capital is necessary to improve public relations.

The projects in the third and fourth case studies are also implemented with external funds, but they encompass socio-economic considerations as well as ecological concerns. They are based on an integrative approach. The projects attempt to identify new income alternatives for agriculture and tourism. In the project 'nature park island U sedom', tourism and nature protection are viewed as mutually beneficial, because nature tourism is a main source of income for the population of that area. This project includes the affected users of the land – localities and their residents – as participants in the planning of the park. The project 'wildlife nature park Klepelshagen' includes the economic concerns of farmers over and beyond its ecological purposes. The link between development and environmental goals can produce a win-win situation by drawing on local knowledge from the municipalities, farmers, and environmentalists, as well as on scientific knowledge and the knowledge of administrative bodies at regional and local level. The breadth of local knowledge and the involvement of powerful partners give ample opportunity to develop and disseminate the idea of integrated nature conservation for the benefit of rural development. As these examples indicate, a significant prerequisite for rural sustainable development is a common agreement about a development path and paradigm, with consensual goals for the different projects.

Renaturalization of the Peene valley

In 1992 the nature conservation project 'peenetal-landschaft' was initiated by a programme of the Federal agency of nature conservation (BfN) to secure

landscapes with high natural capital, which is of national and representative importance. The basin of the river Peene, 85 km in length, is one of the largest and still undivided river valleys in central Europe with wetlands and typical low-moor habitats. The Federal Nature Conservation Agency, together with the Federal State Ministry of Environment Mecklenburg-Vorpommern, initiated an association of the communities along the valley and in the two counties affected, with a total of 50 members. The main task of this association – the ‘Zweckverband Peenetal’ – is management of the major nature conservation project over a period of 13 years in a project area of 45,000 ha. Most of the area consists of FFH-areas and EU bird-protection areas. Voluntary environmentalists were also involved as members with voting power. The most important objectives of the project are to establish a protected core area of 20,000 ha that includes the flood plains of the entire river valley and to conserve the natural river basin by deconstructing dams, dikes and draining ditches, as well as to extensify agriculture. To reach these objectives, a budget of €28.5m is available.

The project would not be successfully implemented without transparency, intensive communication and good cooperation by landowners, water associations and farmers. Nevertheless, the selection of plots was done by scientific experts taking only ecological issues into account. It was only the low population density of the region and the less developed local economy that allowed the structural changes to be mostly conflict-free. This might be the reason for the low level of participation and communication.

Government funds exclude the promotion of public communication; thus, private capital of about €640,000 from the Kurt-Lange Foundation and other private donors was used for public relations. Communication and promotion instruments like brochures and information sheets as well as a hiking guide, a video, and guided tours helped to raise public awareness of moor degradation and its negative impacts on bio-diversity.

During its first years, the project was not very well embedded in the regional context due to its external initiators and the concentration on renaturation. Planning for the project did not combine an intensive communication strategy with integration in regional economic development. Project acceptance was more the result of high compensation payments to farmers than of intensive communication of the objectives and benefits. In more recent years, the project management strove for cooperation with tourism marketing activities in the region to increase awareness of the newly established ecological potentials. Fortunately, the participating communities started a *De R+* project to develop a common marketing strategy, communicating the cultural heritage and the regional products of the valley. A guided tourism track through the villages has been organized. This could increase communication between ecological experts and regional managers and offers several opportunities for environmental education and sustainable tourism.

Ecological Restoration of Lake Galenbeck

The lake and its surrounding fen areas in the south-west of Uecker-Randow are of particular importance as nesting and feeding grounds for numerous endangered bird species which have been assigned priority protection status under the FFH directive. In 1993, the protection area was enlarged and land purchases helped to enable the realization of the management objectives. The complex melioration system and intensive agricultural use in the surrounding area Friedländer Grosse Wiese have damaged the fen and the hydrological quality of the lake. The fen layer was sinking and the lake has been gradually drained. These practices endangered the habitats of several bird and herb species, and the number of migratory bird species and sitting bird populations has declined in recent years.

To prevent further fen degradation and lowering of the water level, an action plan to preserve the ecological habitat structure and the self-regulation capacity of the lakes eco-system was compiled in 1999. That plan resulted in a LIFE project, initiated by the environmental agency Staun Ueckermünde. One of the ecological experts was the key promoter of this project.

A working group of stakeholders and agencies developed a proposal and the project started in 2001. A fund of €5.8m was made available by the EU (LIFE initiative) and €2.7m by the state government; the largest part of this was spent on the acquisition of 400 ha of arable land and the renaturation of another 100 ha.

A project team, accompanied by an expert group, prepared the planning procedure and the examination of environmental compatibility. The action plan and optional measures were discussed, sometimes heatedly, at workshops and information meetings. An impact analysis was one of the first steps agreed upon as a consensual strategy by the concerned farmers and communities. The outcome of this analysis had several opponents, among them the regional grassland board, which criticized the socio-economic deficits of the overall plan. As a result of the discussions, three observation towers will be constructed to enable bird watching, which will make the area more attractive for tourism.

The inhabitants of the three concerned villages with more than 300 citizens signed a petition against the measures. Several information meetings were held and a touring exhibition was mounted. Farmer unions complained that they were not involved in the project advisory board or were informed too late, but their representation through the agricultural agency was later ensured. Recently, additional grants were provided through compensation obligations for the construction of the new highway n o.20 by Dege S.² The planning process was finished in spring 2004 with a public hearing.

The project provides a good example of how the implementation of ecological objectives can lead to resistance on the part of affected persons, if their economic

2 DEGES (Deutsche Einheit Fernstraßenplanungs – und – bau GmbH) is a project management company involved in the planning and construction of the federal district road projects.

interests are not taken into consideration. To keep the costs of compensation as low as possible, these type of projects use planning procedures to ‘convince’ those affected by the project’s implementation that it is also in their interests. The construction of the freeway a 20 provided the monetary means for the necessary compensation.

nature Parks Island u sedom and Am Stettiner Haff

There are two nature parks in the region, one in the county of Uecker-Randow (Am Stettiner Haff) and another in the county of Ostvorpommern (Insel U sedom). Nature parks are instruments of community cooperation to foster marketing of the region and its integrated development. The park management is expected to support sustainable tourism activities like hiking, as well as ecological education, such as wild-life observation. The park covering the entire island U sedom, a region with a large number of short-term and long-term tourism activities (about 1m visitors a year), was established in 1999. Preparations started in the early 1990s, when the Bahlsen Foundation encouraged structural analyses as a basis for a development plan. This external initiative, including only expert knowledge, might be the reason why in 1995 a significant number of municipalities did not agree with the idea, and why only a small majority supported it in the district council. Another effect was growing disappointment at the economic development of the area after German unification.

Environmental protection and nature conservation were identified as one of the major thresholds for economic development. Instead of resignation at the lack of support, the foundation and other promoters intensified their efforts by starting a large-scale information campaign for the public and local media. Its aim was to convince communities and regional actors about the potential of nature parks for economic development and to enlist their support. It took some more years to persuade all the relevant stakeholders that the plan was sound. In 1999 nearly all communities on the island signed the constitutional agreement for the nature park. For this success, managerial and personal relationships with local promoters were essential.

During recent years, good cooperative relationships between park administration and municipalities have been established. The park management offered jobs in tourist guiding and information to residents of the communities. The park managers are some of the most prominent stakeholders revitalizing German–Polish cooperation.³ They offer a wide range of tourism and educational activities, and personal information exchange is very intensive since language barriers have been largely mastered. Several joint species protection projects were initiated concerning the eagle owl, sea eagle, beaver and otter. The most recent

³ a cooperation agreement was signed in April 2000 in Damerow; and in 2003 two brochures were jointly developed.

is the establishment of a bison pen managed by the bird life association. the animals are a gift from the polish national park wollin. in 2002 an old railway station was rebuilt, with grants from pommerania and the bahlsen Foundation, which now accommodates the central office for the management and the rangers. this is another important step in joint action with tourism associations. nowadays, the region is committed to the rural development model, striving for integrated planning. but there are differences in the understanding of sustainability. here the park management has a stronger ecological focus than the municipalities or the county government.

in contrast, the newly established nature park 'am Stettiner haff' was established through a bottom-up approach. the plan for the park started in 2001 and was supported by various stakeholders (for example, the lea DeR+ action group and the district administration of uecker-Randow). a major promoter was the association 'natur und leben am Stettiner haff', some of whose members are very active in sustainable tourism (<http://www.naturerlebnis-wald.de>). the planning process for the park was finished in less than two years. In this case, experience from the neighbouring park and the voluntary principle helped to convince the local boards and the municipal councils to agree to the park. this success is one reason for the strong and cooperative relations between the district administration, the lea DeR action group, the local boards and regional agencies (Staun , unb), as well as for support from the county authority. nevertheless, there are some opponents, like the biggest agricultural company in Ferdinandshof or the community hintersee, who are concerned that the status of the nature park might be the first step to more restrictive protection.

The positive experiences with the first nature park in the region and its wide-spread acceptance should not be interpreted as a political consensus for further activities promoting rural sustainable development. many stakeholders mentioned that the process of persuasion and trust building to agree on common goals and a regional vision for the two nature parks was very long drawn out. in this economically weak region, environmental issues have to be handled very sensitively and must be integrated into an overall development strategy.

Wildlife nature Park Klepelshagen

the activities of the wildlife foundation started in 1994 by reconstructing the old estate in Klepelshagen located in the nature protection area galenbecker See and the l Sg brohmer berg. the research station started operating, together with the cultivation activities of the agricultural company Klepelshagen,⁴ in late 1995. Qualification programmes for young and/or external scientists as well as

4 this is a model project of wildlife research and organic farming in close cooperation with the universities of Dresden, greifswald and Rostock and the environmental agencies.

practical training are offered. Faunistic and floristic mapping, eco-system research and experiments on sustainable land use are researchers' main tasks. Strong ties between universities and regional stakeholders were established that provided further opportunities for knowledge exchange. The project management cultivated close relations with the nature parks Feldberger Seenlandschaft and Nossentiner Heide as well as the Nature Academy of the federal state Brandenburg in Lelbus, exchanging experts and managerial knowledge.

Despite the charitable and public character of the foundation, other farmers voiced doubts and uncertainty in the first years of the foundation's activities, in part caused by west–east prejudice. Negotiations with farmers to establish new crop cultures and build buffer strips around the recreation zones of deer resulted in several lease contracts on set-aside plots. But nowadays, trustful cooperative relations have been established.

Wildlife protection in cooperation with the agricultural company Klepelshagen and with neighbouring farmers aimed at building larger habitats for red deer and other wild animals by managing an increasing area of up to 2,000 ha. Different approaches to cultivating set-aside plots were tested and specific biotopes were established or regenerated. Land use on the property had to be sustainable and environmentally sound. This shows the feedback loop of applied research and knowledge application: local farmers using the results and giving feedback.

In the sequel, the purpose of the foundation's activities was extended to attract new target groups, particularly tourists and students. Lobbying, public relations and ecological education were given a higher priority. Cooperation with the rural hostel in Gehren resulted in several joint activities. Recently, new educational concepts like camping weeks for school classes have been tested. The museum of Natural Science in Berlin supported these activities to establish urban–rural exchanges. Also recently, seven observation towers were built for tourists and pupils of all ages to experience undisturbed wildlife in their natural context. A broad range of educational activities and two wildlife trails as well as guided tours were developed to increase awareness of wildlife species like racoon, badger, field rabbit, crane or birds of prey. The Red Deer week in autumn is a unique event for exclusive groups. To promote this event, cooperation has started with hotels and restaurants in the neighbouring communities. In summer 2005 an extensive information centre with exhibitions, nature trails and lectures was opened. This part of the project was funded by the model project *Regionen Aktiv* and is integrated into the promotion activities of the new nature park 'Am Stettiner Heide'. Additionally, the wildlife park has been integrated into the programme of the regional tourism association, making the Brohmer Berge a focal point of tourism.

The project has become an excellent example of rural sustainable development. The activities make a strong contribution to the ecological and economic development of the county and are well appreciated by other stakeholders. These positive experiences could be disseminated to other regions. Success factors include an intensive exchange with key actors in the region, integration in regional networks, and strong cooperation with environmental authorities and universities.

the wide range of activities is one reason for the high motivation of the project management and its open-minded awareness of regional problems. a crucial point is that the activities are not hampered by a multitude of restrictions that have to be taken into account when public funds are received.

Conclusions and Discussion

The cases that we have described provide a diversified picture of nature protection practices and the use of knowledge in east Germany. it seems ironic that the peripheral location created by the post-war political order and the post-socialistic economic crisis has formed the large natural capital and favourable conditions for the designation of nature protection sites. hence, the link between the environment and non-development is fairly strongly imprinted in the mental models of local actors as well as the institutional setting.

this peculiarity has endogenous and exogenous causes. economic crises and institutional change have weakened local potential for civic engagement. the 'projectization' of rural development approaches, on the other hand, as well as environmental policies, have favoured those – usually professional – local groups that possess the skills to write proposals, attract public funds and manage projects. As we have shown, this is also reflected in the structure of non-governmental organization, where international, professional NGOs and local 'associations of professionals' prevail, while NGOs that include local communities are relatively weakly developed.

The first two cases we described draw exclusively on the use of expert knowledge to implement nature protection. local knowledge is relatively unimportant. participation in the course of planning procedures under such conditions comes down to strategies to 'convince' local actors and reduce compensation costs.

These projects reflect a purely environmentalist view that has been made possible by external legal and, in particular, financial intervention by the state of mecklenburg-vorpommern and the Federal Agency of Nature Protection. Funding has been almost solely dedicated to technical purposes and the purchase of land. It is a telling fact about nature protection in Germany that €28.5m has been spent to reconstruct the peene valley, but private capital is necessary to improve public relations for this project. these projects are not integrated into sustainable rural development strategies. they reveal the gap between the macro-discourse about sustainable development and local practice. in such a context, external top-down intervention for nature protection is dominant and, in the words of Marsden, a 'bureaucratic mode of rural development has evolved'.

however, as the examples of the nature parks of Usedom and Stettiner Haff as well as the project Klempelshagen illustrate, integrative approaches to nature protection are possible. in the case of the island of Usedom, the link between natural capital and the economy is obvious, since tourism is the main source of income. nature-based tourism offers a way to lengthen the very short summer

season that is characterized by beach holidays. Under such conditions economic and environmental interests complement each other and integration is comparatively easy, although tensions will also occur. The island of Uedom case shows that a bureaucratic mode of rural regulation may turn into something new. It is possible to transform a traditionally top-down oriented nature conservation approach based on scientific knowledge into an integrated project that also involves local knowledge. This can happen when local actors do not accept the proposed measures and actively oppose them, and when scientists and project experts are willing to work with local actors and learn to acknowledge their local knowledge and managerial capabilities, and utilize organizational capacities for reciprocal advantages.

The example of Klepelshagen is even more proactive, because it attempts to create new economic benefits for agriculture and tourism that did not exist before. Here, it appears that the comparatively low level of external funding created positive economic pressure to valorize nature capital in creative ways.

In addition to these positive examples, we also envision a general slight shift towards integrative approaches to rural development. Reasons for this shift are manifold. After huge investments in order to establish nature protection sites, further development is increasingly dependent on local participation, valorization strategies and public acceptance. Possible funding is offered by the EU (LEADER, INTERREG, LEONARDO, EQUAL) or private foundations, all of which require networking and public participation. This has fostered a steady enlargement of regional networks in recent years. An absence of public acceptance has also increased the awareness among environmentalists of the need to engage in public dialogue, and has made national policies become more integrative. Agricultural policies, for more than a decade, have offered agri-environmental schemes, which substantially contributed to a reduction of tensions between agriculture and the environment. Organic farming in particular is widely applied in the study region. A final reason is the shifting role of academics in recent years. More and more university trained academics are involved in networks and projects. The need for applied science was recognized by the scientific system, and over time graduates with training in applied environmental studies who are not only biologists have become available. Joint actions between local and external actors towards sustainable development depend on both the local settings and the actors' mental models (Senge 1992).

Both cases illustrate that local and expert knowledge are not fixed entities, but rather dynamic flows. Hence, they have been, and can be, more or less consciously built, and require the development of a common understanding of nature and the construction of a joint local identity. Therefore, such a proactive approach to linking local and expert knowledges requires substantial managerial knowledge that encompasses communicative and political skills. Under these conditions, the borders between the knowledge types discussed in the beginning are blurred.

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poland: Designing nature and Resource management Strategies

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Introduction

in current literature the issue of governance seems to be treated as the conceptualization of collaboration by various actors in the process of social change. at the same time one has to observe the growing interest in another issue connected to the processes of social change that have been framed by many authors as sustainable development. the analysis presented in this chapter is focused on the relation between these two issues, which is used as its main theoretical frame. we argue that governance seems to be a pre-condition for sustainable development.

theoretical consideration is required but only as an initial step of the whole argument. We believe, however, that the final proof should be made at the level of analysis of particular processes in particular social milieu. therefore we agree with Almas and Lawrence who have identified the goal of such an analysis, claiming that 'the aim is to identify components of local communities that provide for long-term sustainability. these include social and individual capital, the natural capital base of the region, the institutional capital available to communities, and the financial capital that enters or leaves' (2003, 14). Such a multi-factor perspective draws attention to the issue of mutual relations among the various actors involved in the process of change.

Governance and Sustainability: Some Theoretical Considerations

Some authors point out that the contemporary interests of social scientists have been focused on the results of globalization, especially their economic dimension. in this particular context, governance practices have to be identified with overcoming uncontrolled and 'wildly acting' market forces. as peine and mcmichael put it: 'governance is understood, primarily, as the management of market relations across the whole gamut of social and environmental arenas (...)' (2005, 19).

the role of social and political activity also needs emphasis. Fighting negative globalization-led tendencies requires social and political mobilization (ewert 2003). in turn almas and lawrence identify a peculiar role of social groups by stressing their 'ability to counteract the agencies and organizations that "impose" a

unidimensional transnational future. where there is global economic action, there is local socio-political reaction' (2003, 22). Such a counter-action cannot be limited simply to the logic of social protests. Quite the contrary, such activity requires various types of capital, actors and resources located in particular communities or coming from external sources. we argue that the counter-action logic has been connected to the type of development which is called in the literature 'neo-endogenous' (Ray 2006). this activity requires cooperation between actors within and outside particular communities. considering this point higgins and lawrence state that 'we believe that a conceptually coherent way of explaining and understanding these new arrangements is through the notion of governance' (2005, 1).

Similarly, Kooiman says that 'the essence of the argument is that governance of and in modern societies is a mix of all kinds of governing efforts by all manner of social-political actors, public as well as private, occurring between them at different levels, in different governance modes and orders' (2003, 3). Such a perspective on the nature of governance is also supported by peine and michael (2005, 20) who argue that the nature of governance lies in the process of interaction between autonomous social sub-systems and networks. Kooiman also says that 'Such a governance is achieved by the creation of interactive, social-political structures and processes stimulating communication between actors involved, and the creation of common responsibilities next to individual and separate ones' (2003, 4).

considering governance and government raises the problem of the state and its various relations with other subjects in social life. higgins and lawrence (2005, 2) claim that the idea of governance has been based on the rejection of the 'conceptual trinity of market-state-civil society' that has been dominant in sociological analysis. However, not only has this 'golden triangle' lost its significance; one might also talk about the declining role of the state as an ultimate area and source of government, i.e. making and implementing various policies.

however, other authors have expressed some doubts about the obscuring of the role of the state by those who propose and use the term governance in trying to conceptualize the role of various actors in the processes of social change in the contemporary globalized world. For example, peine and michael say that 'we view "governance" as an *ideal-typical* concept in two respects: first, it tends to be differentiated from 'government' as if the latter does not itself comprise or constitute relations of rule outside formal institutional mechanisms, and second, it obscures the role of states in conditioning or constituting governing as part of their authorship of "globalization"' (2005, 21). however, the perspective taken by peine and michael seems to go a little too far. many proponents of governance, including us, do not overlook or even obscure the role of the state. on the contrary, what they do is conceptualize the state as a *part* of a network, as one of the most important actors, that is not, however, able to act independently of others. we accept that in governance networks one might observe various actors with various levels of importance, and the state, certainly, has been among the most significant ones. nevertheless, we would argue that even the most important members of governance networks are able to act mostly because they are *parts* of such networks.

Some other authors seem to share this view. Higgins and Lawrence simply stress that the boundaries between public and private spheres of economy and society have become blurred and the authority and sanctions of government have become less important than before. In conclusion they add: 'the activity of governing is now shared between state-based institutions and agents that extend beyond the formal boundaries of government' (Higgins and Lawrence 2005, 2). In turn Dibden and Cocklin (2005, 136) have attempted to identify this new role of the state in a more precise way, stressing that governance takes a new perspective on the old distinctions between state, civil society and market. In particular, the role of the state has become a peculiar one which focuses on the identification of the various participants that are brought together in the process of policy formulation and implementation. Therefore, the state acts rather as a kind of coordinator and manager and loses its 'old' 'welfarist' role. This has become obvious in various spheres of economic and social life. We quote Dibden and Cocklin once again when they refer to agriculture and rural areas: 'in agriculture and natural resource management there has been a shift from government to new forms of governance, involving not only state agencies but also a range of other organizations from both private and public sectors' (2005, 136).

The issue of knowledge, especially the variety of knowledge forms (Buckmeier 2004, Buckmeier and Tovey 2005), seems to be strongly connected to the issue of governance in, at least, two ways. The first concerns the problem of the particular perspective and particular experience used by the different authors involved in collaboration under the process of governance. The second draws our attention to the mutual interplay of different types of knowledge when actors meet each other in the process of formulating and implementing particular projects. Therefore we have to agree again with Higgins and Lawrence who stress that 'the focus is upon different modes and practices of governing, how they emerged, *the forms of knowledge on which they make their claims to truth* [our emphasis], and the politics of regulation to which they give rise' (2005, 13). In that sense knowledge seems to be strongly connected to the issue of governance; in fact, it might be treated as a kind of sub-part of governance. In other words, an attempt at investigating the interplay and interrelations among various types of knowledge might lead to investigating the creation and application of governance in particular contexts, including in projects that are formulated and implemented in rural communities.

The discussion in rural sociological literature of the idea of development has switched to a large extent to the perspective of sustainable development. That has been placed in contradiction to previous concepts of rural development, namely agro-industrial and post-productivist ones. We do not want to review this particular discussion here. In fact it has already been extensively considered in the literature (Marsden 2003). Instead let us focus briefly on the concept of sustainable development. Originating in the discussion about environmental protection, the idea of sustainability seems to be treated today as a kind of overlapping concept. As Tunney says, 'the concept of sustainability has been re-articulated in recent decades as an antidote to environmental degradation' (2004, 188). Considering

the traditional focus of sustainable development on environmental issues, some authors differentiate between the so-called strong and weak versions of the idea of sustainability. as Barry, Dexter and Dunphy (2004) stress, both weak and strong versions of sustainability are the same on this point. at the same time Ividow (2005, 99) identifies three basic perspectives on sustainability: neo-liberal, people-centred and environment-centred. they are connected, respectively, to sustaining economic growth in a way that does not undermine resources; rebuilding social relations; and protection of natural resources. therefore we might agree with Tunney when he concludes that 'Sustainability is recognizably related to economic growth, social cohesion and environmental protection' (2004, 199).

all the considerations presented above lead us towards the issue of the particular methods and procedures that should be taken into consideration in order to formulate policies that meet sustainability standards. one can agree again with Barry, Dexter and Dunphy that we have to ask the fundamental question 'whether sustainability requires changes in social and political arenas (2004, 3), and similarly with Tunney who laments that 'Sustainability is recommended to be a pervasive policy, although there is little indication of how this can realistically and effectively be achieved' (2004, 199). Then our final question is the one concretely posed by Barry, Dexter and Dunphy: 'the issue of whether sustainability requires new methods of decision-making, allowing environmentally-informed and concerned citizens a direct say in the formulation of the appropriate policies and legislation' (2004, 5). our hypothetical answer is that governance seems to be such a method.

why governance? governance seems to be characterized as this particular method of formulating and implementing policies that involves bringing various actors together. It requires intensive interactions, both discussions and conflicts, but resulting in cooperation as a *sine qua non* of successfully formulated projects. moreover, bringing various actors together might lead to a more holistic and multi-dimensional overview of the particular issue under consideration. therefore, by creating a platform for private and public actors, state, market institutions and social organizations governance seems to be the key to successful implementation of sustainability standards in social life. moreover, such a platform seems to be exceptionally useful for interchanging and evaluating various types of knowledge brought into play by various collaborating actors.

Governance and Sustainable Development in the Context of Rural Poland

the concept of governance has been brought into public discourse in Poland along with the consecutive steps in the process of integration into the EU, and has been intensified after Accession on 1 May 2004. It has been treated as 'more than a description of the forms of management of the political system' (Nižnik 2006, 7). its meaning has been drawn from discussions about problems of European integration, especially in the context of political power and where the government is treated as the main actor in nation state politics. generally, it has been focused

on the 'interaction of people and institutions, according to specific principles and norms, in order to maintain political or economic entity and to achieve its aims' (Niznik 2006, 8). Thus the concept of governance seems to be having a strong impact on various state agencies and non-state institutions and their values, principles and policies as presented in various documents. To sketch the context of this discourse, in particular the problems of rural Poland, we present some selected issues found in such documents. We are especially interested in the principle of sustainable development as articulated in the documents which have framed public discourse concerning the issue of rural development.

Reference to sustainable development (SD) can be found in numerous legal acts as an important criterion to evaluate current development models. A n example of such a discourse can be observed in the document prepared and approved by the council of ministers of the Republic of Poland on 25 February 2003, called 'National Strategy and a agenda for protection and c ontrolled u tilization of b iological Diversity' which contains some basic assumptions, vision and targets for the years 2003–2006. Another government document, 't he Strategy for a griculture and Rural Development in 2007–2013', promotes multifunctional development of rural areas as the policy model to be implemented in Poland. It emphasizes basic interrelations between three key dimensions of sustainability, stating its goal as improvement of living and labour standards in rural areas through economic growth, with consideration given to environmental requirements. t he notion of rural sustainable development (RSD) is here defined as a phenomenon which involves creating the conditions for different types of business activities to develop, pursued with respect to environmental issues, the development of social and cultural functions, and giving special attention to providing inhabitants with a good standard of living.

t he same document refers many times to basic features of a governance model, however without mentioning the term itself. It stresses, for example, the importance of implementing and promoting local initiatives and programmes for the revival of rural areas. It follows a 'european model' of rural development, giving a key role to local partnerships in planning and implementing development strategies. Furthermore, when the concept of the european model of agriculture is referred to, other important roles of agriculture, besides food production, are pointed out. In this document four priorities have been mentioned in order to complete the strategy. The first is focused on diversification of activities to ensure alternative sources of income, while the second is connected to the preservation of environmental values in rural areas. t he third stresses the need to mobilize rural communities and improve their 'social infrastructure', while the final one is focused on the development of technical infrastructure.

t hese normative schemes are supplemented by a description of the current situation in rural Poland. t he document points out that non-agricultural activities in rural areas are poorly developed, mainly due to the lack of adequate financial support and a low level of social mobilization. For this reason it is desirable to support any forms of small entrepreneurship in rural areas, services for the economy and the rural inhabitants, local initiatives for the revival and development

of the areas, including preservation and improvement of cultural heritage and rural tourism. The low level of activity in rural communities is to be changed through actions which include engaging people in development and the implementation of local development strategies, support for local initiatives, and activities aiming at improving living standards and public-private partnerships.

Ideas of sustainable resource use and sustainable development also appear in other government documents which contain the following principles. The first is called the principle of sustainable development: the basic assumption is to manage policies and activities through equal treatment of social, economic and ecological issues, which involves integrating environmental protection into economic and social policies. The second has been conceptualized as the precautionary principle: the opinion that emerging problems should be solved on their 'safe side', i.e. that adequate responses to potential environmental threats should be undertaken as early as at the moment when a justified likelihood of risk appears, not waiting until absolute scientific evidence has been presented. This helps to avoid resistance resulting from time-consuming research, a lack of resources, or simply from the activity of individuals and institutions concerned.

The third principle has been named the high level environmental protection principle; it assumes that the application of both the principle of prevention and the precautionary principle should be focused at a high level of environmental protection that ensures human health. The fourth is perceived as the principle of equal access to the natural environment. It is divided in the following categories: (1) intergenerational equity (i.e. satisfying the material needs of the present generation, while at the same time creating and retaining the conditions for satisfying the needs of future generations); (2) inter-regional and inter-group equity (i.e. satisfying the material needs of societies, social groups and individuals under a framework of fair access to limited environmental resources and values, with equal treatment of general social needs and the needs of local communities and individuals); (3) balancing opportunities between humans and nature (i.e. securing the healthy and safe functioning – in the physical, psychological, social and economic sense – of people, in balance with retaining the sustainability of natural processes, including continuous conservation of bio-diversity).

The fifth principle has been named as that of regionalization, meaning the enhancement of territorial self-government and state authorities in the sphere of setting out ecological regional fees, standards, levies and requirements for economic entities: regionalization of national tools for environmental policy. The next principle is that of socialization. It should be implemented by establishing institutional, legal and material conditions for participation by the public, social groups and non-governmental organizations in creating a sustainable development model, with simultaneous strengthening of environmental education, awareness and sensitivity, and further developing environmentally sound behavioural ethics. This process should be supported by the use of mechanisms and recommendations contained in several international regulations, such as the 'Convention on Access to Information', 'public participation in Decision-making' and 'Access to Justice in Environmental matters'.

Finally, the principle of subsidiarity has been taken into consideration from the European Union Treaty, where it means that the EU shall undertake activities which do not fall within its competence only in cases when the objectives of proposed activities could not be achieved by the member state. In the Polish case this means that, concerning environmental policy, a portion of activities is to be passed on to the appropriate regional or local level (regions and communities), so that the objectives can be achieved at the most local level possible, where they can be resolved more effectively and efficiently.

Actors at regional levels also prepare similar documents and organize similar activities. The Malopolska regional authorities have prepared the so-called 'Malopolska Developmental Strategy' as a key plan in designing basic activities aimed at three strategic goals, namely: supporting self-government through institutions and activities both at regional and local levels; gaining financial support from the national government as well as the EU; and coordination of the activities of the various actors concerned with the development of the region. This document states that 'Development of Malopolska region has been a result of efforts carried out by all its inhabitants as well as all the acting enterprises, institutions and organizations'.

The strategic goal of the document is focused on developing Malopolska 'as a region of opportunities and sustainable development of people and modern economy based on the activity of its inhabitants using their past legacies and preserving identities in the integrating Europe'. The goal is to be achieved by addressing activities in four important areas: (1) attitudes, qualifications and activities of the regional inhabitants; (2) improvement of the quality of the natural as well as cultural environment; (3) the economy and (4) communication and cooperation inside the Malopolska region, including accessibility. However, the basic aim identified in the area of economy is focused on sustainable development. This is the only time the term is used in this document. This basic aim is further elaborated into six specific objectives: restructuring and improving the competitiveness of traditional industrial sectors, market-competitive agriculture, innovative enterprises, advanced sectors of 'regional opportunity', an advanced business environment, and a high level of investment. Two other important concepts – governance and knowledge – do not appear in the document. However, we argue that they can be found indirectly, as hidden assumptions when the document stresses the plurality of actors involved in the process of regional development, namely: different population groups, different types of enterprises, institutions and organizations, etc.

Governance, Knowledge and Sustainability: Three Related Dimensions in Two Exploratory Cases

The CORASON project focused on analysing the significance of various types of knowledge used by different actors in the process of formulating and implementing policies that might contribute to the sustainable development of particular rural

communities (Buckmeier 2004, Buckmeier and Tovey 2005). In particular, three types of knowledge have been under investigation: scientific knowledge used by experts, local/lay knowledge used by indigenous people (inhabitants in particular communities), and administrative/political/managerial knowledge used by local politicians and members of administrative staff, etc. One hypothesis explored in the research was that only in the case of 'collaboration' between different types of knowledge used by cooperating actors could sustainable development occur. The actors included in the evaluation of particular cases represent local and regional administrative units, groups of inhabitants, business people, experts, etc; the cases mentioned here were simply various policy projects formulated and implemented by actors drawing on their knowledge types. In Co Ra Son we examined various types of projects, from those designed by state or regional authorities to those that were simply informal initiatives undertaken by local people.

In each of the cases presented below we attempt to explore the relations among three basic issues: governance, knowledge and sustainable development. Both cases might also be treated as examples of initiatives involving local people which are at the same time framed within the discourse concerning environment and sustainability which has been shaped by the ideas found in the documents presented above. The two cases are drawn from the field research we carried out in selected rural communities in Poland in the years 2005 and 2006 as part of the Co Ra Son project. In this research we decided to follow the extensive case method (Foster, Gomm and Hammersley 2003), particularly because of the way it relates theoretical assumptions and data. Burawoy conceptualizes it as follows: 'instead of inferring generality directly from data, we can move from one generality to another, to more inclusive generality. We begin with our favourite theory but seek not confirmations but refutations that inspire us to deepen that theory. We do not worry about the uniqueness of our case since we are not as interested in its "representativeness" as its contribution to "reconstructing" theory' (1998, 16). Therefore the presentation of our case studies will be immediately followed by some general conclusions.

The first project under investigation, called 'The Preservation of Genetic Resources of the Polish Red Cow' (pRC), is rooted in a long and rich tradition of raising Polish red cows in the areas of central Malopolska (*gmina* Jodłownik). The first association of Polish Red Cow breeders was established in 1894. In the inter-war period (1918–1939) Polish red cows formed 25 per cent of the national herd in Poland, and were still 18 per cent of it in the late 1960s. Trying to intensify animal production in Poland, the communist authorities made two important decisions in the 1960s: to eliminate Polish red cows from large intensive state and collective farms and replace them with 'more efficient' black-white and red-white breeds; and to limit the Polish red cow area to only some parts of the Malopolska region. However, a group of farmers from the Malopolska region bought about a hundred cows from areas where the raising of the Polish red cow had been prohibited in order to save the whole breed. An area for preserving the Polish red cow was established in the mid-1970s in the south-eastern part of Malopolska with some

small support from the government. However, in 1982 the government decided to eliminate all regional cow breeding projects, hence all forms of government support for Polish red cow were withdrawn.

As a result only about 1,000 Polish red cows ('pure blood') managed to survive until the 1990s. There is now a serious threat of extinction to the whole breed. The main conflict has emerged between the productivist knowledge represented by the communist government and the farmers' knowledge which focused on the preservation of the traditional cow breed. Farmers' knowledge seemed to be supported by scientists who were focusing on the creation of a 'gene reserve bank'. There seems to be a deficit of knowledge in relation to the economic advantages of the Polish red cow; and this was needed to start the project of preserving the breed.

The project started in 2000, focusing on three main objectives: creation of a preservation herd with 750 cows; preservation of the gene bank reserve; and reconstruction of the traditional characteristics of the Polish red cow such as its capacity to adjust to difficult (mountain) natural conditions, high fertility rate, safe deliveries, high vitality of calves and high quality of milk. These objectives have informed evaluation of the breed's economic usefulness – a peculiar type of economic usefulness which is based, not on economy of scale but on a more sustainable economic measure. The approach has been implemented as a rationale for the whole project in its current phase.

The project is a good case to show the performance of a particular governance network. The main actors in it are the national and regional governments, research institutions, local community authorities, and farmers. The project exemplifies a unique combination of the scientific orientation of the research agency and the economic motivation expressed by farmers who recall their traditional knowledge in seeking a cow suitable for extensive farm practices. The National Research Institute of Animal Production (NRIAP) has been the national coordination centre of the whole project. It also uses some funds from the Ministry of Agriculture and Rural Development (the government agency is thus another part of the governance network). Special units called an advisory board and a working group play leading roles in the process of evaluating all activities under the project. The NRIAP has established close relations with farmers, many of whom have participated in its training courses. However, the NRIAP still lacks close contacts with unions of breeders that should be the main channels for passing scientific knowledge to farmers. The NRIAP also operates a kind of marketing policy, organizing cow exhibitions and sessions in cooperation with local government as well as leading local breeders.

All actors evaluate the interrelations as highly positive and cooperative. Local breeders stress that this time the idea of preserving the Polish red cow has not been 'sabotaged' by scientists and managers as it was in the 1980s when experts tried to force farmers to use chemicals and breeding techniques that met 'scientific criteria' but contradicted local natural conditions. We might interpret that experience as a conflict between two types of knowledge, resulting in an economic development process that led to the decline of cow breeding in the local community; an example, perhaps, of non-sustainable development.

in 2005 the project entered its third stage, now aiming to reach the level of 750 'pure blood' polish red cows. it focuses on both the development of already existing herds and the establishment of new ones in order to get more breeders involved. the re-introduction of the polish red cow in the area can be regarded as the re-invention of a particular local agricultural tradition. it also helps to prevent soil erosion and promote biotope preservation since it requires extensive grazing. the return of the red cow has also preserved the traditional mountain landscape, of which such cows have been perceived as an important element. the project has strengthened identification of the local area as a traditional 'motherland' for the cow, and helped to re-establish breeding activity among local farmers which was largely abandoned in previous decades. therefore one might argue that this project has resulted in important changes in all three dimensions of sustainability, namely: economic (increasing cow breeding), environmental (suiting the cow breed to particular natural conditions), and social (cooperation of various actors both local and non-local in order to strengthen the position of the whole community). and it seems to have had an impact on the 'whole' community, creating it as a kind of 'land of red cows' that results in agricultural exhibitions, cultural events connected to them, etc.

the second project, called 'integrated Fruit production' (iFp) has been based predominantly on the kind of local natural, social and economic resources that are found in another investigated community (*gmina* Raciechowice). the natural resources in this context mean the landscape, the soil and the local climate. Social resources refer to the strong tradition of fruit growing in the community; many fruit farms here are family enterprises passed down from one generation to the next. by economic resources we mean the relatively short distance to outlet markets in the Krakow agglomeration. the project of integrated fruit production was launched shortly after 1989. it was created by experts from two fruit production research centres, but a special effort was also made by local community authorities to support local fruit growers. integrated Fruit production is an example of 'ecological' fruit production, in which use of chemicals and pesticides is strictly regulated. all the produced fruits are tested for the presence of chemicals and pesticides; 'ecological' apples and blackberries cannot have any traces of chemicals and/or pesticides throughout the entire fruit.

The project also has its significant social dimension. Once we consider that the development of a group initiative can be treated as a form of social innovation, it is evident that the project under consideration contributes towards sustainability in this particular dimension. when the project was launched, fruit growers decided individually to participate in the initiative. eventually about 100 fruit growers joined and were trained by scientists from the research centres mentioned above. in 1997 a so-called 'producer group' was established. all the farmers who participated in the project had the opportunity to become members of this group, although not all decided to do so. the group became a collective actor and a collective representative of the whole fruit grower community in Raciechowice *gmina*, in its business with external actors. For example, it played a leading role in negotiations with the tesco retail corporation to sell apples from Raciechowice via

the t esco supermarket chain in Krakow and other places. it has also bought fruits from other producers in the area who meet integrated Fruit production regulations. according to the deputy head of the *gmina*, the motivation of fruit producers has been primarily economic. but they have understood that in this case the economic value of their fruits is based almost exclusively on ecological standards. as they say: 'If you want to get a good price for your apples you have to have the certificate that there are no chemicals and pesticides in or on them.' the main message they picked up – according to the deputy head of the *gmina*'s council – is that ecology matters in an economic sense and that protection of the natural environment might result in economic profits.

the other dimension of this relationship between ecology and economy seems to lie in a more rational and less intensive use of chemicals and pesticides in fruit production in the investigated community. This approach to fruit growing also fits with the strategy of 'ecological community' which was launched in Raciechowice in 1995. to support the initiative some members of the local council established an association called 'a ssoiation Raciechowice 2005'. however, this is not really a bottom-up initiative as the local inhabitants are not its main members. On the contrary, it has been local council officials and some regional activists who have formed the core of the 'a ssoiation Raciechowice 2005'. it should be treated rather as a kind of supporting network or even a lobby group that is trying – especially at the regional level – to access various financial resources to support the development of the community. nevertheless the emergence of this social component alongside the ecological and economic ones might be perceived as a sign of sustainable development in the investigated community.

this particular case might be treated as an example of a situation where a global retail chain has positively influenced both the local ecology and a local economy, as a part of a governance network containing external experts, local authorities, members of local associations, some ngo experts, and local fruit growers. however it was the local producers who played the key role in introducing the iFp project. the economic opportunity provided by te Sco , as well as support from community authorities, were just catalysts for the decision. the role of ngo experts from warsaw should also be stressed here, as they provided concrete solutions for the producer group (managerial knowledge) and in that sense enriched the exchange between the scientific knowledge brought by IFP experts and the local knowledge of fruit growing possessed by local growers. we would argue that this is a case where the functioning of the governance network, resulting in an inter-play between various types of knowledge, seems to be connected to the process of local sustainable development.

Discussion

We now draw some more general conclusions based on the cases briefly presented above. these conclusions might be treated as an initial step in verifying the

hypothesis about the connection between governance and rural sustainable development. As suggested above, governance seems to provide the opportunity for the emergence of sustainable development in particular communities, societies, areas, etc. Introduction of the notion of knowledge into the analysis allows us to investigate the organizational conditionings of the governance principle. Both cases above point to some key components of these relations.

The first (PRC) case from Jodłownik *gmina* contributes to the discussion of relations between various types of knowledge. As emphasized above, many farmers mention the valued local breeding tradition as one of the major reasons for them to join the PRC project. In general then, this is a situation where there is mutual dependency of tradition and project institutional framework. Both elements strengthen each other, giving rise to positive effects for domestic animal bio-diversity. These relations can be more deeply described if one analyses the dynamics of knowledge in the programme. We mentioned above that the whole initiative could not have been launched without the experience of several generations of cow breeders in Malopolska. In terms of knowledge this means that academics and experts used elements of traditional lay knowledge (knowledge from the past, currently forgotten to a large extent) to formulate a strategy for the PRC preservation. The project that is a practical implementation of that strategy is based mainly on scientific and managerial knowledge. Its aim, however, is to influence current local lay knowledge so that it can support the re-introduction of Polish red cows in the area. The pattern of knowledge use is illustrated in the following scheme:

In the 'circle of knowledge' (see Figure 10.1), elements of local lay knowledge are processed by the managerial and scientific knowledge to be then fed back into local lay knowledge. Therefore, we would argue that the 'circle of knowledge' seems to be something more than a simple inter-play and/or interaction between various types of knowledge. What is important: these elements of indigenous knowledge have chosen to be influenced by external factors because they became marginalized. There are many reasons for that marginalization. In many cases it results from the change of economic or cultural conditions. The knowledge of 'old' generation becomes perceived as backward or not suitable for current economic conditions. The process of 'knowledge transformation' is triggered when the value of such neglected elements of local knowledge is recognized by some social actors

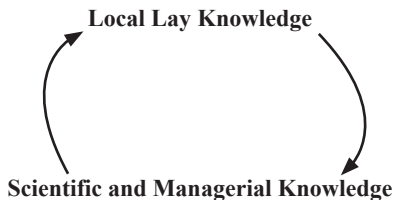


Figure 10.1 Circle of knowledge

who decide to promote this 'know-how' in particular projects. This phenomenon can be easily traced in the initiative of pRc .

The Raciechowice *gmina* (iFp) project contributes to our discussion by stressing other aspects of relations between governance and sustainable development. A major problem, as we might theorize based on our investigation, seems to lie in the lack of coherence among various types of knowledge carried out by various types of actors involved in the projects under consideration. The idea of sustainable resource management seems to be quite openly present in the scientific knowledge (for example, scientists involved in the integrated fruit production project) and in administrative/managerial knowledge carried out by regional authorities. On the *gmina* level, some elements of this concept are present, but many activities, however, are undertaken rather intuitively and somewhat incidentally. In turn, the local knowledge (of local fruit growers) seems to be dominated by the pressure of economic rationality. If environmentally friendly economic activities do not require great investments or actually bring profits (or savings) they are widely accepted by local inhabitants. This might be explained by the difficult economic conditions of the local population. As people struggle to secure income to satisfy their basic needs, even relatively small expenses for ecological benefits can become an obstacle impossible to overcome. The rural community in transition is more concerned with surviving until next month than with long-term gains for the environment. In contrast, scientific and administrative/managerial knowledge has been based on long-term rationality. The idea of protecting the natural environment (the ecological dimension of sustainability) has not yet been fully recognized as a profitable strategy in the system of local/lay knowledge. And even if it was recognized by some inhabitants, the lack of economic resources has still been the key factor in preventing the accomplishment of ecological initiatives. Therefore, the economy seems to be the strongest barrier to the idea of a complex sustainable resource management in the investigated *gmina*.

The two cases above are also examples of various governance practices. In each case the particular policy has been formulated in the process of cooperation among various actors. But only in the pRc case can the result be treated as an example of sustainable development because of at least, two characteristics: (1) it connected the issue of economy with that of environment, (2) it has had an impact on the whole community. Then the question arises: what has been behind this 'success'? We would argue that the key explanation here lies in the complete character of the governance network that has been in charge of the formulation and, what seems to be even more important, implementation of the project. In a particular way, one might observe here different types of actors responsible for all three dimensions of sustainability.

In turn, the outcome of the iFp project might be perceived as more ambivalent. What is the nature of this ambivalence? In our opinion, it seems to lie in the character of the actor (a member of this particular governance network) responsible for the economic side of the project. The transnational corporation (tesco) plays the role of the 'economic' actor in the whole network. The ambivalence here means that

the economic growth has an impact only on selected individuals (member of the producer group) and not yet on the whole community. there is still a chance that the economic success of selected fruit producers might contribute to the well-being of the whole community. but it requires either a new actor in the network or, at least, a change of perspective by the producer group that would involve introducing new community-oriented initiatives.

the detailed evaluation of these case studies suggests an important general finding for the discussion on the link between governance and sustainable development. although the assumption that governance is a precondition of the latter seems to be quite convincing, it is more difficult to grasp at the level of practices. the emergence of the network of actors responsible for formulation and implementation of particular projects does not lead directly to the emergence of sustainability in the particular social milieu. however, the introduction of the notion of knowledge into the analysis is an efficient way of investigating the application of the governance principle. as the case studies showed, the projects using the three different types of knowledge can contribute to sustainable development in the long term. the role of local knowledge seems to be crucial in this context. only when local knowledge is taken into account during the planning and implementation of the development initiatives concerning rural areas can one talk about the real implementation of the governance model. the key issue lies in a particular configuration of the network that has to provide the actors involved in all three aspects of sustainable development.

Conclusion

Discourse on sustainable development can be observed in poland at various levels of policy formation and implementation. in this chapter we tried to present some key aspects of such a discourse based on selected documents prepared by national as well as regional agencies. at a national level the concept of sustainable development has been recognized and defined in the context of the improvement of living and labour standards, environmental issues as well the strengthening of the social and cultural functions of rural areas. in such a normative perspective this concept seems to be under the influence of the 'European model'. On the other hand, such a perspective has been used by us as a scheme to evaluate two explorative cases. Interestingly, in the document prepared by Małopolska regional authorities the concept of sustainable development seems to be connected more with economic issues perceived mostly as innovative and competitive enterprise. Social and environmental aspects have been mentioned in this particular document but with no direct connection to the issue of sustainability. we would argue that such a difference might result from slightly different profiles of both types of discourse, i.e. more 'normative' at the national level and more 'operational' at the regional one.

in local discourses the concept of sustainable development seems to be used with its economic bias. However, as the case studies have shown, environmental as well as social issues have also been evident. In that sense we would state that the national and regional documents might be treated as guidance for local initiatives and projects. In both cases the initiatives have been in fact formulated by networks including local people (cow breeders, fruit growers), local authorities (members of local councils), various types of experts with rather minor or even no direct involvement of regional and national agencies. Such a network seems to have a crucial role in the process of forming what we called 'the circle of knowledge' which seems to be an important pre-condition for sustainable development evaluated with the use of normative characteristics present mostly in national discourse (documents). In both cases, however, the issue of environment has played a particular role but as an important pre-condition for economic success. The re-introduction of red cows has had a significant impact on the community's economic life and therefore on its sustainable development. Integrated fruit production as a part of 'ecological community' strategy has had an impact on the community's economic life, especially for a particular group of fruit growers. It has potentially contributed to the community's sustainable development but only insofar as it includes other members of the community as well. However, despite the differences between the two case studies we would argue that an environment might be a real and/or, at least, potential contribution to sustainability in the context of economy. It has to be somehow framed in the economic activity of local people in order to ensure sustainable development of their communities.

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portugal: natural Resources, Sustainability and Rural Development

Isabel Rodrigo and José Ferragolo da Veiga

Introduction

This chapter has two main goals. The first is to discuss and illustrate the importance of institutional arrangements in sustainable natural resource management, and how they may influence, and contribute to, the rural development process. The second is to investigate how the concept of sustainability and sustainable rural development is differently understood and appropriated by different types of actors.

In order to fulfil these goals the Castro Verde Zonal Plan will be used as a case study.¹ in operation since 1995 on behalf of the Environmental Regulation 2078/92, it is the first and, until 2007, the only Zonal Plan implemented in Portugal.

The chapter is divided into five sections. The first provides a brief portrait of the agricultural and rural specificities of the study area context and describes its main socio-economic characteristics. in the second section, the Zonal plan is introduced. in the third, the main characteristics and dynamics of the Zonal plan institutional arrangements are analysed. a discussion of different understandings of sustainability and sustainable rural development follows in the next section. Finally, a brief conclusion ends the chapter.

Contextualizing the Study Area

the Castro Verde Zonal plan is located in the Baixo Alentejo (nut S iii), a sub-region of a large geographical area: the Alentejo region (nut S ii). this section begins with a short description of the main characteristics of Alentejo agricultural and rural society, followed by the main characteristics of the study area.

Agriculture and Farming Systems

Alentejo agrarian structure and farming systems are still marked by the heritage of the 'latifúndia' system that prevailed until the end of the dictatorial corporative

¹ Portugal has three nut S i: Portugal mainland, Região Autónoma dos Açores and Região Autónoma da Madeira. this chapter refers to the Portugal mainland nut S i.

regime in 1974 and the subsequent short period of agrarian reform followed by a counter land reform. However, in spite of some structural changes in land ownership, resulting from land reform and the new dynamics introduced by European integration in 1986, large estates still predominate. Land owners tend to show risk-averse behaviour and look for land rent maximization. Extensive farming systems, relying on wage labour, are the norm, and a few Alentejo landowners have benefited most from the CAP funds. In particular, during the CAP reform period 1992–1999, a great number of the largest Alentejo landowners started to take advantage of CAP direct aid,² maximizing the profits from land provided by the legal rights of land ownership.³

The great dependency of Alentejo agriculture on CAP direct aid has had negative consequences for rural development in the region. Preventing changes in regional farming systems and totally dependent on CAP subsidies (Avelaz 1997, 2006), the strategy to stimulate agricultural economic activity has turned such holdings into an obstacle to rural development (Veiga 2006).⁴

Although CAP direct payments have been conceived as a contribution to raise the income of rural areas, in Portugal this goal has been short-circuited because landowners, particularly the largest ones, are not rural residents. The social structure associated with the 'latifundia', responsible in the past for preventing regional industrialization and economic development, is currently supported by CAP direct aid, and continues to inhibit the emergence of a dynamic rural society.⁵

Rural Society

The political democratization process brought new dynamics into rural social and political functioning. Landlords lost their social status and power, closely tied to landownership, and rural people became local and regionally ruled by democratically elected councils and other public institutions (Rodrigo and Moreira 2001).

Despite these significant political changes, the heritage of dictatorship, along with an ageing rural society, explain, to a large extent, the weakness of the rural

2 In 1998, more than 40 per cent of the total agricultural subsidies in Portugal were direct payments (Baptista 2001, 52).

3 In Portugal mainland, from March 2005 until February 2006, around 10 per cent of the total holders who received direct aid were located in Alentejo. These beneficiaries received 37 per cent of the total direct aid financial amount. To note the unequal distribution of direct payments among producers within that region: 5 per cent of the total number of beneficiaries was distributed in the size-class of aid equal or more than €50,000, who reimbursed almost 65 per cent of the total financial amount (Rolo 2006). For further details on the unequal distribution of beneficiaries and direct payments in Portugal see European Commission (2006).

4 Similar trends are identified in Andalusia, Spain (Ceña 1996, Arnalte 2002; Moreno, Muñoz and Ortiz 2004).

5 Arnalte (2002, 57) describes a similar scenario for the south of Spain.

institutional framework and capacity-building networks. The traditional absence of a participative culture also makes individual and collective initiatives very scarce and difficult to build up. Finally, the small scale of many rural territories does not allow the social fabric to appropriate new economic knowledge and/or technological developments. The rural demographic and socio-economic characteristics described here are incompatible with the innovative and skilled 'rural entrepreneur' (Moreira and Caldas 2000) – that is, with the social profile associated with the diversification of agricultural functions, which is one of the key features of the EU northern rural development model. In other words, Portuguese rural society does not have the 'conditions' required to support the development of the major trends shaping the EU northern ruralities.⁶

Currently within the rural territories there is plenty of space out of use, awaiting a range of public and private uses based on environmental, recreational, tourism, and patrimonial and cultural countryside heritage activities. Nevertheless, domestic urban demand for them – the other key feature of the EU northern rural development model – is still very low.⁷ The low GDP per inhabitant,⁸ the historically recent de-agriculturalization process, and the southern dominant cultural values and rural images would suggest an incipient market-driven domestic urban demand for the rural. In fact, what exists is a rural non-market demand. Holidays spent with relatives or friends living in the countryside and still cultivating a small plot of land, or the foodstuffs produced by parents or grandparents and consumed by urban dwellers, illustrate the proximity of the urban with the rural. These aspects also contribute to sustaining an urban 'rural nostalgia'.

The delay in converting the 'agricultural [productive] rural to the green rural' (Jollivet 1997) is also rooted in southern rural social representations. In contrast to northern ones, rural nature, landscape and aesthetic beauty do not belong to southern dominant cultural values and rural images (Hoggart, Buller and Black 1995, 102–9). These images, which are closely connected with the 'rural conservative' negative label exalted by the political dictatorship regimes (Lacalle and Ranz 1997, Mansinho and Schmidt 1997), are only beginning to disappear. As Hoggart, Buller and Black (1995, 103) remind us, 'at the time when northern European nations were embracing a more consumption-based idea of "the rural",

6 namely, the 'conditions' underlying the 'rural restructuring theory' (Marsden, Banks and Bristow 2000; Murdoch et al. 2003), and the 'sustainable rural development model' (Marsden 1999, 2003; Marsden, Banks and Bristow 2000; Marsden and Smith 2005) – both mirroring British rural dynamics and the so-called 'rural development new paradigm' – rooted upon agricultural multi-functionality and describing Dutch agricultural and rural trends (Ploeg 2003, Ploeg and Roep 2003).

7 a scenario shared by other southern ruralities (Molinero 1999, Beopoulos and Damianakos 1997; Pérez-Yruela et al. 2000, Sumpsi 2000, Hoggart and Paniagua 2001, 2001a; Kasimis and Papadopoulos 2001; Rodrigo 2003; Reig 2006).

8 in Portugal, Spain and Greece the GDP per inhabitant in purchasing power parity (PPP) (EU 15 = 100) was, respectively, 66, 90 and 78, in 2005 (Eurostat, <http://epp.eurostat.ec.europa.eu> – 15 June 2007).

greece, portugal and Spain were experiencing socio-political isolation as a result of their rule by authoritarian regimes’.

nevertheless, there is evidence that some southern rural territories are displaying ‘northern trends’, although this change is mainly intended to attract non-domestic demand. the study area is illustrative of this scenario.

The Baixo Alentejo

this mainland sub-region records the lowest population density (15.9/110.96 inhab./km², 2001) in portugal; the resident population is aged and economically very dependent upon state pensions. in addition to these demographic characteristics, the per capita purchasing power index is one of the lowest (64 per cent) and the unemployment rate one of the highest in the country (11.5 per cent in 2001).

mining and farming are the traditional economic activities. however, nature, bio-diversity and landscape are other regional/local natural resources that have more recently been providing environmental services. a brief comment on these activities helps to highlight the individuality of the case-study locality.

mining activity brings local environmental pollution and degradation of natural resources.⁹ however, given the baixo alentejo’s negative demographic and economic trends, that activity represents an important local employment source, since farming activity is declining in the sub-region.

The wide plains and climate characteristics – Mediterranean coupled with continental influences (Ribeiro 1991) – along with extremely shallow schist soils shape the main landscape features of baixo alentejo. climate and soil conditions have configured the dominant farming systems practised in the sub-region, along with the agro-silvo-pastoral system, known as *montado*,¹⁰ a typical example of high nature value farmland (eea 2004).

on the outskirts of towns and villages there are areas with permanent crops (olive groves, vineyards and orchards) and vegetables. Responding to cap policies, the area of intensive and irrigated olive groves and vineyards has been extended into what were once cereal fields. Livestock rearing has undergone considerable change. market trends and the way in which cap policies were implemented in portugal have led to a sharp decline of goats, a rapid increase, subsequently stabilized, of sheep, and a continuous increase of bovines. more recently, the number of open-air autochthonous pig producers has been growing.

⁹ these comments refer to the neves corvo mine, located in the municipality of castro verde, since the other mines located in baixo alentejo are inoperative nowadays.

¹⁰ a *montado* is a human-made agro-forestry-pastoral ecosystem adjusted to local climate that consists of scattered tree cover dominated by cork-oak (*Quercus suber*) and holm-oak (*Quercus Ilex spp rotundifoliae*), with pastures and agricultural fields usually in a rotation scheme that includes fallow. Shrubs sprout frequently and are either cleared out or artificially kept at low densities (Pereira and Fonseca 2003, 3).

From the 1990s on, the nature, landscape and bio-diversity of the sub-region have been attracting the attention of national and regional public administrations. Those natural resources closely dependent on the traditional farming systems are giving rise to semi-natural habitats, areas and sites of high natural value recently designated on the basis of the Natura 2000 network.¹¹ The Guadiana valley national park is another regional area of high natural and environmental value.

The socio-economic and rural development of the sub-region is currently based on two major axes: (1) rising demand, mainly from northern European countries, for high-quality ecological and environmental tourism and leisure services, and (2) the recently constructed Alqueva dam. On one hand, the field irrigation it makes possible is supposed to push local farmers to invest and adopt high market value crops. On the other hand, the natural amenities bordering the dam's water catchments will contribute to promoting high-quality tourism.

This is providing a new opportunity for investment, currently attracting national and foreign capital. According to forecasts, tourism may bring to the sub-region, by 2015, around 100,000 residents, temporary and permanent (Dias 2006). The two main issues raise questions, however, about tourism's contribution to improved regional socio-economic and rural development. On one hand, large touristic investments are mainly financed by non-local capital, and on the other, regional human resources do not have the required school qualifications and tourism skills to meet such important challenges (Dias 2006, 2006a).

The Castro Verde Zonal Plan: Historical Background, Knowledge Systems and the Building of Institutional Arrangements

The Castro Verde Zonal Plan (CVZP) was legally defined in 1995. It occupies a total area of 64,000 ha, partially integrated into the Castro Verde Core Natural Biotope.¹² The protection of one of three distinct landscapes of Baixo Alentejo – the so-called 'campo de ourique' or 'campo branco' (Girão 1933), also known as the 'cereal Steppe'¹³ – and its connected bio-diversity are the major Zonal Plan goals. Despite the geographical extension of the campo branco landscape into the south Baixo Alentejo, its largest area is located within the Castro Verde municipality borders (eRena 1998, 25).

The relative weight of family farming is higher in the municipality than in the sub-region (nut S iii). According to the last agricultural census (1999), family

11 Namely, three Special protection areas: 'vale do Guadiana', 'Castro Verde' and 'moura/mourão/barrancos'; and two Special areas of conservation: 'Guadiana' and 'moura/barrancos' (ICN 2006).

12 This site occupies a total area of 80,000 ha.

13 This agricultural ecosystem, also called 'pseudosteppe', occupies a large area in Spain, partly included in a 'steppeland cereal-growing agri-environmental programme', located in Castilla y León (Paniagua 2001).

farming and capitalist farming occupied, respectively, 55 per cent and 26 per cent of the total agricultural area in use (uaa) in the municipality, and 45 per cent and 35 per cent in the nutrient. The campo branco agrarian structure is dominated by medium (100 ha–200 ha) and large (>200 ha) holdings (ERENA 1998, 26). The total UAA occupied by family holdings and its UAA average – around 112 ha (INE 1999) – suggest that family farmers predominate in the CVZP.

Agriculture and livestock, in particular flocks of sheep and goats, have been for a long time the main, or even only, campo branco economic activities. Due to the low soil fertility, agriculture was traditionally carried out through extensive farming systems – a seven-year rotation based on cereal crops (wheat and oat or barley). The local traditional rotation included two years of cereals and five years of fallow. Some dispersed holm-oak trees complement the campo branco landscape.

The ‘cereal Steppe’ shelters a dry grassland habitat and bird population which is unique in the country. Amongst the various bird species, the great bustard (*Otis tarda*) and the lesser kestrel (*Falco naumanni*) are the two most relevant. There are also other endangered bird species: the little bustard (*Otis tetrax*), crane (*Megalornis grou*), and the montagu’s harrier (*Circus pyargus*).

Since the 1960s this habitat has suffered the consequences of the agricultural modernization process and of some incentives provided by cap policies. In this process the rotation period was shortened from seven to five, even to three years. This meant a more intensive land use since the fallow period was reduced, and wheat was cultivated more frequently in the same land plot.¹⁴ These changes in the traditional farming system, along with hunting of the great bustard, which at that time was not a protected bird species, led to degradation of the local habitat and a sharp drop in its bird population.¹⁵

During the first years of the democratic transition period, many of the largest landowners sold their estates. Fear that landless workers might occupy and start managing the ‘latifundia’ on a collective basis explains their decisions. The landlords’ great urgency to sell their estates led to a significant drop in land prices. In the castro verde municipality the cellulose industry took advantage of this historical context, and acquired some land in order to plant rapid-growth timber species, eucalyptuses in particular. Concerns¹⁶ about this situation led to the construction of two institutional arrangements in the local sustainable resource

14 Similar trends were recorded in the ‘pseudosteppe’ agricultural ecosystems located in inner Spanish regions (Reig 2006).

15 As the chairman of the ‘associação de agricultores do campo branco’ commented, ‘during the 1930s “abetardas” [great bustard] were very common in the region. I still remember watching them, very close to the houses in a farm nearby, when they were feeding along with the turkeys! However, since then its population began to decrease, and this bird species, that is locally endemic, has been at risk of becoming extinct.’

16 ‘You see, if they occupy land with eucalyptuses, the traditional campo branco landscape will disappear forever. In fact, this landscape is not forested; it has only a few

management system that made a decisive contribution to the take-off of the Zonal plan.¹⁷

One of these was driven by expert technical and scientific knowledges, and by non-local actors: the national administration (ministry of environment, institute for nature's conservation and ministry of agriculture), regional administration (municipality council), and the national environmental ngo *Liga para a protecção da natureza (lpn)*.¹⁸ The other was driven by lay, traditional and local knowledges and by local farmers themselves, led by the *associação de agricultores do campo branco (aacb)*. constituted at the local level in 1989, it has progressively extended its services beyond the *castro verde* municipality, where the association's head office is located. Currently, it is a regional farmers association.

Several characteristics of these two institutional arrangements and the patterns of relations among and between them have contributed to the success of the Zonal plan performance. Firstly, the institutional arrangements contain between them all the crucial actors needed to construct and manage the Zonal plan.

Secondly, they have also created conditions that ensure these actors can apply and share their own specific knowledges. Following Long (2001, 189), 'knowledge is constituted by the ways in which people categorize, code, process and impute meaning to their experiences. This is as true of "scientific" as it is of "non-scientific" forms of knowledge.' Two main knowledge systems, carried by different types of actors, support the Zonal Plan management: scientific/technical, and local/traditional/lay. The former knowledge system corresponds to that which, 'until recently, was held to be not just a different, and not just a better, but the best and the only consistent way of producing reliable knowledge of the world' (Kloppenburg 1991, 529). Despite its advantages, the 'cartesian reductionism' it applies involves 'a loss of context (social and political as well as physical and biological) which encourages a hierarchical and linear rather than an interactive and ecological view of nature' (Kloppenburg 1991, 530). The other knowledge system involved in the Zonal plan management 'is *local* in the sense that it is derived from the direct experience of a labour process which is itself shaped and delimited by the distinctive characteristics of a particular place with a unique social and physical environment' (Kloppenburg 1991, 528). The equality accorded to the two knowledge systems, through the ongoing Zonal plan institutional arrangements, has allowed them to overcome their own limitations. In other words, the Zonal Plan may be taken as illustrative of an actor-knowledge oriented approach, where none of the actors or knowledge systems has submitted to the other.

and dispersed holm-oak trees where sheep, goats and cows seek their shelter' (aacb chairman).

¹⁷ Institutional arrangements are here understood in a broad sense as 'the rules created by people to manage their resources' (Tomson and Freudenberger 1997, 3).

¹⁸ Founded in 1948, LPN is the first Portuguese environmental NGO.

Thirdly, each of the types of actors involved has been able to attain their own goals and interests, even where these do not all coincide. Through the Zonal plan for (sustainable) natural resource management, the municipality works on the ecological/environmental dimension embraced by the sustainability concept, the municipality the social one, and farmers the economic one. In other words, local and non-local actors are practising together, through the Zonal plan management, a sustainable approach to natural resource management; yet, with the exception of the municipality, such an approach has not been rationalized by the actors involved, nor has sustainability been included in the Zonal plan agenda or discussed between the actors.

As the literature illustrates, sustainability is a concept full of ambiguity, far from reaching a consensus, either political or scientific, and difficult to operationalize. It has the merit of trying to reconcile the economic and social dimensions of human life with the environmental one. This case study illustrates that, in spite of the difficulties, it is possible 'to practise' the concept's content and goals. This does not mean that we are assuming that such types of experiences are easy to build and/or to manage, as the present case study illustrates. Firstly, it is a unique experience in Portugal. Secondly, it is located in a geographical context characterized by particular recent historical events and local municipality political decisions which, to a large extent, have facilitated the construction of the Zonal plan. Finally, sustainable management of the Zonal natural resources requires few changes to farming practices.

Last but not least, farmers continue to fulfil their traditional social role, i.e. production: one of the most important dimensions that constitutes farmers' social identity. As recent research, carried out in contexts where the environmental role of agriculture is (apparently) stronger than in Portugal (Billaud et al. 1997, Billaud and Pinto 1999), illustrates, there is still a resistance among farmers to embracing and identifying themselves as environmental services providers (Walford 2003, Burton 2004, Burton and Wilson 2006): 'despite the implementation of numerous measures to try and encourage farmers away from traditional "productivist" roles, these policies often met with limited success ... and, even where the schemes were successful, uptake was often limited to particular types of farmers ... or invoked little change to farm management practices' (Burton 2004, 196).

Sustainable Resource Management: An Empirical Experience

The main characteristics and dynamics of the institutional arrangements underpinning the constitution and management of the Zonal plan are described and commented on below.

The Expert-Driven Institutional Arrangements

In 1993, the Castro Verde CORINE Biotope was defined by the Institute for Nature Conservation and the Ministry of Environment. In the same year, the Castro Verde

municipal plan was approved. These are the relevant institutional frameworks guiding land-use management and special planning, whose definition, approval and implementation are the responsibility of each municipality.

Under municipal plan guidelines, the planting of rapid-growth timber species was forbidden in two-thirds of the municipality's total area. Instead, the plan gave priority to the campo branco landscape protection. The restriction on eucalyptus plantations was welcomed locally. The (irrational) antipathy to that timber species contributed to the strong local support for this municipality decision. Since water is a very scarce regional natural resource, and the long roots of eucalyptus are identified by the Portuguese, in general, as responsible for exhausting subterranean water supplies, it is understandable that the population easily adhered to the guidelines. However, bearing in mind that the majority of the municipalities, when defining Municipal Plans, prioritize economic development that, by and large, they associate with urbanization, independently of, or at the expense of, local natural resources, the *castro verde* municipal approach is very uncommon in Portugal. It not only defined environmental priorities but, above all, followed them strictly.

Facing municipal restrictions, and given the poor experience with rapid-growth plantations in a *lentejo*, the cellulose industry sold its previously acquired farmland in the area to the LNP. Acquisition of the farmland was financed by the EU LIFE programme, and on that basis the LPN has been managing, since 1993, the *castro verde*'s Special protection area for birds programme, with a total area of 1,650 ha.

The programme includes several types of actions, all of them aiming for similar purposes: bio-diversity conservation, the preservation of that unique dry grassland habitat and its bird population, and environmental sustainability. As soon as we bought the farmland we made a deal with some farmers in order to put into practice the traditional extensive farming systems, and abolish fertilizers and pesticides. We also rebuilt many small-sized water supplies and river courses, and constructed patrimony in the habitat conservation's perspective (LPN).

LPN had been doing research in the region long before this. It 'promotes environmental protection within economic development, and the sustainable management of natural resources'.¹⁹ In other words, either the research projects or the educational/demonstration programmes carried out by that environmental NGO are concerned with sustainable development, rather than just environmental conservation. That is, LPN objectives focus on natural resource management which enables sustainable livelihoods for their immediate users and for society.

This approach to the sustainable resource management issue contrasts with the so-called conservationist or environmental one, whose concerns are limited to how to preserve a resource and its availability for future generations. As Mooney and Tovey (2006, 3) note, although these two approaches are not exclusive, nor necessarily in conflict, 'the distinction led to two different research questions: how

19 *Liberne* (2004), manifesto da LPN pela educação ambiental, LPN, n.º 81, p. 18.

can resources be managed to ensure conservation of nature, and how can natural resources be managed to ensure economic and social development?.

The Stakeholders-Driven Institutional Arrangements

in 1992, local farmers were faced with the eec Regulation 2080/92 on afforestation of agricultural land. according to the aacb :

Farmers had to look for a solution. while in the castro verde's neighbouring municipalities, holders could afforest agricultural land, here they were not allowed to do so. Thus, it became clear that we had to find a mechanism that might complement the castro verde farmers' income. we tried to create a Zonal plan in the area in order to preserve the environment, on the basis of good farming practices, traditional farming systems and also the recovery of traditional livestock and land management. but at the same time, castro verde farmers should benefit from some extra income, as a result of those changes (aacb chairman).

Developing research in the area, lpin took advantage of this scenario and reinforced its contacts with local farmers. in 1992 the aacb , supported by lpin technical and scientific knowledges, defined the Zonal Plan borders.

we have always had a good relationship with lpin . the municipality council and the ministry of agriculture supported the idea of the Zonal plan. later on, almost at the end of the process [1992], the institute for nature conservation and the ministry of environment also intervened. the Farmers association also directly negotiated with the ministry of agriculture all the commitments and rules that should be followed by the farmers who would join the cv Zp. in 1995, the Zonal plan turned into an agro-environmental Scheme. we were very criticized by farmers from other places. they used to accuse us of protecting environment instead of agriculture! (aacb chairman)

Since 1992, the Farmers association has conducted environmental sensitization meetings in all parishes of the castro verde municipality, with farmers and non-farmers, and also advertising campaigns about the benefits to farmers of adhering to the Zonal plan. From 1995, in particular, the aacb has extended its area of influence to other municipalities near Castro Verde. In 2006, the Farmers association had 900 associates. of these, around 100 had by then joined the cv agro-environmental Scheme.

The CVZP and the Portuguese Agri-Environmental Policy

Following EEC Regulation 2078/92 Portugal developed its first Agri-Environmental programme. in addition to several horizontal measures, seven Zonal plans were drawn

up of these, only the *castro verde* Scheme was implemented. its legal framework defined the environmental commitments that farmers with an agri-environmental contract (valid for five years) under the Zonal Plan must observe; the amount of financial aid; and the agri-environmental contracts possible, i.e. on an individual or collective basis. in order to favour collective contracts (farming collectively individual holdings with coinciding limits), the collective agri-environmental premium was higher than the individual one. however, up to 2006 no collective contract had been signed. the individualism that characterizes farmers' cultural framework and the importance attributed to land property underlie this situation.

The Zonal Plan legal framework also defined its management and monitoring bodies: a local support structure responsible for yearly Zonal plan management and supervision, and a follow-up board in charge of monitoring and assessing its environmental impacts. From the beginning the *aacb* has had a place on both bodies, in which several national and regional public institutions are also represented.

in 1995, when the Zonal plan agri-environmental Scheme began, 113 farmers applied for admission. of these, 67 applications were approved.

the Zonal plan aid was not bad [low]. however, we faced other farmers nearby, who had adhered to the agricultural land and afforestation Regulation, and we found that it was not a fair situation for us. they received much more eu aid than we did. in addition, farmers who have adhered to the Zonal plan were providing an important service to the entire community and they were not. thus, we had to be compensated. in 1997 we succeeded in balancing the level of eu aid (*aacb* chairman).

During the mid-term assessment of the national agri-environmental programme in 1998 the legal framework was reformulated in order to increase the number of applicants and hence the total area managed for nature conservation purposes, and to respond to farmers' pressure on the premium levels. Following the changes, the total area under contract in the Zonal Plan increased significantly (Table 11.1).

Later, under the Second Portuguese Agri-Environmental Programme (2000–2006), the Zonal plan content was altered again. the environmental commitments became more complex and restrictive, and the premium levels were reduced, compared with the new environmental constraints imposed. as a consequence, the number of applicants and the total area farmed within the Zonal plan decreased drastically (table 11.1). this had important consequences in terms of negative environmental impacts. as the *lpn* pointed out, 'although producing real conservation benefits, the support attributed to this scheme was reduced in 2000. currently, either the eu afforestation or some other cap First pillar incentives are more attractive. thus, the *cv Zp* is at risk of failing its objectives due to poor policy decisions!'

to oppose this scenario, two other legal frameworks were later published: in 2003 and 2005. In the latter, the premium levels previously defined were adjusted to

Table 11.1 Castro verde's Zonal Plan total area: Evolution by year

	Total Area under Contract (ha)	Zonal Plan Total Area (50,000 ha)/ Total Area under Contract (%)	Applicants (n o.)
1995	16,300	33	67
1996	19,000	38	85
1997	22,500	45	101
1998	29,800	60	145
1999	30,500	61	159
2000	29,500	59	145
2001	25,900	52	111
2002	26,000	50	121
2003	15,500	31	90
2004	16,000	32	80
2005	17,800*	36	(?)

* t his area may be larger.

Source: aacb .

a level similar to that defined in 1998. However, among the farmers enrolled within the cv Zp and surveyed in 2003, 52 per cent still recognized that afforestation aid was more attractive (ce Fag , e Rena and ci Dec 2003, 118).

t he attractiveness to farmers of agri-environmental aid, compared with that in the cap First pillar, is an important issue in portugal. Due to the meagreness of the national budget, the co-financed policies tend to provide lower incentives.²⁰ in addition, the maintenance of the 'c ereal Steppe', as with many other extensive agricultural ecosystems, faces another huge challenge. w ith the dismantling of the CAP support system, intensification pressures may increase in the more productive cereal areas, and marginal land become subject to abandonment or afforestation. in both cases the nature, bio-diversity and landscape of the b aixo a lentejo will be jeopardized.²¹

Finally, it is important to note that the cv Zp is the only agri-environmental measure in portugal that has been monitored on the basis of environmental criteria and methodologies. a cording to the environmental assessment reports, Zonal plan impacts on nature, bio-diversity and endangered bird species protection have been of particular importance (e Rena 1999; ce Fag , e Rena and ci Dec 2003); they confirm the ecological/environmental sustainability approach supported by the cv Zp. t his is relevant as the environmental assessment of overall eu agri-

20 t he existence of 'rich' and 'poor' national budgets led to discrepancies in the agri-environmental premium levels received by eu northern and southern farmers, respectively, facing similar environmental constraints (e uropean c ommission, vi /7655/98, part v : 60).

21 The consequences of the mid-term CAP reform in the Castilla y León 'Steppeland Tierra de Campos' (Spain), were assessed by Atance Muñiz and Bardají Azcárate (2004).

environmental policy has been criticized as being viewed in Portugal, either by administration or farmers, as essentially an income source that might contribute to inhibiting agricultural and rural exodus (Rodrigo 2003).

Castro Verde Zonal Plan versus Sustainability Mainstream Approach

Sustainability and sustainable development are very recent issues in Portuguese national political agendas and debates. Their inclusion in policy goals – as, for example, in the very recent (2005) Sustainable Development National Strategy – is understood to mean the fulfilment of international requirements and/or EU Directives or Regulations. The issues tend to be viewed by Portuguese public administration as requirements that Portugal has to adopt (more than to adapt), in a broad sense, and to include in official discourses and reports, more than to turn into praxis. In this scenario the mainstream Portuguese sustainability approach ignores, or neglects, the concept's distinctive essence: to 'practise' development in a way that brings together the economic, environmental and social dimensions. Since this approach to development needs to penetrate into the local, one may say that the mainstream Portuguese sustainability approach is applied as a 'top-down' process.

The locally disconnected constitution and functioning of many natural Parks – for example, the Guadiana Valley Natural Park (Rodrigo 2005) and the Montesinho and Serra da Freita Natural Park (Figueiredo 2003) – are tied to expert technical and scientific knowledges whose rules and norms are 'exported' to the local level, illustrating the comments above. Adopting a conservationist perspective, these approaches are limited to environmental resource management and ignore economic and social dimensions. In practical terms, they submit the 'rural (local) residents' interests' to the 'urban (non-local) visitor interests', and the rural becomes a place of 'preserved environmental quality' rather than a 'lived locality'. These approaches contrast with that applied by the CV ZP.

Although the Zonal Plan was rooted in a 'top-down' approach (the definition of the Castro Verde Core Biotope), this political decision was quickly embraced by the municipality and local farmers, who started searching for opportunities to take, respectively, social and economic advantages of it. In addition, although relying upon expert technical and scientific knowledges (the definition of the Core Biotope), there have been fruitful links between these and the local lay and traditional knowledge forms. The latter have not only been adopted in the overall Zonal plan constitution and management processes, but have been socially valued as well. Otherwise, the local rural actors (farmers) would neither appropriate nor run the process.

In fact, farmer participation in the process started with their contribution to defining the boundaries of the Zonal Plan and continued by practising farming systems and livestock management rooted in traditional lay knowledge with which they were acquainted. Finally, Zonal plan stakeholders, supported by traditional lay knowledge, consult annually and define the temporal schedule of seeding and harvesting, in order to respect nesting dates.

These aspects have been reinforced by another, namely the strong connection which has developed between the national, regional and local scales, where the latter has been neither minimized nor marginalized. For example, when the premium levels dropped, the farmers enrolled in the scheme, the Farmers Association, the municipality and the Ipn joined efforts to force the ministry of agriculture to change that situation.

In conclusion, in the Zonal plan, lay and traditional knowledges play as crucial roles as expert technical and scientific ones do. They are the bridge between national, regional and local actors and scales.

Sustainability and Sustainable Rural Development: Different Meanings

Despite the difficulties of agreeing on a common operational understanding of what sustainability means, the Zonal plan case study illustrates its different meanings and appropriations. Although sustainability and sustainable development, as such, were never discussed or negotiated by farmers or by other actors involved (directly and indirectly) in the overall process, and stakeholders neither discussed nor differentiated between social, economic and environmental sustainability, both notions have been underlying and guiding individual and collective decision-making. The different meanings attributed by different actors depend on their main purposes.

To the farmers enrolled in the Zonal plan, sustainable rural development means economic sustainability. In fact, they have adhered to the Zonal plan because the trade-off between farming restrictions and benefits (income) favours the latter, according to their perception. Adherence does not require them to introduce significant changes in their farming systems or in farming and livestock management and practices. The major restriction they must observe is the limited number of livestock per hectare. Even the harvest dates are defined yearly by the farmers themselves who have land under contract. On the other hand, adherence provides them with extra income. As one interviewed farmer, who has been involved in the Zonal plan since 1995, explained when asked why he had adhered to the Zonal plan contract, 'it provides me with an extra income that I may apply or invest in farming/livestock activities and/or machinery.' Of the farmers enrolled in the CVZP and surveyed in 1999 and 2003, respectively, 75 per cent and 62 per cent agreed that CVZP financial support was relevant to their total farming income (see Fagundes and Pereira 2003, 116).

To the Ipn, the Zonal plan means, above all, environmental/ecological sustainability. It has not only used its expert technical and scientific skills but has also taken advantage of farmers' local and lay knowledges to attain these main goals. Similar goals are pursued by the Ipn through other programmes implemented in the region, such as scientific assessment of the population evolution of several bird species, scientific research related to environmental sustainability and biodiversity, or the promotion of ecotourism services, mainly for bird watchers.

Finally, the cv Zp has been contributing to local and regional social sustainability. It simultaneously reduces local agricultural and rural exodus, and revitalizes local and regional rural economies. According to the census of population, from 1980 to 1991, and 1991 to 2001, the agricultural labour force in the municipality decreased by 28 per cent and 3 per cent, respectively, while in the sub-region it dropped by 31 per cent and 22 per cent. A similar trend occurred in the farming population: while in the municipality it dropped by 20 per cent and 22 per cent, in castro verde it decreased by 37 per cent and 9 per cent, respectively. These data and the fact that the majority of holders involved in the cv Zp are family farmers – local rural residents – suggest that the scheme's financial aid is locally and regionally invested.

Borrowing from Mormont's (1994) notion of 'cultures of nature', one may speculate about diversified 'cultures of sustainability'. They may be scrutinized through actors' practices and behaviours.

Conclusion

In terms of the ongoing debate about the contribution of sustainable natural resource management to the process of sustainable rural development, the Zonal plan case study illustrates a successful approach. Three main factors have contributed to it: the historical circumstances under which the institutional arrangements for local sustainable resource management could emerge, their characteristics and roles and, finally, the different understandings by different types of actor of the same event: the Zonal plan.

The historical circumstances shaped the temporal coincidence between the CORINE biotope definition and Municipal Plan approval, and also the priority attributed by the latter to the campo branco landscape protection. The characteristics of the institutional arrangements shape their own dynamics. These dynamics not only have brought together different types of crucial actors (local and non-local, rural and non-rural) with the specific knowledge systems (scientific/technical, and local/traditional/lay) needed to build up the Zonal plan, they have also ensured that each type of actor could apply their knowledges on an equal basis.

Finally, the institutional arrangements have played another crucial role. They provided the conditions through which the different types of actors involved in the scheme could fulfil their own purposes and interests: environmental/ecological sustainability (region), economic sustainability (farmers enrolled within the scheme), and social sustainability (municipality).

Bearing in mind the above comments, the Zonal plan may be taken as illustrative of an actor-knowledge oriented approach to sustainable rural development, where none of the actors or knowledge systems have been replaced by another.

In the management of the castro verde Zonal plan, sustainability (and its contribution to sustainable rural development) is being practised, constructed and reconstructed in such a way that agency matters and is taken into account. The

praxis underlying the Zonal plan's construction and management contrasts with the rhetoric underlying the national sustainability mainstream approach, which is based on centralized knowledge systems and ignores both the specificity of space and the centrality of agency.

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greece: Knowledge Forms and Sustainable management of n atural Resources in l ake plastiras

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Introduction

n atural Resources (n R) in this chapter are considered holistically and their management as integrated, concomitantly targeting all aspects and uses. our task has been two-fold: first, to assess whether the designed and implemented rural and spatial policies are actually synergizing towards sustainable rural development, and second to evaluate the role of knowledge forms and structures within the process of sustainable rural development.

More specifically, this chapter aims at presenting and critically assessing the management of n R in the l ake plastiras area in c entral g reece. t he main objective is to identify and discuss the dynamics of actor knowledges involved in the n R management projects. t his focus derives, on the one hand, from the current direction, widely supported by eu policy, towards a 'knowledge-based society' which requires more recognition and understanding of the role of citizens in knowledge generation and use, and, on the other hand, the understanding that sustainable development remains a disputed rather than a rigorous concept (pretty 1995, mog 2004).

policy integration, along with participation, is one of the most important pillars of sustainability. proper policy designation and implementation are very important, but both theory and practice demonstrate that in the absence of policy integration, all efforts for sustainable development become redundant. it is commonly found that once policy designation is set in place, problems often arise because of the way different policies are coordinated and general strategic and coordination frameworks are set and institutionalized.

t he role of knowledge forms and structures is considered important for rural sustainability. c ritics have challenged the technocratic optimism of conventional n R management, which has been based on the top-down application of science to predict and control the natural world. it has been argued, moreover, that the public should be more deeply engaged in resource management decision-making. a number of local communities have developed extensive expertise based on

observation and interaction with their local natural environment. The utilization of such place-based knowledge can improve the understanding of local conditions. Decision-making in projects and policies may become more responsive to such conditions, more adaptive and sensitive to multiple resource use. Thus, what has been named 'local ecological knowledge', a subset of general local knowledge, refers to a 'wide array of practical skills and acquired intelligence in responding to a constantly changing environment' (Scott 1998, 313). This knowledge form, which is often contrasted with expert/scientific or managerial knowledge, is place-specific, situation-related and quite detailed.

On the other hand, expert knowledge can be broadly understood as that which represents scientific expertise, stems from a formal knowledge generation structure (i.e. academia) and is widely and universally recognized and accepted. Expert knowledge is usually the field of academics and scientists, but is also widely disseminated and utilized in many everyday practices. Unlike expert knowledge, another – and more peculiar – knowledge form proves to be key in shaping local development. Managerial knowledge is of major importance for the designation and implementation of sustainable development projects in the study area. It is under this category of knowledge that we include hands-on skills and capacity for performing entrepreneurial tasks. In general terms, this category of knowledge should include a combination of local, lay and expert skills, utilized towards establishing best practices, or at least towards performing particular development tasks.

The involvement of stakeholders in the management of nR through the designation and implementation of policies is at the heart of our discussion in this chapter. The multi-purpose objective of involving stakeholders in the policy process is the best way of combining local and extra-local knowledges, which are in fact mediated by managerial knowledge.

The management of nR in Greece cannot be analyzed only by assessing the policy rhetoric but rather by interpreting the processes of policy implementation in the context of a case study, which will depict the asymmetries and complexities of stakeholder participation and of the problems associated with the integration of knowledge forms.

In this chapter we draw our information from the analysis of available statistical data and from documents related to the management of nR as well as from local development projects implemented in the area. Moreover, the authors carried out a number of in-depth semi-structured interviews with representatives of the social actors, who are protagonists in the area, in order to interpret their motives and describe their knowledges.

The chapter is organized into four sections. In the first, a condensed description of the different national and thematic nR policies in Greece is offered. In the second section, the study area is presented in brief, along with a discussion of the new economic trajectories, and the attempts to plan the management of nR and the conflicting NR uses in the study area. In the third section, the main actors involved in the management of nR are depicted and the role of various knowledge forms

within the process of attaining sustainable development is identified. In the last section, a synopsis of the previous sections is presented and conclusions are drawn as to whether the examined policies and realities correspond to the provisions and requirements.

n atural Resource Management: n ational Framework and Thematic Policies

in analysing the national and local framework for the management of n R, one should concentrate on three parallel levels of policymaking: land use planning and management, nature protection, and general environmental legislation. t his segmented analysis would not have been necessary if the country presented an overall integrated natural resources policy, as this could be identified in the presence of national sustainable development planning, or in the action plans of the involved services. g iven that g reek n R and environmental policies are notorious for their segmentation and lack of integration (horizontal and vertical), the chosen scheme is deemed more enlightening for our purposes.

In what follows, we briefly discuss the characteristics of each of these at the national and regional level, in order to later ‘step-down’ and analyse the instruments of particular importance to our case study.

Land Use Planning and Management

g reece is a country with no tradition of spatial planning, referring either to the adoption of an integrated outlook on the spatial arrangement of activities, or to the development and utilization of planning instruments. t his lack of spatial planning arrangements – resulting from interplay between historical, cultural and political factors – has acted to the detriment of the country’s balanced development and the preservation of its natural assets. t his is also the reason for the large regional (and intra-regional) economic disparities, as well as the over-concentration of population and activities in the capital.

u p to today, land use and land development legislation is constituted through a large number of disconnected and often conflicting laws, some of which are too difficult to understand even for experienced lawyers. This system is characterized by three interlinked attributes. First, differentiation between city planning and spatial planning came very late, with the result that most of the relevant legislation pertains only to matters of land development while other aspects of spatial planning are regulated by other sources of legislation (for example, forest legislation and environmental legislation). Second, the whole legislative framework operates in a void of holistic national planning,¹ which means that planning arrangements are uncoordinated and that decisions at local or sectoral level do not flow from any

1 At the time the final draft of this chapter was prepared, the government submitted a proposal for the institutionalization of a n ational Spatial planning Framework. t his was

overall national strategy. Although in the past year major steps have been taken towards setting up a national spatial planning scheme, major gaps still exist, while the future use of the scheme arrangements is doubtful. Third, relevant legislation emerges from a variety of different sources which means that on the one hand, different pieces of legislation are not necessarily connected, and on the other that there is no single authority responsible for planning issues. Combined with the inherent rigidities of the Greek administration system, these attributes have meant the gradual 'legitimization' of unregulated or illegal land-development practices and have aggravated the induced effects of various development activities on land uses. The state, often influenced by short-term political considerations, has been planning *ex post*, with the covert objective of institutionalizing already established land-use patterns.

Within this problematic framework and while spatial planning is constitutionally understood as the responsibility of central government, the latter has repeatedly tried to exploit different interpretations of the constitution to achieve the decentralization of spatial planning and city development competences. As a result, with the exception of issuing construction permits, all relevant competences remain with the ministry of environment, planning and public works. Nevertheless a variety of other actors directly or indirectly affect spatial planning arrangements and land-use patterns. These include a number of other ministries responsible for development planning, sub-national administration and nature protection, local and regional administrations and their corresponding development agencies, and the European Commission, which directly or indirectly affects development planning and national legislation.

Nature Protection

The Greek nature protection system is articulated around implementation of legislation and regulations at three different levels: (1) international treaties and agreements, (2) European Union Regulations and Directives, and (3) national law. At the international level, treaties such as the Ramsar convention for the protection of wetlands or the Bern and the Convention cover a variety of issues in relation to protection of natural values of global importance. At the EU level, the Birds Directive (79/409/EEC) and the Habitats Directive (92/43/EEC) combine to institutionalize the Natura 2000 network. At the national level, a set of laws and legal provisions define the scope of nature and environmental protection, identify the types of protected areas and set the provisions for their management and protection.² Some more recent legislation, in part responding to the requirements of the Natura 2000 network, sets the framework for the creation

not the case at the time the actual empirical research was conducted. The prospects for this proposal are still unclear.

² Cornerstone legislation in this regard is law 1650/1986: on the protection of the environment.

of special semi-independent authorities for the management of protected areas and institutionalizes the first such arrangements in the most important and fragile places of the country.³

Within the framework of the above-mentioned laws and regulations, the Greek nature protection system comprises a great number of sites of varying protected status: national forests, reserves, wetlands, protected landscapes, etc. The vast majority of these sites are included under *Natura 2000*, whose provisional list covers roughly 18 per cent of the country's area and is composed of 239 Sites of community interest and 151 Special protection areas.

The implementation of policies for the conservation of these sites is mostly based on an ad hoc *modus operandi* and usually in response to specific regulation requirements or under the political pressure of legislative sanctions. In this context, *Natura 2000* is the only coherent policy framework for environmental protection. However, it is less than adequate as its provisions are not embedded in the administrative system – due to lack of vertical and horizontal coordination in state services, the huge overlaps and gaps in responsibilities, the complex legal system, the lack of spatial planning structures and, ultimately, the almost complete absence of political support for measures of nature conservation.

It was as a response to these issues that the more recent legislation mentioned above provided for the establishment of special semi-autonomous authorities for the management of protected areas.⁴ Unfortunately, however, the legal establishment of these management authorities has failed to solve the chronic problems of nature protection in the country, mainly because of continued deficiencies in the institutional operation of these bodies, their significant problems of finances and human capacities and the overall lack of meaningful political support. Thus, conservation of protected, or otherwise ecologically sensitive, sites can only be seen as highly problematic: huge deficiencies remain in those areas that have institutionalized management authorities, while an absence of competence regarding the target of bio-diversity protection is evident in those sites where no authority has been established.

Overall Environmental Legislation

This category of regulations and measures includes all the legal articles that refer to the management of natural resources, protection from pollution and contamination,

³ basic laws: Law 2742/1999: 'Spatial planning and Sustainable Development' and Law 3044/2001, which establishes the first such administrative arrangements.

⁴ This law, which followed the establishment of two management authorities in the national park of Zakynthos and the marine national park of North Sporades, was put into practice in 2003, when 25 management authorities were established in order to oversee the conservation of a respective number of national parks (most of which summoned a number of previously protected sites). In 2008 one more national park was added to the list, raising the overall number of such arrangements to 28.

and the preservation of environmental services. it obviously includes a huge quantity of legal output, much of which has to do with regulation of industrial and general economic activities. a detailed analysis of this category is clearly outside the scope of the present paper, so we restrict ourselves to observing that on one hand the form of this legislation is in many cases problematic, and on the other its actual enforcement leaves much to be desired.

the reasons for these problems have been covered above. major problems regarding the form of the legislation stem from regulatory fragmentation, institutional complexities, overlap of competences, and lack of integration, which was discussed in the case of spatial planning. problems associated with enforcement include lack of political support, insufficient administrative structures and scarce financial or operational means.

the parts of the legislation most relevant to our case study (water Framework Directive – WFD – forest legislation and regulation of the impacts of primary production upon ecosystems) are among the most problematic pieces of environmental legislation of this sort. with reference to the wFD, it should be observed that – apart from general issues of political support – its application is hindered by inadequacies in the delimitation of water basins in the country and the complexities that arise from the need to coordinate multiple sub-national authorities. The inherent difficulties in managing cross-border waters (all major Greek rivers are shared with our northern neighbours) and in organizing the management of island waters under the provisions of this regulation worsen the situation. Finally, a major issue emerges with regard to agriculture, which consumes an impressive 80 per cent of the country's freshwater, as no particular system for pricing water or for control of illegal use of groundwater reserves is in place.

as far as the application of forest legislation is concerned, this is hindered by a number of factors ranging from complexities in the legislation and the sharing of competences to the severe under-staffing and under-funding of the responsible services. of particular importance is the lack of a forest cadastre in the country – resulting in ambiguity regarding the range and character of forests and pronouncedly subjective decision-making by local authorities – and the outdated standards for forest management planning and application.

before moving on to dissect the particular policy tools and actors involved in our case study area, we also need to refer to one further level of policy making that affects NR management – economic development policies, especially eu and national policies for investments in public infrastructures as well as for the support of private sector investments and activities. policy tools at this level include the community Support Frameworks and other eu initiatives, the national Development Law, national public investment plan and the scheme for subsidizing primary production, and these are also accompanied by relevant planning exercises at regional and local levels. this policy arena directly affects the economic environment and business practices and, through these, drastically affects and alters the modes of nR use and management. many of the problematic points raised earlier hold here also, prominent among them the lack of integration

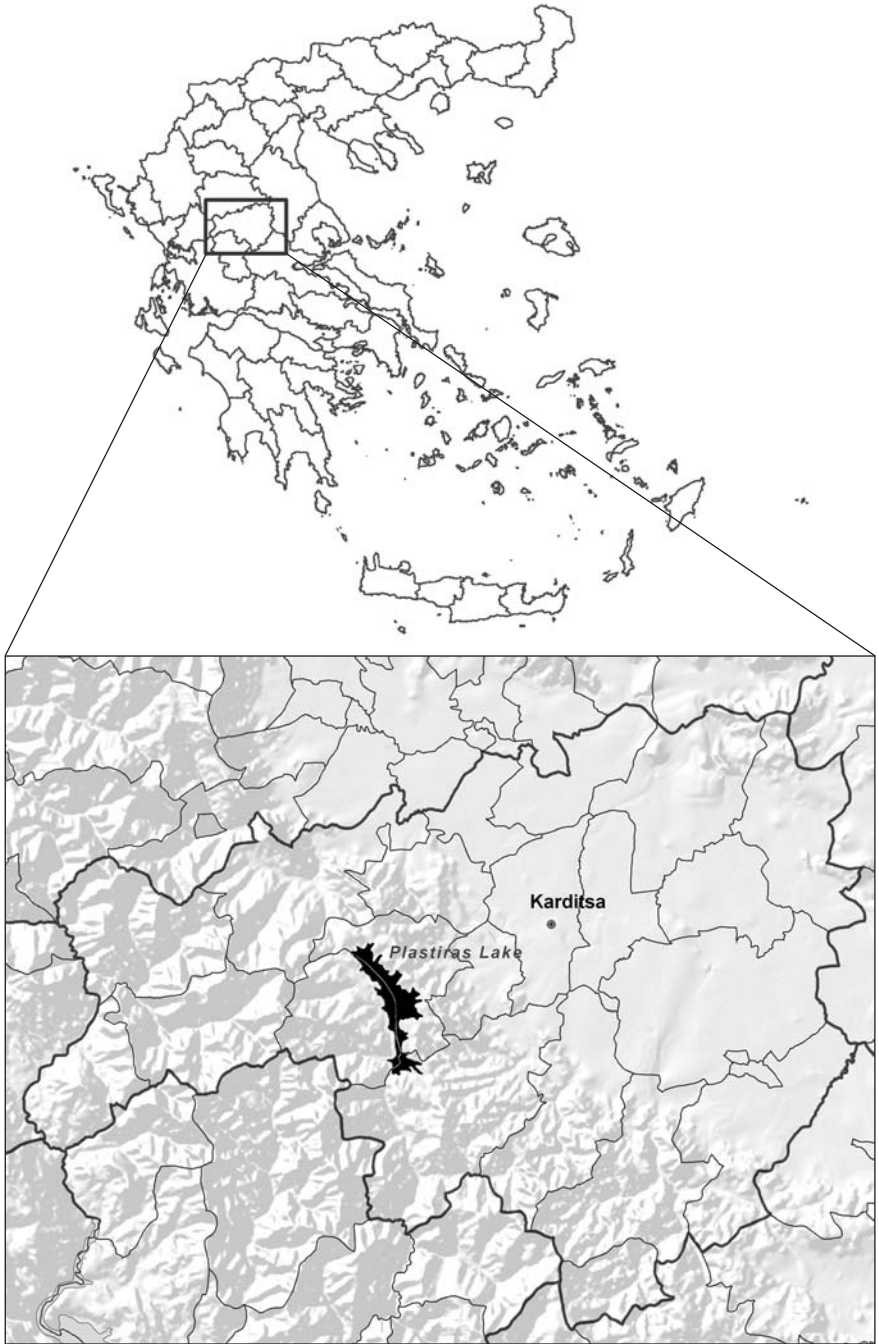


Figure 12.1 The study area of Lake Plastiras in Karditsa, Central Greece

between policies and decision-making levels, and the lack of administrative capacity. These problems give a particular importance to the decision-making networks within which non-institutional parties (mainly specialized practitioners and local consultants and agencies) assume a prominent role.

natural Resources in Lake Plastiras Area

Description of the Study Area

The Lake Plastiras area is located in the western part of the Karditsa prefecture and includes the waters and the surrounding rural areas of this artificial lake. The area is an integral part of the Pindus mountains, which in turn comprise part of the Pindus mountain Range. The study area is located at the edge of the mountainous area, only a few kilometres away from the highly productive fields of Karditsa plains (see Figure 12.1).

In the past the study area was considered a single socio-economic and geographical unit; it was compartmentalized in the late 1950s when works for the construction of the artificial lake commenced, due to disruption of the old communication and trade routes between the village communities.

The construction of the lake was initially intended to provide hydro-power for energy production: waters were channelled from the 700m high lake to a hydro-electric power plant at the fields almost at sea-level. Such an important energy production effort was seen as warranting the huge investment made by the public electricity company. Furthermore, the waters could subsequently be used to irrigate the Karditsa fields, and to supply the growing urban conurbation of Karditsa. Over the years, the balance of use has changed, with energy production becoming secondary to the need to irrigate the cotton fields and provide water to the urban population. In recent years, the lake's aesthetic value has also spurred the development of tourism activities in the area.

The study area comprises 14 communities. According to the census, in the period 1961–2001 the population declined by 18.6 per cent, largely due to out-migration of younger people. The main population exodus occurred in the period following the lake's construction (between 1961 and 1971 there was a decline of 32 per cent), while in the 1990s there was a considerable increase in population (23 per cent). However, the Local Development Agency of Karditsa (an Ka) estimated in the late 1990s that only 43 per cent of the area's population lived in the area for more than six months of the year, while the large majority of the population lived there for shorter periods. Moreover, the permanent population is ageing, with low percentages of young people (an Ka 1999).

Lack of human capital has been identified as a barrier to development, while the reluctance of trained professionals to work in this area is also mentioned as a major obstacle to the implementation of effective development initiatives in the study area (an Ka 1999).

In terms of the natural environment, the area is characterized by quite significant bio-diversity. its natural value becomes even more important when we consider that it is the only lake in the Thessaly region. moreover, it is an important attraction linked to the wider area's economic development. the site hosts a number of very important habitats, including riparian habitats and oak and pine forests, while it also hosts a number of important protected species, including, among others, 12 species of the bird Directive and 7 animal species of the habitats Directive. For its ecological attributes the area has been included in the list of the Natura 2000 sites for Greece.

New Economic Trajectories

The establishment of the artificial lake, and the quick adaptation of the local environment, created a landscape of great aesthetic value. these valuable natural resources were considered as the basis for the area's development strategy in the Local Development plan conducted by the Karditsa prefecture in 1988. the plan predicted that the development of rural tourism (with an emphasis on agro-tourism and various forms of alternative/soft tourism) would trigger the development of other sectors of the local economy (i.e. mainly primary production and its raw or processed products along with small-scale tourism-related businesses).

The local authorities took built seven hostels – owned by the village communities but run by private entrepreneurs – which brought about an increase in the flow of visitors to the area. This was further reinforced and supported by improvements in local infrastructures (through projects undertaken in the context of the integrated mediterranean programmes or the Structural Funds) and intense promotion of the area.

additionally, the implementation of LEADER II and LEADER+ actually transformed the economic base of the area and shaped its character as a major tourism destination. Due to the implementation of the local LEADER II programme, employment almost doubled, while the number of hostels, hotels and restaurants grew significantly.

Planning for the Management of Natural Resources

During the last 15 years a number of studies have been carried out in the area, focusing on its development potential and examining the inter-linkages between development options and environmental conservation needs. the conservation of the natural environment or, more generally, the management of the area's natural resources, constantly emerges as a theme in these studies, either as the core subject, or as a major development factor. they have all had important effects, supporting legislation, launching regulatory directives or safeguarding development actions in the area.

a major legislative act which has had a considerable impact on the area's natural resources is the institutionalization of a Zone of Restricted housing

Development (1991) around Lake Plastiras. This aimed to organize and control housing development outside existing settlements, and simultaneously provided an important local spatial planning tool. With the explicit aim of safeguarding the area's natural resources, this act defined a specific zoning structure within which economic activities are regulated in varying degrees. Conceived and implemented from above by outside experts and involving no participation by local stakeholders, this spatial planning tool has been instrumental in regulating economic development in the area and in the conservation of natural resources around the lake.

Three studies in particular, which have been extensively analysed during our empirical research, will be referred to here as they offer significant information about the interplay of expert, managerial and local knowledges in the study area. The first is the 'Specific Environmental Study' (1998), which was carried out by a private consultancy firm based in Athens, coordinated by ANKA and co-financed by EU Structural Funds and the Ministry of Environment, Planning and Public Works. This study investigated and analysed the environmental and ecological particularities of the area in order to propose appropriate management structures and measures. It was carried out as a prerequisite for designation of the area as protected and for its inclusion in the Natura network.

The second study, 'Implementation of Management Actions in the Lake Plastiras Area' (2003), involved on the one hand systematic application of scientific knowledge and collection of scientific data from the area, and on the other, operationalization of the knowledge and data in the form of management plans. This study was coordinated by the Local Development Agency of Karditsa (ANKA), but carried out by the University of Athens and private consultants and co-financed by the LIFE Nature Initiative and by the local authorities who contributed 40 per cent of the funds (ANKA 2003). It recommended the establishment of a management authority aimed at integrating the management of the study area on the basis of conservationist and sustainable development objectives. However, up to today the proposed scheme has not been put in place.

The third study, entitled 'Exploration of Potential Options for the Management and Protection of the Lake Plastiras' (2002), was commissioned by the local authorities and carried out by the National Technical University of Athens (NTUA). The objective was to resolve conflicts between the main different users of the water resources: agriculture, tourism and power production (NTUA 2002). This study by external technical experts used a multi-criteria approach that contributed very interesting results and potential applications which were, however, never adopted.

From our examination of the three studies and their consequent (non)application, a number of interesting conclusions emerge. Firstly, it is clear that, despite either their intentions to respond to local needs and aspirations or their initiation by local actors, all three were heavily based on external consultation. Expert knowledge was used to identify and analyse natural conditions and trajectories at local level as well as to put forward management proposals, mainly within a protectionist rationale. Secondly, it is evident that local views, opinions and practices were

marginally considered, if at all, while participatory processes were hardly implemented. Thirdly, the recommendations of these studies were not considered by the responsible local and regional authorities, while the local authorities and an *Ka* are not in a position to carry these recommendations further. Finally, the Local Development Agency of Karditsa, which in most cases initiated and coordinated these studies as a response to perceived local needs, is not able – institutionally – to implement a holistic natural resource management strategy in the area, but rather is doomed to launch piecemeal, fragmented projects.⁵

Conflicting Uses of Natural Resources

The main conflict in the study area concerns the management of the lake's water. The lake has been the theatre of conflicts since 2000 as the use of water for cotton irrigation – an important agricultural crop for the area – is in direct competition with the other uses (tourism and energy production). Over-exploitation of the lake's water results in lowering of its level and affects the area's aesthetic value, with an obvious impact on tourism as well as on the quality of fresh water. As already mentioned, the results of the study carried out by the national technical university of Athens were never adopted.

Moreover, observance of the law concerning the Zone of Restricted Housing Development has created problems for agricultural activity in the area. These include, for example, a ban on new agricultural buildings and on grazing around the village communities and/or near the lake. The ban not only affects existing 'traditional' local practices, but poses problems for older farmers (e.g. they need to move away from villages for grazing), for newcomers into agriculture (e.g. lack of infrastructure, farmers need to move away from the villages in order to build new stables and the like) and, hence, for the survival of animal farming, an important economic sector for the local population. The restrictions also pose problems for the establishment of new hotels. In response local authorities⁶ have actively sought to revise the land-use plans of the villages in order to accommodate such pressures.

Conflicts also arise between agriculture and tourism, the dominant economic sectors in the study area. More specifically, the construction of new hotels has in some cases resulted in loss of grazing lands (mainly fallow land) for animal

5 Such interventions include the following: the renovation of an abandoned community school and its transformation into a centre for environmental Research, education and information, the establishment of a botanical garden, a university forest and its eco-trails (mainly based on traditional ones with additional environmental friendly small-scale constructions), a hydro-biological station for the monitoring of the water quality of the lake, an experimental field for organic agriculture, a mountain shelter, an observation station (for site viewing and bird watching) and a local eco-tourism office.

6 Local authorities usually have a quite narrow understanding of their role (i.e. to keep the roads open when it snows, to maintain and improve the infrastructure, to lobby and the like) and do not discuss wider issues such as agro-tourism and sustainability.

farmers, whereas the presence of grazing animals has led to complaints by tourists. At the same time there is a synergy between the two sectors, since the agricultural landscape provides a significant aspect of the area's tourist product, while the influx of visitors creates a significant potential for the marketing of local agricultural products.

Furthermore, different understandings of, and disputes concerning, the area's sustainable development emerge among different sections of entrepreneurs and among the local population (Koutsouris 2008). To start with, the local population seems indifferent to an Anka's sustainability discourse.⁷ On the one hand, economic logic seems to dominate vis-à-vis environmental concerns, mainly due to the inability of the locals to benefit from the area's tourism development (i.e. to shift from agriculture to tourism businesses).⁸ On the other hand, locals claim that small-scale, locally owned tourism businesses better fit the natural environment, on the grounds that the local population cares more than outsiders for their own area and its environment.

Despite such covert conflicts, everyone agrees that land-use restrictions are, in general, welcome because they protect the natural resources of the area. The strongest supporters of land-use restrictions are the newcomers – hotel owners – who seem to fully support ANKA's vision for the sustainable development of the area. In contrast, the local population considers an Anka as an ally of the newcomers because of the economic and technical prerequisites it sets for access to support schemes (such as LEADER funding) in establishing accommodation units.

Actors and Knowledges in the Management of Natural Resources

The main actors involved in the management of natural resources and in sustainable development of the Lake Plastiras area are an Anka, various external experts and consultants, incoming entrepreneurs, the local society, the local authorities and the state.

An Anka, a largely non-rural actor, uses a mix of expert and managerial⁹ knowledge owing to its staff's scientific background, its links with academic

⁷ LEADER for the local people is, more or less, synonymous with tourism-related investments rather than with a sustainable development strategy. Therefore, tourism develops into a monoculture for the area (i.e. there is a strong trend towards a low differentiation of the local economy).

⁸ Local people's everyday struggle for survival, the programmes' restrictions and financial requirements, the knowledge and skills deficits, as well local people's lack of capital do not allow them to concretize or exploit opportunities.

⁹ Managerial knowledge comprises the knowledge and skills to run projects and to manage resources, grants, legislation, and the bureaucracy, rules and operating procedures of the various 'intermediate actors' who control the use of the financial resources provided by the EU and national (rural) development programmes (Brockmeier 2004).

and research communities, politicians, local and extra-local entrepreneurs, and its interaction and consultation with public administrators, programme/project designers and managers. As mentioned earlier, ANKA has played a major role in the studies and projects related to the management of nR as well as in the implementation of local development projects (e.g. *leia DeR*) in the study area. It is also true that ANKA has relied heavily on external support (both scientific and institutional) and experts (academics and consultants) whose support has been very important for the agency in the design and implementation of innovative ideas and actions.

The newcomers and entrepreneurs share a number of attributes with ANKA. These businessmen differ from the local population in their education and training as well as their entrepreneurial experience. They hold both expert and managerial knowledge, and they often support ANKA's initiatives for environmental protection while simultaneously favouring a viable local society and economy.

The majority of locals have for the most part been engaged exclusively with agriculture and remain preoccupied with specific local and everyday issues. They face various constraints (lack of time, limited financial resources, poor education, ageing, etc.) that make them appear resistant to change, especially to the expert-managerial discourse of sustainable management of nR and development in general, which uses abstract concepts and long-term thinking.

The local population possesses minimal managerial capacities, reflected in their limited ability to design efficient business plans and take up innovations. To a certain extent this can be attributed to the rapid rate of change in the area, which has allowed limited time for adaptation, as well as to the overall low quality of human capital in the area. Thus, there is an over-dependence on those who possess managerial skills, while external consultants often cover the voids left as a result of the limited human resources.

In most cases, the implementation of state policy contrasts with the rhetoric of sustainability. When designing and setting guidelines for programmes the state does not usually consider ways to enable and take advantage of local social, economic and human capital. Having to tackle national problems and working with a top-down, bureaucratic ethos it does not conceive of the problems created by its homogeneous approach. Due to its centralist organization and thinking the state is not in a position to think and act in a way that is compatible with sustainable local development.

Finally, the local authorities usually have quite a narrow understanding of their role, and local leaders' main strategy is short-term, rarely exceeding the time period between two elections. In the past, many ideas and activities promoted by ANKA created frictions with the local authorities because the latter either wanted to appropriate them or could not clearly see their benefits.

Today, however, such frictions seem to have eased, as new investments appear in the municipalities (through *leia DeR* actions) and many ideas pursued by ANKA have been adopted by the local authorities.

all in all, in the case of the management of n R in the lake plastiras area, expert and managerial forms of knowledge feature prominently in the designation of the site as a protected area and in the design of management structures, measures and tools thereafter, as well as in the design and implementation of local development projects. we argue that in this study area, local knowledge does not appear to be of importance, at least as far as the management of n R is concerned. although such a knowledge form manifests itself in many ways in everyday and business conduct, it appears detached from current circumstances and does not affect the area's trajectories.

Two additional points may be raised here. The first concerns the fact that, although the an Ka staff have through experience developed a user-friendly mode of operation and familiarity with the area, there still exist gaps between, on the one hand, theory and practice (e.g. how to put into practice the rhetoric on the social pillar of sustainable development and participatory processes) and, on the other hand, between abstract (expert and managerial) and local knowledge (e.g. regarding the management of n R, under which conditions and in which location can a new livestock unit or tourism business be established, etc.). the second relates to the involvement of an Ka, the main development actor in the area, in bureaucratic and administrative tasks in order to accommodate relevant project needs, which, in turn, seriously affects its role as animator, and its sporadic interactive communication with the locals. the result is that in the case of participation, interactive communication has been conceived as instrumental, one-off consultations with the local populations, thereby distorting the bottom-up approach (Koutsouris and h atzantonis 2002, Koutsouris 2004) and avoiding any possibility of system transformation or reflexivity (Bruckmeier 2000).

these issues indicate that the existing interplay of actors and their knowledges works against local capacity building and perpetuates dependence on external actors which, in turn, runs counter to the long-term sustainability of the study area.

in brief, it is obvious that the interpretations of sustainable management of n R and of sustainable development promoted through the network of an Ka and external consultants prevail over those of the local population. the fact that an Ka has created a network and is able to integrate other actors (e.g. newcomers, tourism entrepreneurs) is a key element in terms of agency and power. in contrast, the locals actively formulate and pursue their own 'programmes', which may clash with the interests of the former (l ong 1992, 34).

in addition, the efforts to generate knowledge of sustainable development issues based on expert and managerial knowledges, especially in the case of policymaking and policy instrument designation, do not seem to succeed in promoting a local sustainable development agenda. in fact, they fail to deliver actual sustainability impacts on the ground. this is largely due to the fact that experts and managers neglect local knowledge, do not take into account local circumstances and particularities, and hence endorse changes without paying due attention to their effects on the local level. expert prescriptions, as a result,

often prove too abstract and complicated to be implemented, or are sometimes irrelevant. The fact that local human capital and institutional infrastructures are extremely weak in the area – which points to the absence of consolidated local power and knowledge – along with the limited efforts that have been devoted to designing methods and tools to adapt expert and managerial knowledge to local realities, exacerbate the problems.

Finally, although expert knowledge forms and policy tools and instruments are in place, a number of factors cancel out their implementation, due both to the aforementioned issues identified at local level and the poor planning and project management structures and capacities of the country.

Concluding Remarks

In the 1960s, the restructuring of the study area of Lake Plastiras, central Greece, disrupted traditional agricultural activities, and ‘created’ new natural resources (lake water, environmental services, scenic attractions, etc.). Since the 1990s, an array of new economic activities has developed, posing serious challenges for the management of these resources. Despite covert conflicts, everyone agrees that land-use restrictions are, in general, welcome because they protect the natural resources of the area. Thus, the demand to sustain local natural resources, and the pursuit of sustainable rural development at the local level, became open issues.

The study area has extremely weak local human capital and institutional infrastructures, while limited efforts have been devoted to the design of methods and tools for adapting expert and managerial knowledge to local realities. The dominant knowledge forms and structures play a critical role as they are often called upon to resolve conflicts and/or antagonisms and to play a decisive role in the shaping of policies.

Our analysis has depicted the peculiarities and difficulties of attaining sustainable development in rural Greece owing to new development trends, the divergence of knowledge forms and the multi-faceted character of the policies and practices of natural resource management. In general, management of natural resources in Greece is commonly understood to suffer from serious weaknesses in the administrative and regulatory framework, such as lack of a comprehensive land planning system, the complexities and insufficient enforcement of the legislation, and the absence of integrated/sustainable development plans for the areas concerned. The promotion of innovative, non-agricultural economic development that uses natural resources, especially in less favoured areas, further complicates the issues.

Our main conclusion is that expert and managerial knowledges play a dominant role in determining local policies and the implementation of projects while providing, at the same time, the means for the resolution of resource management problems. Despite the fact that technical and scientific instruments have a major

role to play within the practice of resource use, sustainable resource management remains by and large a political issue.

More specifically, experts and managers neglect local knowledge, do not take into account local complexities and particularities, and often endorse changes without paying due attention to the new requirements that these impose on local structures. They also fail to understand that systems of interest are personal constructs, not objective descriptions of an agreed reality. Mistrust arises usually because the expert data do not resonate with stakeholders' experiences and understanding of their roles and practices. Experts and managers need to understand that questions such as 'why' something is at stake, 'what' sort of a problem that is and for 'whom', are as important as their expert-managerial knowledge. On the other hand, local knowledge seems to be restricted vis-à-vis the new developments. Thus, locals need to be enabled to engage with expert knowledge, whereas experts need to recognize the contested nature of the information that they provide.

The absence of local stakeholder participation has important repercussions since the realms of rural development and of sustainable management of NR in Greece are more theoretical than real. Moreover, the absence of an enabling institutional system and the passive participation of local stakeholders encourage opportunistic behaviour by private actors. Thus, possibilities for attaining the sustainable use of resources – whether natural or generally rural – are diminished.

This does not imply that efforts towards the sustainable management of NR are not made. A large number of projects have been devised and implemented, targeting various aspects of sustainable management. It may be argued that such projects legitimize the presence and negotiation of relevant knowledge structures towards rural sustainability. We have stressed that the majority of these projects draw on expert perceptions and understandings of rural and natural resources. Despite the wealth of relevant projects which have been implemented, however, the results in terms of delivering sustainable management are far from satisfactory.

Local development projects have been developed in almost complete accordance with the availability of funding, which, to a large extent, demonstrates the lack of local development drivers and autonomous development aspirations. Although some local initiation and animation has been required, the projects were implemented by external scientific teams, capitalizing on expert knowledges and stances. The majority of the projects established have been implemented within a wider organizational void. This means that projects are implemented as independent investments and do not contribute to the establishment of local development networks, synergies or common institutions.

However, the projects which have been implemented have left an imprint on the study area – as on many other rural areas in the country. This imprint is a certain project culture and a relevant 'project class' of professionals – experts in designing and implementing projects and policy initiatives. This should be seen as yet another repercussion of EU funding policies, which often promote the implementation of sustainable rural development projects as ends in themselves. We risk suggesting that the inefficiency of such policies and projects is to some

extent an effect trickling down from the eu to local communities and economies (Marsden and Sonnino 2005, Kovách and Kučerová 2006).

Finally, there is no consolidated 'project class' which could design a coherent framework for management of n R and local sustainable development. expert and managerial knowledge are implemented ad hoc, i.e. on the basis of isolated, specifically designed projects. The compartmentalized nature of the sustainable management of n R is due to the project-based interventions which do not promote an integrated approach. what is needed is a re-embedding of expert and managerial knowledges into local knowledge, and a 're-balancing' of actors' interests towards achieving sustainable management of n R in the lake plastiras area.

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part iii
comparison and Synthesis
of case Studies

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chapter 13

innovation in Rural Development and Rural Sustainable Development

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Introduction

The following chapter is based on the comparative analysis of all Co Ra Son case studies that fall under the themes of this book. It refers to more examples than the studies discussed in the book to give more systematic information on which our conclusions are based.

The chapters in this book analyze selected case studies and examples of innovative and sustainable rural development from a knowledge perspective, that were carried out under four thematic work packages of the Co Ra Son project. These are (1) non-agricultural rural economy, (2) innovative economic development, (3) nature protection and bio-diversity maintenance, and (4) sustainable resource management. The summarizing comparison and synthesis of all country reports for each of these themes which follows in this chapter provides a more systematic review of the research results. A further thematic work package, local food production, is not included in this review, as a separate publication is under preparation for this Co Ra Son theme. This summary of the research results is based on the comparative reports for each work package and the final report of Co Ra Son, using more detailed descriptions of the countries and cases. It provides a more systematic basis for the conclusions and discussion in the final chapter.

Thematic Work Package ‘non-Agricultural Rural Economy’

Projects supporting non-agricultural economic development in agricultural areas and contributing to a diversified rural economy are becoming more significant, alongside efforts to rebuild a multi-functional agriculture with other activities besides food production. The declining economic significance of agriculture has been a broadly observed secular trend in all countries and regions under the impact of modernization, industrialization and urbanization. Such a tendency has continued also as a part of the second major post-modern change, the process of transition to a service economy and the rapidly increasing significance of information technology and knowledge economy. This has resulted in falling incomes for those

still engaged in farming, and the tendency to out-migration, especially among the younger generation, as well as marginalization, impoverishment and depopulation of rural areas. The remaining farmers need to diversify their economic activities (off-farm work, movement into organic farming, tourism, etc.), and the rural communities need to rely on other forms of economic activity.

by non-agricultural rural economy Co Ra Son referred to the production of goods and services in different sectors located in rural communities but not involving agriculture – extractive activities (forestry, fishing, mining, etc.), manufacturing (excluding food processing since it is widely recognized in the literature as a part of the agricultural and food economy), services (tourism, producer services, other types of consumer services, etc.). Are such changing patterns of rural economies supporting the development of more sustainable and socially responsible strategies, products and technologies? What opportunities will arise for the restructuring of industries around new business models and types of production systems and technologies? Do cultural traditions matter in the development of non-agricultural rural economies? The main topics in the studies of non-agricultural economies were the actors involved in the non-agricultural economy and the forms of non-agricultural activity, the forms of knowledge involved in these developments and the subsequent effects on the rural community in terms of sustainable development.

Actors and Forms of Non-Agricultural Activity

All country reports mention the complexity of rural society which varies significantly in terms of actor constellations among the countries and regions. Two examples illustrate the spectrum of these constellations. In the Scottish case governmental actors are embedded in a discourse surrounding the development of wind farming, involving powerful local NGOs and lobby groups that utilized the power of the media to create a national debate, the Highland Council (local political representatives) and other structures. In the Swedish case we see evidence that – although there is a strong centralized state – local groups and NGOs nevertheless develop as active local groups and associations.

Economic development as a key component of rural regional growth involves the up-skilling or re-skilling of those traditionally involved in the agricultural economy. To this end we find investment in education in the rural economies a central effort in the examples from Ireland, Portugal and Greece. The rising socio-economic capital resulting from increased educational and knowledge attainment is supported through investment from external sources and support for, and growth of, local entrepreneurial activities.

In the Irish and Scottish cases, well established enterprise boards service their clients with educational opportunities, grants for fledgling business activities and support networks through which to access knowledge and markets. These activities encourage cooperation with local people in order to identify and support indigenous key entrepreneurs and to build consensus among key stakeholders. In contrast to

these examples, in Portugal the regional presence of central government (office of the governor) dominates development activities, and other principal actors are also government dependent: regional organs of public administration that generally implement sectoral policies (labour market, agricultural, health, etc). Local authorities and parish councils, farmers associations, industrial associations, trade unions, various NGOs, educational institutions, public research institutions and some business organizations that find new roles in rural development have not yet changed civil society, where a relatively low level of citizen participation is found (to be explained through Portuguese history of nearly 50 years of dictatorship in the twentieth century). As in other countries, cooperation between the rural actors and the exchange of various types of knowledge is not highly developed. Five key issues emerged from the analysis of actors in non-agricultural projects.

1. First, the role of the state is highly influential in the development of non-agricultural economies. The role of central government agencies has been emphasized mainly in former communist countries (Hungary, Poland, the Czech Republic) and in western countries with a legacy of an authoritarian regime (Portugal) or in a federalist-type country (Germany). In countries with a longer democratic tradition (for example: UK, Ireland, Italy and Sweden) the role of central and/or regional government has been supported and supplemented by various types of local associations, NGOs and other organizations.
2. Second, the formulations of new strategies for economic development are diverse. They range from rural tourism as in Southern Italy, Greece, Hungary and the Czech Republic to other countries with a more diversified approach that focuses on the development of local businesses and attracts external business enterprises to the area (Ireland).
3. Third, the importance given to sustainability as a guiding idea in the development of non-agricultural economy varies greatly from country to country, somewhat relative to their economic status. The emphasis on sustainability in national development strategies and available funding for projects are key determining factors in its inclusion.
4. Fourth, the EU and its initiatives are paramount to these changes of regional economics. The EU is a major driving force in these developments, as is evident in the Hungarian, Czech, Portuguese and Polish reports.
5. Finally, the communities themselves are key actors in the initiation, application and future development of initiatives in non-agricultural development, having the most prominent vested interest in their success.

The actors are carriers of knowledge and do not act in a vacuum but in particular social contexts. One of the Polish reports (Chapter 10) mentions the importance of local activists who not only possess easier access to the resources of local knowledge but can also become agents of social change.

Knowledge

Key factors in determining the potential impact of an enterprise in the non-agricultural rural economy are the use of specific knowledge of different types, their differentiating and innovating effects on the development of this economy, and the valorization of local resources, both natural and cultural, which not only requires the extensive use of lay/local knowledge but also managerial and expert types of knowledge in the form of entrepreneurial culture, marketing techniques, promotion of the area, etc. The identification of knowledge forms, skills and capacities required and used in the diversification of rural production and economy becomes a decisive step in the planning and development of new rural enterprises, requiring answers to such questions as: what are the forms of rural economy existing and developing outside agriculture? which traditional and new forms of rural economy can be found? what is the level of employment and income in non-agricultural rural economy? who are the pioneers in founding new enterprises, e.g. local people, former urban dwellers migrating to rural areas or manufacturing industries searching for better conditions?

the role and impact of different types of knowledge for the development of non-agricultural economy may unfold through heterogeneous development strategies. among these may be strategies of a locally based extractive economy (characterized by a deep embeddedness of natural resources in a specific locality forming a 'rent-seeking' strategy because of their non-replicable character), or strategies of a non-locally based manufacturing economy (associated with the regions having an income primarily flowing from external sources), and as a third variant, strategies of a 'preservationist service economy' drawing income from the valorization of local resources or from maintenance of the natural capital of a region, as in cases of multi-functional agriculture.

In the first case, two basic types of knowledge (lay and expert knowledge) seem to separate rather than interact. lay or local knowledge dominates the discourse and forms the frame of the strategy of using local natural resources and seeking external markets to make the extraction profitable. Expert and managerial types of knowledge seem to be part of the external forces influencing the situation of the area while developing the demands for extracted goods. in the second variant the situation is different. the strong domination of external capital supporting and developing manufacturing industries results in the domination of managerial as well as expert knowledge and the marginalization or even elimination of the tacit, lay or local form. it is in fact the third case where one can observe an intensive interaction as well as coexistence of various types of knowledge. we would argue, indeed, that valorization of local resources in preservationist activities also requires managerial and expert types of knowledge in the form of entrepreneurial culture, marketing techniques, promotion of the area, etc.

the case studies in co Ra Son show a characteristic pattern of use of knowledge for non-agricultural development: in most country reports local knowledge is mentioned as an important part of analyzed projects but only in

the context of other types of knowledge. This can be exemplified in the Irish Eco Booley case where local and scientific knowledge are embedded within each other. various types of knowledge are combined, historical and lay knowledge with new environmental knowledge. Local knowledge is not only that of traditional resource use practices, but is also the practice in situations where formal, expert and scientific knowledge have not fitted into the particular context or situation, so that tacit knowledge is used to adapt it. Scientific knowledge may be identified as a tool to revalorize traditional, local knowledge in finding locally adapted solutions. Therefore, a hybrid structure develops in which important elements of traditional and scientific knowledge coexist and interact with each other. A similar situation is reported in the Swedish case where local knowledge together with a variant of expert knowledge has been the dominant form used in new rural activities. Such hybrid knowledge structures are observed elsewhere as well, but they are assessed differently with regard to the 'enabling' knowledge component: for example, the portuguese report mentions managerial knowledge as combined with local knowledge but requiring links with scientific knowledge.

An important role for creating such a hybrid, but not mechanical, structure, may lie with individuals who possess scientific knowledge but also have some experience of the traditions of a particular community or area. Another possibility, which seems to be more apparent in the case studies, is that local or tacit, managerial, and scientific knowledge combine together through engagement with a project on rural sustainable development where all have equal access to the decision-making process.

Rural Sustainable Development

It is evident that a rural economy based solely on agriculture is not sufficient to drive sustainable development. A key factor in understanding the potential for rural sustainable development is identification of the effects of the discourse of rural sustainable development on the changing knowledge base as well as policies and management practises for the development of non-agricultural rural economy.

In many cases analyzed in the contributing reports one can observe a kind of clash between so-called traditional agriculturally based rural sustainability and an evolving post-agricultural image of sustainability in the rural setting. In the former perspective, the idea of non-agricultural economic development in rural areas seems to be associated exclusively with the activity of external actors who bring projects of an extractive type and establish links, generally exclusively economic, with particular communities. The sustainability issues raised by such activities tend to be understood only as environmental issues. From the latter, gradually emerging, perspective, however, agriculture itself may be seen as economically or environmentally unsustainable and of limited developmental significance.

The sharing by external actors of knowledge about local issues can be identified as another important factor contributing to sustainable development. Serious lack of such knowledge inside national and regional institutions concerning the need

of small businesses in remote rural areas to function in specific ways might be perceived as a serious obstacle in the process of sustainable development, as found, for example, in the Scottish case study. If local peculiarities are not recognized by external actors the development strategy may not work in the particular context. The significance of local or tacit knowledge is rooted in its connection to the particular place, community and individuals, and in strengthening their identity, as the Hungarian report mentions.

The other issue considered here is mostly linked to the economic dimension of the idea of sustainable development, not to do with the logic of profit but the logic of diversity. Diversification of economic activities is not necessarily connected with specific types of activity but, rather, with the source of financing and the interests of investors.

In the discourse about the development of non-agricultural rural economy some issues seem to be especially prominent. One is the emphasis on the need to improve cultural capital among rural populations looking for alternative sources of income. However, a suitable infrastructure seems to be equally important in this context. The special value given to the natural environment and landscape and increasing mass tourism in a post-modern world may be key factors which frame, if we may put it in this way, the local discourse and preferred local practises. Such a phenomenon was found by the Greek study: with rapid development of tourism rural people became obsessed with it, neglecting other non-agricultural opportunities.

If we include cultural specificity in our remit for defining rural sustainability, we need to recognize that new types of activity can also be brought by outsiders and newcomers, thus creating a new type of local identity. In such cases, however, the response of the local population is essential to the process of economic development of particular communities and areas. While the Greek case mentioned above indicates that over-enthusiasm for a new idea can lead to problems in local development, at the same time acceptance of new ideas by locals seems to be one of the key factors determining the success of various projects, and local resistance and rejection may cause the failure of particular projects, strategies or initiatives.

What type of non-agricultural economy might be the most suitable for rural sustainable development? There is no single solution, as illustrated by the Co Ra Son case studies. Economies based on the valorization of local resources (including local knowledge), using other types of resources and knowledge as well, might seem to have the most potential. Ideally, projects should perform sustainable and durable economic activity at both the household and community level and include local and lay knowledge in the decision-making process. Such economic activities may become an 'organic' part of community life as well as, simultaneously, an aspect of its sustainable development, creating entrepreneurial regions and communities as well as service economies and maintaining the different types of natural, manufactured, human and social capital or resources.

Thematic Work Package ‘Innovatory Economic Developments’

The development of non-agricultural rural economy is closely linked with innovatory development, and this was also studied to identify the potential and conditions of transfer of knowledge and experience in processes of sustainable rural development. But what does innovation mean in the rural and local context? The core of the case studies of innovatory economic development was a detailed analysis of the preconditions, discourses, knowledge forms, skills and capacities required for innovatory economic projects in the study areas. A strategic aim of the research was to identify the opportunities, qualifications and capacities required to strengthen the economic competence of the rural population for starting small-scale enterprises. In this sense, the work package continues from the studies outlined in part 1, broadening the scope of the analysis of non-agricultural economy. To understand the culture of innovation in the rural setting we analyzed present levels and forms of social, economic, ecological, technical innovation in rural areas (innovators, constraints) and discourses of innovation.

Innovation

The comparative report for this work package takes projects from the community initiative *Lea De R* as its point of departure in identifying innovatory processes in policy, asking: how were alternative meanings of innovation deployed and promoted by different interests (including the new project class)? To what extent did these draw on scientific, managerial and practical knowledge forms? Contrary to policy-guided approaches to innovation, which privilege technological and scientific innovations, many of the cases studied involved innovations within traditional rural industries, such as agriculture and local crafts. In both cases, innovation relies heavily on education, knowledge and learning, but not necessarily on formal and certified education. A key component in the development of an innovatory activity is the growth of local social capital relative to the enterprise culture which links non-agricultural business practises, rural economic diversity, entrepreneurial activity, and regional educational activities. The Irish case illustrates this point through the embeddedness of the *Tipperary Institute* (the local educational college) within the local business community, acting simultaneously as a space of education and a space where innovatory discourse can occur involving members of the local business community, NGOs, local politicians and government agencies, educational administrators, and the local public.

Traditionally, theories of innovation have focused on innovation within firms and on markets, through research and development, looking at technological, product and process development. Innovation has been viewed as a scientific and technical sequential process driven by experts. In this discourse, innovation originates through specialist research and development activity, with scientific knowledge as the key driver of change, while other forms of knowledge-creating activities are ignored. However, more recent studies have emphasized the role of

learning, rather than scientific discovery, within the innovation process. Learning need not necessarily imply discovery of new technical or scientific principles; it can equally be based on activities which recombine or adapt existing forms of knowledge (Smith 2000, 10).

within this second discourse a greater role is assigned to different forms of knowledge, including tacit knowledge, and social capital, the latter assuming a significant role in theories of social innovation (referring to innovations in agendas, agencies and institutions that lead to social inclusion). the innovation systems approach looks to the institutional and social environment for innovation, examining the relationship between institutions, the legal and policy framework, the education system and the role of social capital and tacit knowledge in generating, using and diffusing innovation (Smith 2000). here, innovation does not simply refer to products or technologies, but also to processes and approaches to innovation, economic development, social organization, education and skills and so on. 'innovation' does not necessarily require 'new' products and processes, but can include existing products and processes that are new to a region, institution or company (although the classification of projects/processes that are new to a region, but not new per se, has been critiqued in the context of the *leADER* programme).

innovation is becoming increasingly recognized as a key driver of economic growth, and is at the heart of the knowledge economy (oecd 1996). innovation has now been identified as a key tool for achieving regional development, with innovation policies frequently held to be central to improving a region's competitiveness. however, the term has been accorded varying degrees of significance in the different case study areas, which have interpreted it in varying ways.

that innovation has become a feature of political discourse across our case study countries is arguably a result of the growing influence of the EU in shaping national economic development strategies. the requirement to be innovative that is embedded in programmes such as *leADER* and the structural funds has in many cases 'imported' the concept of innovation across different nations. *leADER* has been identified as a key driver of innovation in Germany, Poland, Hungary, Scotland, north italy and portugal.

innovation is a term most often used in conjunction with the private sector, developing new products and production processes. as mentioned above, this is understood to involve the development and application of technology, and scientific knowledge. The key actors within the innovative process are, therefore, seen to be primarily private entrepreneurs and small- and medium-size enterprises, working with research institutions such as universities, to share knowledge and improve research and development activity within firms. National governments across many of our case studies position themselves as facilitators, creating the conditions in which business and scientific and research institutions can work in partnership.

Actors

Local actors in these study areas understood innovation to be concerned with the development and production of products and processes that were new to their area and which could diversify the local economy. Few local actors seem to engage with government and EU policies on innovation, as they do not perceive a direct impact at the local level. But innovation is often driven by actors from outside the locality – government development agencies and actors from other countries, regions and cities. Consequently, local actors interviewed did not often talk about their projects in terms of their capacity to be innovative; rather, they talked about the need for competition, change, experimentation, and entrepreneurship.

The impetus for the innovative projects in the case study areas often came from actors external to the locality, and their drive to start innovative enterprises came from their knowledge and expertise in particular fields. In one Hungarian case a federal programme (Regionenközpont) pursued the *leADER* approach with the objective of strengthening social capital through intensive information exchange, collaboration and network building. Introduction of innovative activities by actors external to the case study areas occurred in both *leADER* and non-*leADER* case studies. In the former, innovation was driven by the EU and its funding rules; and in the latter case, innovation was driven by development agencies or external actors with particular passions and interests. In only a few cases was innovation driven by the indigenous population. The term innovation was not apparent in the vocabulary of the indigenous populations studied. Consequently, for many lay actors, 'innovation' was not an explicit aim of their projects. Instead, lay actors sought to achieve new forms of organization or develop new products and services, and the fact that the outcomes or processes could be called innovative is secondary to those concerns.

Knowledge

The knowledge types used in innovative projects, their sources, dynamics, social availability, are not easy to identify when such different knowledge forms as were studied in *Co-RASON* are taken into account. A key question for the research concerned tacit and local knowledge as a hitherto neglected source of innovation that cannot easily be identified in the dominant expert discourses. In many case studies for this work package, a mix of expert, managerial and lay knowledge was identified, with the latter being essential to the successful implementation of projects. However, it is still difficult to assess more specifically the varying forms of differentiation and combination of knowledge types. With so many different types of knowledge involved in projects, it is inevitable (and appropriate) that knowledge will be transferred between different actors involved in projects, and between projects and actors external to those projects. In some case studies, knowledge was shared formally with other actors. In the majority of the projects, however, knowledge was shared more informally, through social networks or ties of reciprocity and exchange, ensuring knowledge transfer between actors and

the adaptation and changing of the knowledge structures among all the actors participating in the projects.

the capacities of regions themselves to 'learn' from these external knowledge sources is also key as tacit knowledge does not work in isolation from codified or accredited knowledge: competitive advantage is normally the result of the two working in combination. this poses questions about the relationship between knowledge and power, in terms of access to the decision-making process by different forms of knowledge; about the links between tacit knowledge and social capital; and about what kinds of knowledges have greater influence over economic development.

expert knowledge is particularly emphasized in this work package due to the fact that often this knowledge was required at the very outset of projects, and provided the initial spark. this includes the various areas of expertise involved in the different case studies: education; agriculture; energy; engineering; wildlife; bergamot production; olive oil production; the history of Jewish refugees and so on. there are several different types of expert knowledge involved in our projects. managerial knowledge can be seen in the irish example of the tipperary institute, scientific knowledge in the development of educational practices, and local knowledge in the negotiation of the needs of the local community.

Finally, several teams noted that lay actors do not have the capacity to respond to the challenge of innovation, and lack the human capital and knowledge resources to develop or capitalize upon innovative projects. in portugal and greece, this was perceived to be the result of a lack of relevant knowledge and skills. in Scotland, skill shortages were also an issue, but time was identified as a constraining factor particularly in LEADER – local residents simply do not have the time to develop and run small-scale projects, as these are undertaken on a voluntary basis. Several teams also noted that rural areas lack key services, and have prioritized meeting these basic needs over and above pursuing innovative projects and activities.

managerial knowledge consists of the skills required to run projects on a day-to-day basis, including management of human and financial resources, grants, legislation, and the bureaucracy, rules and operating procedures of various government agencies. this knowledge may be held by those actors initiating the projects – experts or actors with a particular passion – but is more often held by governmental and political actors, such as local authorities, development agencies, and local politicians. however, in the majority of cases, the involvement of government actors, politicians and development agencies came later, after the idea for a project had been created by other actors. nevertheless, the role of these institutional actors was vital to the success of many of the projects. the managerial and bureaucratic knowledge provided by these actors was important, particularly in negotiating local legislation and securing funding.

the use of lay knowledge differed across the case studies. what is clear from all of the case studies presented here is that both the knowledge and the support of local actors are essential to the success and sustainability of innovative projects. however, the extent to which projects rely on lay knowledge is far less

clear. a key aim of many of our projects has been to share expert and specialist knowledge amongst lay actors to transform the context for particular activities in localities – approaches to environmental protection, the production of a particular agricultural product, the preservation of traditional skills – but neither the design nor the management of these projects depended on lay knowledge. Specifically, lea DeR requires the involvement of local and lay actors in the development process and through this and its local action groups, to greater or lesser degrees, local and lay knowledge.

in the german study area of mecklenburg-vorpommern, in contrast, the clientelistic and paternalistic social milieu prevented the lea DeR local action groups from initiating any substantial innovation in terms of local action. as a result the lea DeR programme failed to improve local debate and stimulate deliberative actions, failed to strengthen existing networks, and was not able to promote new models of cooperation. the supposedly ‘bottom-up’ approach was implemented as if it was a mainstream programme, and was mainly used by the local elites in their own interests. while there were some small impacts on capacity building and resource maintenance, concrete economic impacts are negligible. the potential of the integrated approach to mobilize human potential, to bring together various actors and to strengthen local networks was not realized.

Rural innovation, creating products and services that are new to the area, encompassing both traditional and non-traditional rural activities, can also encounter conflict. In Spain and South Italy, for example, rural development cooperatives branched out into production of organic olive oil and bergamot respectively. the development of these products allowed the cooperatives to exploit new markets, create new quality standards and develop new supply and production chains. however, while such innovation was driven from the bottom-up in Spain, there was still some resistance to change from other farmers in the cooperative. this illustrates that although external factors are forcing rural societies to change, these changes, regardless of the inclusion of the local community in the decision-making as to how they change, are not always welcome.

Innovative Socio-Ecological Strategies for Rural Sustainable Development

what are the impacts of technological change on innovatory projects and rural sustainable development and what kinds of innovations support such development? what emphasis will be given to wider extra-local networks and structures (in part cognitive communications communities)? to identify emerging forms of knowledge economy, a focus on innovation is a key step. but innovation may here take the form of revitalization of traditional knowledge and forms of production, or preserving local cultural identity, all of which can turn, under the auspices of sustainable development, into dynamic, ‘progressive’ and flexible approaches to development.

Beyond stated objectives around new products and diversification, innovative projects also achieved innovation in social processes, involving the creation of new networks and social relationships; the strengthening of local identities, and

the creation and dissemination of knowledge. These social forms of innovation go beyond both local actors' own definitions of the term and beyond those of policymakers.¹ In many cases, innovative activities in the case study areas were developed by individuals with a particular passion or idea, or government development agencies. While the number of actors engaged in developing innovative ideas was very small, implementing those ideas in practice necessitated the involvement of a number of different actors, which required cooperation. It is this process of generating new forms of cooperation, networks and relationship-building in rural areas, which has in itself proved to be very innovative in most of our cases. Governmental actors play a key role in developing these relationships, as they are able to build on and bring together their existing networks of contacts and institutions, and to negotiate between these institutions and local residents and businesses. In several case studies, the presence of even one supportive governmental or political actor was able to influence the success of projects. In many cases the result of these innovative projects has been to create and deepen networks and relationships between different local actors, between different institutions and between institutions and communities. Furthermore, some of the projects have had a profound impact on relationships *within* communities, building social capital, increasing local people's symbolic identification with themselves and their communities, and creating and reinforcing collective identities.

In contrast to policy-guided approaches to innovation, which privilege technological and scientific innovations, many of the case studies for this work package involved innovations within traditional rural industries, such as agriculture and local crafts. Such projects aim to develop and innovate within these industries, making them more efficient or perhaps more profitable, or linking them with new sectors (such as angling and tourism in Sweden, or linking traditional handicrafts with job creation and tourism in Germany). These projects demonstrate that these industries are not necessarily anti-modern and in need of replacement, as policy approaches sometimes suggest, but that they have value in supporting local economic development and local identities. Such projects make good use of existing skills and knowledges within communities, and clearly have value as profitable, innovative and rural approaches to development. Many of the projects undertaken involve the creation and development of small enterprises, or take place in traditional industries.

Thematic Work Package 'Nature Protection and Bio-Diversity Maintenance'

The case studies for this work package include nature protection areas, species protection areas, biotope protection, agricultural landscape programmes, agri-

¹ In this regard the Costa Rica studies illustrated ideas and conclusions formulated in the earlier COST A12 action for innovative social-scientific rural research. See Budapest Declaration 2002.

environmental and local community-based projects; the goal was to study cases which would reveal the aims, management forms, actors and knowledge requirements in nature protection, and to explore the consequences of such programmes for rural land use and rural sustainable development. The case studies were categorized in the comparative report into three main types – reserve management, agri-environmental, or community development projects. A number of concerns about the rural environment were shared across the study countries: primarily, a progressive degradation in semi-natural and farmed habitats, driven by a combination of intensification and abandonment. Land abandonment has occurred on a large scale in central and eastern European countries (one million hectares of farmland in Hungary is thought to be affected, for example), whereas in other parts of the EU agricultural intensification is seen as the main problem, leading to soil degradation and water quality problems. Most country reports also mentioned problems from urban expansion, leading to a fracturing of rural landscapes and the disruption of habitats by infrastructural projects.

National policy responses to environmental problems are strongly shaped by EU Directives, most recently Natura 2000. The EU programme LIFE plays a major role in Italy, Germany, Hungary and Portugal; in other countries bio-diversity management tends to be more closely related to agri-environmental programmes. However, despite this tendency towards the Europeanization of nature conservation, national approaches, legislation, institutional structures and funding show considerable variation across countries. There is also considerable differentiation in the extent to which policies are realized effectively in terms of resource use at the local level. In the central and eastern European countries there has been a long tradition of nature conservation legislation, and the traditional approach to nature conservation was designation of national and landscape parks; most of these were established during the communist period, but in most European countries there has been considerable activity in this area also in the 1990s, with the development of a global environmental policy starting after the Rio de Janeiro conference in 1992. Norway's second national park plan contains a commitment to increase protected areas from 11 to 13 per cent of national territory. A second approach of major importance in a number of countries (Italy, Hungary, Ireland, Scotland) has been the formulation – subsequently followed in all European countries – of national sustainable development strategies and/or bio-diversity action plans. Bio-diversity action plans are more likely to encourage participation by local and lay people in policymaking than are the broader sustainable development strategies, in which expert, particularly natural-scientific, knowledges are given a much more prominent voice.

Countries also differ in the institutional structures underpinning nature conservation policy. In Greece, Poland and Sweden, this is highly centralized; in Greece, this leads to poor communications between local and regional actors and the central ministry for the environment; in Sweden vertical communication is effective but leaves only a co-managerial role to regional and local agencies. In contrast, the federal structure in Germany allows most decision-making

to be done at the regional level, within a legislative framework and guidelines laid down by national government. Regional subsidiarity is also evident in the Scottish, norwegian, polish, czech and italian cases; in italy, national law from 1998 prescribes that the establishment of any new national park must arise out of a process of negotiation between the national, regional and local authorities. in ireland, despite recent delegation of conservation planning powers to the local authorities, these remain tightly constrained by centralized agencies and policies.

in rural areas, understandings of nature conservation have begun to change (again primarily influenced by changes in EU regulations) from a policy of 'protection through excluding human resource use' to one of 'integrating protection and use through sustainable practices' such as the encouragement of organic farming. this is linked to the shift from an agricultural to a rural policy orientation at eu level, which changes the development objective from increasing agricultural productivity and incomes to that of maintaining rural communities, diversified rural livelihoods, and multi-functional agriculture. Such trends have been found, for example, in Sweden, where regional and local programmes for bio-diversity protection are not only found within environmental policy but also in programmes for integrated and sustainable rural development, although participation of local stakeholders has hitherto not been greatly encouraged. it is also found in italy (e.g. the national ecological network programme) and appears to be most likely to occur in countries where national/local agenda 21 programmes are well developed, and least likely in countries where this has not occurred (e.g. ireland). however, the absence of a agenda 21 mobilization does not mean that movements and associations for environmental protection are not found in these other countries at both national and local civil society levels. it may mean that civil society movements for nature protection in these countries are more likely to adopt an oppositional than a cooperative attitude to state agencies and actors.

Reserve Management (Designation of National or Nature Parks, Biosphere Reserves, Protected Landscape, etc.)

these may be implemented in a number of different forms: through land management agreements based on contracts between authorities and landowners; land acquisition programmes, intending to change the ownership structure of reserve land; participatory management approaches, where local landholders are included in decision-making; or some combination of the above. they generally involve the establishment of a management board which monitors restrictions on the use of nature and may also work towards improving nature values by initiating spatial and land-use planning, tourism amenities, etc. italy, norway, portugal, Scotland, hungary, greece, ireland and germany all contributed case studies of local reserve management examples. In all of these cases, formal (codified and certified) expert scientific knowledge plays the dominant role in conservation activities and practices; this is particularly visible in the irish, hungarian and

greek cases. Reserve managements tend to understand their task as one of generating scientific knowledge about local nature, habitats and bio-diversity, and perhaps disseminating this expert conservation knowledge into the local communities; they rarely see themselves as needing to engage with or understand local conservation knowledge and practices. in the case of nature parks, however, some managements (e.g. the guardianship natural park in portugal, the sprumont national park in italy, the John muir trust in Scotland) explicitly endorse a vision of integrated nature conservation with benefits for local rural development; others (the norwegian and german case studies) still adopt a more 'purist' approach where regulation of resource use and prevention of potentially harmful activities remain the main objectives, although in the norwegian and german cases a move towards integration of nature conservation with sustainable development discourses is beginning to be evident.

these different understandings of the reserve's functions affect the extent to which local stakeholders are involved in the management process, alongside experts and national or regional agencies. this emerged in case studies as a critical issue, which shapes both the degree of cooperation with reserve objectives found among local actors affected by it (particularly farmers, landowners, hunters), and the rapidity of dissemination of expert understandings of conservation among local populations.

Support for conservation reserves may come from very different sources, for example, counter-posing an interest in new forms of economic development against an interest in maintaining a 'pristine' nature or providing a territorial laboratory for scientific research. The skills to manage and integrate these different understandings are not often held by ecological experts. overall, it is evident that both success in the reserve designation process, and success in maintaining goodwill towards the reserve, once established, requires the availability of sophisticated managerial knowledge which can smooth interactions both with relevant political authorities and agencies and with local communities and stakeholder groups.

Agri-Environmental Projects

co Ra Son case studies include a number of agri-environmental projects, mainly supported through the eu Rural Development or Sap RD programmes, oriented to preserving existing agricultural systems and their cultural heritage, which could be included under our broad definition of nature and bio-diversity conservation. The Zonal plan of castro verde in portugal aimed to combine economic with ecological values through the preservation of 'good farming practices' in extensive farming systems. in poland, one case study was made of the reintroduction of a 'traditional polish' breed of cow which had been virtually eliminated in the 1960s as part of an attempt by state authorities to increase animal production, while another examined a project to conserve the threatened bumblebee as part of a programme to increase orchard fruit production. these studies suggest that in countries where small-scale agriculture persists, many farmers are not convinced by the agri-modernization

development model and are open to participating in alternative schemes and projects. Conserving or reintroducing older agricultural practices appeals both to the inclination towards ‘sustainability thinking’ found among such groups and to their interest in cultural heritage (rather than in environmental conservation *per se*). participatory structures for management of such projects, where local and lay knowledges can be brought into play and the key local actors mobilized, appear essential to their success. Close collaboration between scientists and project beneficiaries, particularly where scientists are interested in studying and solving conservation problems at a local and applied level, is also important. The Polish case studies in particular suggest that we can see in these projects the beginning of a ‘transdisciplinary’ approach to knowledge, from which both scientists and local actors can benefit.

Community Development

in the context of globalization, new social movements, associations, groups and networks are emerging to promote or to contest nature conservation arrangements in rural areas. Here we focus primarily on the engagement of groups and movements at a community level, rather than that of international, national or regional NGOs. Centralized and top-down conservation actions by the state which allow little participation by local actors may coincide with a high mobilization of local civil society as, for example, in the Czech Republic. Local civil society mobilizations may encourage collaboration between scientists and local knowledge holders, or may place the two types of knowledge in competition with each other. Case studies in Spain and in Ireland suggest that local or lay conservation actors are often ‘self-taught’ or ‘citizen experts’, with a high degree of specialized knowledge in ecology, urbanization, or telecommunications, etc. Lacking accreditation, their expertise is often regarded as of lesser value to that of formally recognized experts, but their political and managerial knowledges may be much better developed than in those other groups. They often engage in a process of testing and re-testing their acquired scientific knowledge against knowledge they have drawn from personal experience and from other members of the local community; their ‘scientific’ interest is not in generalizing knowledge so much as in strengthening their understanding of the particularities of their local habitats or species. A different but relevant case in this context was the Scottish case study of Dúchas, which, while not a ‘community’ project (it was implemented by staff of a government agency), aimed to promote sustainable rural development through a strongly designed local participatory approach. Developing a local strategy to protect nature was seen by Dúchas as a way of ‘building community capacity and effective partnership’, in which bringing together local knowledge and external expertise is a key step in empowering local communities for sustainable development.

While conflicts can often arise between local groups seeking economic or infrastructural development despite detrimental environmental effects, and environmental NGOs or scientists concerned to protect nature against such

development, the cases analyzed where community actors fought rather to conserve local nature suggest that this is often highly important for the spread of relevant scientific knowledge and for processes of co-learning between scientists and lay people. Even conflicts managed with sensitivity to local needs, using a diversity of types of expert, and through consultative and participatory processes, can be occasions for such co-learning. Both types help to increase local public awareness of ecological ideas and problems.

Two issues of considerable importance to the work of Co Ra Son were studied in this work package. The first is that we can see a gradual process, operating at different speeds in different countries, through which ideas about sustainable development are informing and changing policies and practices for nature conservation. There is a growing awareness that a conserved countryside must be socially viable, and is therefore dependent on the vitality of rural communities. Second, sustainable development operates in these new policy discourses as a 'platform concept' or proxy for many different concerns: scientific discourses, to the extent that they use the concept, often prioritize natural resource protection; policy documents generally define it as a three-dimensional approach which simultaneously maximizes economic development, socio-institutional effectiveness, and ecological conservation; and for many rural actors, it can invoke ideas about stewardship relations to nature, notions of 'sustainable livelihoods', or even the preservation and revitalization of a cultural heritage of skills and practices in food production and resource use. While the concept can be and often is used effectively to bridge these different meanings, it can also be the case that its necessary vagueness can facilitate the continued dominance of political or private economic interests over public good in what is represented as a sustainable rural development project or process.

Thematic Work Package 'Sustainable Resource Management'

In this thematic research, broadening the scope of the prior work package about nature conservation and drawing on further work packages, we asked how the concept of sustainable resource management (SRM) is understood by actors engaged in rural development. We started with a preliminary distinction between 'nature conservation' and 'sustainable resource use/management'. Conservation can be understood as a non-productive use of natural resources, while SRM concerns maintaining the regional resource base by sustainable use (for productive purposes) and management. In the Comparative Report the classification of sustainable resource use and management has been formulated as in table 13.1.

In most of the national reports, the meaning of SRM mainly used, or assumed from policy discourse and government strategies, is that of SRM1 above. SRM2, particularly in its more utilitarian aspects, was also found. SRM3 was discussed less often, and SRM4 primarily through its absence in practice. However, it has to be emphasized that the concept of SRM, as such, emerged in the national reports

Table 13.1 Different conceptions of resource use/management

Conservationist	nature protection; protection of nature from human use or exploitation
Conventional	Maximization of yields – economic resource use; resource exploitation for economic/production purposes without reference to sustainability
SRM1	Oriented towards the state of the resource – resource renewal; management to ensure the renewal of a resource as it is used, harvesting only the periodic growing quantity but not reducing the resource/capital stock, e.g. sustainable forest management, energy consumption reduction (this meaning associates SRM with ecological modernization)
SRM2	Oriented towards human welfare – ‘quality of life’ RM; the resource is managed to improve some conception of local quality of life of the human population, interpreted with reference to utilitarian (access to water, fuel), aesthetic (scenic landscapes, non-polluted lakes, etc), or welfare (health, wellbeing) interests
SRM3	Oriented towards both resource state and human welfare – livelihood RM; management of a resource so that it will provide maximum sustainable local livelihoods, giving priority to local resource users
SRM4	Balancing the interests of resource-user groups – participatory RM; the resource is managed through participation or cooperation of all who have a ‘stake’ or interest in its being sustained (including local resource-dependent livelihood actors, producers and consumers, scientists, global actors, possibly resource-dependent animals as well) (this can be seen as a special case of SRM2.)

Source: co Ra Son, comparative Report for work package ‘Sustainable Resource management’.

as a relatively underdeveloped one. The comparisons and contrasts which could be made across the reports were more likely to open up important arguments in relation to the concept of sustainable development. These comparisons and contrasts have been used to develop a synthetic analysis to reflect on and describe the way in which a discourse of sustainable use of resources has entered into the national public spaces of the different countries involved (to the extent that it has).

In this summary we selectively present two main themes which emerged from the comparative analysis of the national reports. These are in relation to: (1) the national discourses, as evidenced in policy statements, strategy frameworks, legislation, etc., about sustainable resource management, in an attempt to trace the ‘career’ of this concept in the different countries; (2) the case studies conducted as examples of sustainable resource management in the different national contexts, and the conclusions drawn from them, focusing in particular on what these tell us about knowledge processes and dynamics.

National Discourses about SRM

According to the national reports, SRM is not yet an established concept in the national discourses of the different countries. For this reason, most national reports

discussed rather the discourse of sustainable development, within which SRM can be seen as both a more specific concept, and simultaneously a less standardized one. whereas sustainable development is unfolding as a guiding idea in governmental documents and public policy processes, ideas about SRM seem to be more influenced by scientific, environmental movement, and NGO-guided discourses. in many cases, something close to the idea of SRM, though rarely named as such, is concretized in older or already existing sector-specific programmes for resource management such as the agri-environmental programmes of the 1990s or more recent programmes for integrated Rural Development. the mutual implications between such programmes and more general strategies for sustainable development are not spelled out in detail in national policy documents.

the most striking feature of discourses about both sustainable development and resource management at the national level, as evidenced in the national reports, is their heterogeneity. terminological similarities across national strategies conceal different interpretations, discourses and practices. we can identify some homogeneity at the level of national policies and strategies, due to the influence of both eu policy discourses and global policy discussions and programmes such as a genda 21, particularly in the widespread use of a 'three-dimensional model' of sustainable development, where social, economic and ecological or environmental dimensions are differentiated. this has become the dominant way in which the concept is interpreted in many of the national strategies for sustainable development of the eu countries. nevertheless, within state discourses, heterogeneity is also evident. while the classic three-dimensional approach is dominant in some of the co Ra Son countries (germany, greece, ireland, portugal, Spain, Sweden), in other countries (norway, italy, hungary) the dominant interpretation of sustainable development is as environmental sustainability, while in a further subset the national strategies add further dimensions which they see as important (cultural sustainability, in the czech Republic and poland; community governance in Scotland).

the concept of sustainable development has entered into national discourses at different times in the different countries, and it has encountered very different types of political system and division of functions between national, regional and local levels, and different traditions of civil society involvement in public policy. The adoption of interpretations and discourses is refracted through specific national cultures, historical experiences, and political and group interests within the society, and at this level the concept lacks a standardized meaning.

Many actors, including the EU, have identified regional and local institutions as key actors for sustainable development, particularly when this is understood in environmental terms as matching the use of natural resources with the regional resource base and the carrying capacity of ecosystems in the area. however, the co Ra Son research found that regional and local administrations are not the ones currently driving the discourse or implementation of sustainable development programmes. with the exception of Spain, where regions are powerful legislative institutions, regional and local level institutions use the discourse rather

mechanically or mainly as political rhetoric; the driving force behind the discourse is extra-local, and often, as suggested above, extra-national.

When we look outside government policy and strategies for sustainable development (e.g. to NGO and civil society discourses, and to sectoral rural development programmes) the absence of a standardized concept of SRM is even clearer. An important general conclusion from the comparative analysis for this work package is that discourses about SRM appear to use one or other of two distinct, emergent concepts. On the one hand, there is an 'institutional' model, primarily addressing sustainable development rather than SRM directly, which in most of the countries is increasingly formed through an ecological modernization discourse that has become the mainstream approach to sustainable development in European countries, emphasizing technological solutions to resource and environmental problems. This usually recognizes social, economic and ecological dimensions, as equally important or otherwise, but does not specify the relations between and priorities of these different dimensions in ways which would enable interests (economic, social, cultural) and resources to be managed together. On the other hand, there are local, livelihood-oriented ideas and practices of SRM. These are more diffuse, oriented to the creation or maintenance of 'sustainable livelihoods'; starting from the assumption that a sustainable use of natural resources is embedded within, enabled and constrained by other social, economic and human resources; it implies strengthening the power, rights, knowledge and interests of local resource user groups and rural populations. However, the interests and initiatives of those NGOs or groups using these ideas are generally limited and hardly included in decision-making and implementation processes. They may be strengthened through such practices of local development as are spreading with lead De R projects.

The country reports raised the question: who will have 'definition power' for sustainable development or SRM – scientists, political actors, local resource holders? Not all of the national reports identified open controversies over definition power; rather they showed that a societal consensus can sometimes be achieved around policy, or that there is some 'trickle-down' process enabling an externally driven idea to become slowly integrated into the rationalities and values of local agents. The absence of an 'interpretation fight' may indicate that the sustainable development discourse has developed quite recently in a country which is still at the stage of taking on an international rhetoric and debate which has little impact on national policy or local practices. The emergence of interpretation controversies suggests that the concept is beginning to be implemented in ways which affect the interests of stakeholders and political actors. The reports show that in spite of the new debates around governance the adoption of a particular understanding of sustainable development for use in rural development policies has been dominated by political actors with formal mandates, legal decision-making powers and formal roles in public policy processes, whether they do this in consensual or controversial ways, by neglecting or by prioritizing it. There is less room for civil society groups and institutions to have their ideas heard. In the programmes for rural development

(agri-environmental, lea De R, nature and species protection, integrated Rural Development) through which we can see a discourse of sustainable development for rural areas unfolding, most countries have not experienced a devolution of power, roles and responsibilities, which would systematically empower regional and local institutions and actors; rather, these actors and groups are co-opted through ideas of ‘participatory management’ into the mainstream policy as this is understood by the dominant actors and institutions.

Case Studies of SRM: Knowledge Implications

Examples of differences, rather than an emerging dominant model or practice for SRM, are what principally characterize the case studies for this work package. One relatively widespread practice was the use of some sort of ‘park’ model as a socio-organizational structure for implementing SRM. This model can have a range of different functions and hence associated practices: for example, to concentrate EU or national funding for development within a particular territory; to decentralize governance; to facilitate integrated regional management; or to find an instrument that can be used effectively by governmental agencies to create zones of ecological sustainability. What can be seen from the studies is a gradual movement away from the use of protected areas to conserve resources through non-use or limited use, towards ideas about combining resource protection with resource use of various kinds. In these limited and controlled areas, SRM may be more easily enforceable than in the majority of rural areas where land use is mainly dependent on private property; it is less easy to identify efficient instruments for SRM on privately owned land.

In that context, the relative effectiveness of institutionalizing SRM normative interventions (legislation, education, persuasion) and financial, particularly market, incentives needs to be discussed. A number of national reports (e.g. the Polish Report) show how concerns to increase product ‘quality’ in order to increase market access lead to some form of SRM. These can also give rise to new actor coalitions for sustainable development at the local or regional level. However, to the extent that they bring these actors into contact with and under the control of global retail networks, it would be important to investigate the impact on natural resources at the local level of the practices of standardization, standards maintenance, and profit-seeking of the global companies involved over a longer time period.

In many of the countries included in Co Ra Son there is a relatively weak tradition of civil participation among rural actors, and weak development of a rural civil society. This can slow down progress towards participatory forms of resource management, or mean that these have to be created through political decisions and with external support. The extent to which power is devolved in the different countries also affects the strength of civil society at the local level; however, power devolution does not correspond closely to the different constitutional traditions of state organization and we cannot simply conclude that federalist forms are

more open than centralist ones to the idea that SRm requires participation and involvement of civil society. Despite support for devolution of power and new governance forms, co Ra Son research found hardly any examples of local resources whose management was fully in the hands of local resource users or local communities. c ompromise forms of ‘participatory SRm’ mean that governmental actors are always involved and can exercise influence over decisions. Moreover, it found few cases where there were intensive debates about links between local resource management and established systems of public planning, especially physical and municipal planning which have such a significant influence on the use and management of land and natural resources. l and-use planning does not generally provide sufficient guidance for SRM, and there are rarely any links between municipal planning (where most of the experience with local, resource use related and participatory forms of management are found) and rural development programmes, so that relevant knowledge cannot be accumulated and shared.

in relation to knowledge forms in SRm and their interaction in rural development projects and processes, the case studies suggested that our initial categories (expert, lay or local, managerial) were not sufficient to cover all knowledge-related practices. t his is not only because SRm projects are characterized by a blending and overlapping of knowledge types in practice, but also because the typology does not help us to describe the subtleties of knowledge problems in rural resource management. t he key question is: how do different projects or programmes interpret the issue of how to deal with the knowledge needed for SRm? t his question produced a number of different paradigmatic examples:

1. a n ‘incorporation of knowledge’ model: different forms of knowledge can be used to reinforce each other by combining their specific qualities (e.g. h ungarian, South italian case). in practice, this means a focus on reformulating and strengthening local knowledge, understood as that of local producers, embedded in, and circulating through, knowledge-diverse social networks.
2. An ‘elitist’ model: this relies heavily on scientific and other expert knowledges and devalues and suppresses local knowledge and experiences (e.g. the Irish, North Italian cases). Here, power relations (definitional power and decision-making power) are decisive. if the development process is controlled by hegemonic power-knowledge coalitions of scientific, bureaucratic and local (‘project class’) elites, scientific knowledge will dominate and managerial-bureaucratic expert systems will control the implementation process; this provides an ideal terrain for ecological modernization approaches and for the exclusion of local resource users and their knowledges.
3. a ‘knowledge-embedding’ model: this interprets knowledge systems as socially structured and operating in an already-existing social context organized by power structures, discourse structures, social groups, civil society, property rights and ownership of resources. From this perspective,

SRM is a power-dependent and conflict-prone process that needs to be organized as a process of power-sharing, conflict mitigation, and participation of different groups (e.g. the Scottish, Swedish reports, but this conclusion is supported by most of the national case studies).

4. a 'political' governance model (e.g. the Polish report). This also assumes that knowledge systems are dependent on power structures, but primarily sees the transition towards SRM and sustainable development as requiring changes in political structures, particularly a devolution of power to regional and local levels.

One further model, sometimes called 'adaptive management' by ecologists (Gunderson and Holling 2001) or 'polycentric systems' (Ostrom 2005), was not identified in the CORASON research: it is an external model derived from paradigm changes in ecological research, but does converge with many of the results found in our case studies. Understanding ecological processes as dynamic and changing rather than needing to be stabilized, it centres on the idea of building SRM systems locally, involving local resource users and producers in core management roles and practices alongside experts, through which a co-evolution of relevant and needed management knowledge can be achieved.

Conclusion

This chapter has offered a synthesis and comparison of case studies from CORASON, based on two of the seven themes (Diversification and Innovation in Rural Development, Environment and Sustainability in Rural Development) covered in the research. Organizing the case study results around a few key issues – actors (forms of activity, strategies for development), knowledges, and discourses (differentiated interpretations of sustainable rural development and sustainable resource management) – has allowed us to integrate the particular cases discussed in the earlier chapters of the book back into a broader European landscape and to indicate the usefulness of a knowledge-based approach to studying sustainable development in the rural context.

What this approach in particular brings out, as we will argue in the conclusion, is the importance of recognizing the gradual unfolding of rural sustainable development as a process 'beyond politics' – a social process of negotiating interests, understandings, trust, cooperation and power relations between social actors using their own knowledgeable practices. Approaching sustainable development through the lens of knowledge forms and processes helps to reveal the complexity of these processes of social negotiation and change. Changing society in a sustainable direction means both changing knowledge processes and relationships, and using knowledge to manage resources for rural development in a sustainable way. In the conclusion, we try to go beyond the particular cases and instances recorded here to construct a more general argument: that sustainable development can be analyzed

and understood as a social process constituted by knowledge processes, that it depends on more than implementing political programmes and policies, and that central to successful sustainable development is achieving sustainable knowledge relations.

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conclusion

beyond the policy process:
conditions for Rural Sustainable
Development in European countries

Karl Bruckmeier and Hilary Tovey

Our introduction to this book summarized the different approaches and interpretations of sustainable development as rural development found in policy programmes and projects. The chapters which followed are based on a broad range of case studies which they summarize or interpret only selectively, following the guiding themes of the book, but still showing the variety of ideas and practices for sustainable resource management which can be found in projects for rural sustainable development as these operate on the ground. In this final chapter, we offer an overview of the ‘trans-political’ components of sustainable rural development, and ask what they may imply for the reorganization of formalized policy processes.

Our conclusions are presented here, not as a theoretical reconstruction of sustainable rural development in Europe, but with regard to some knowledge- and institution-related aspects as set out in the introduction. To identify and grasp the complex practices of rural sustainable development, a way forward seemed to be to understand sustainable development as a social process which unfolds in other social processes, all bound together by knowledge use and the knowledgeable practices of social actors. Identifying such knowledge-bound processes as negotiating and matching interests and knowledge forms, creating trust and trustworthy knowledge for cooperation, and mediating conflicts and changing power structures, seemed to provide a missing link in understanding the nature of sustainable development. Our conclusion from the *Co-RaSon* project was that up to now knowledge practices have been neglected in scientific and political debates about sustainable development.

Sustainable development, particularly in rural settings, when seen as an alternative path of development and innovation, which is distinguished by its long-term horizons and the plurality of actors who participate, seems particularly well suited to an approach which focuses on knowledge forms, relations and dynamics. We summarize our research by illustrating the results from the chapters in this book through the following five steps:

1. We briefly review the theoretical or conceptual understandings of knowledge with which we started the project, and how these developed as it progressed.
2. we ask whether ‘local knowledge’ can be considered a real phenomenon which should be taken into account in attempts to develop rural areas in Europe today.
3. We overview some of the more significant findings from the chapters in this book about ‘knowledge dynamics’ in rural (sustainable) development projects.
4. This leads to a brief discussion of the issue of ‘participation’ in such projects and programmes, linked to the presence of differentiated knowledge forms in rural society.
5. Finally, in the light of these discussions, we ask how the contribution of policy frameworks and programmes for rural sustainable development processes should be assessed.

Studying Rural Innovation and Sustainable Development through a Focus on Knowledge

Conceptualizing Knowledge for Rural Development

Our research started from a relatively simple differentiation between three forms of knowledge which we expected to influence local rural development projects, and which we saw as commanding unequal status and power in their design, management and implementation. These were identified as expert or scientific knowledge, managerial or organizational knowledge, and local or lay knowledge.

Knowledge types Already the variation of terms scientific/expert, managerial/organizational, local/lay knowledge indicates some of the difficulties of conceptually grasping knowledge forms in rural development.

‘expert knowledge’ can also be called ‘universal’, ‘global’ (as in Jasanoff and Martello 2004) or simply ‘scientific’ knowledge (as in Leach, Scoones and Wynne 2005) – knowledge which is characterized by the logics of abstraction, generalization, and universalistic thinking. In our research, expert knowledge was primarily identified with scientific or technological knowledge; over the course of the project it was further conceptualized as ‘standardized’ knowledge, following Latour’s (1987) description of scientific knowledge as knowledge produced within specific local sites, whether laboratories, expert committees, or ecological field trips, and which is subsequently simplified and pruned of its contextual references so that it can be made to apply in standard ways across all local settings. This can include knowledge used by scientifically educated policy experts as well as the knowledge of scientists who act as scientific experts with regard to the policy process – as researchers, problem identifiers, and knowledge producers.

‘Managerial knowledge’ is more easily identified when it is linked with an object of management – in the case of rural development this may include a plurality of themes, especially management of natural and other resources; management of policy programmes, including the coordination of actors and institutions; and management of processes of change and development with regard to integrated and sustainable development. Such knowledge can be seen as the knowledge of public administrations and governmental bureaucracies, but it also exists outside such institutions and may include the more complex and less formalized management regimes that emerge with the participation of rural populations or local resource users in decision-making processes for rural development. This very broad notion of managerial knowledge turned out to be a necessary complement of scientific expert knowledge, mediating how it becomes applied or ‘practical knowledge’ (Osti and Silvestri, chapter 6) in the process of negotiating, managing and implementing standardized expert knowledge through the channels of policy programmes, projects and expert consultations within a local site.

These two broad and dominant categories of scientific and managerial knowledge might seem to make up the total reality of knowledge that is required for rural development, covering all parts and stages of the knowledge chain from generation to dissemination to application of knowledge. However, such an assumption represses another form of knowledge that has become marginalized in the long historical processes of modernization and which in social science mainly survives as an object of cultural anthropological research, in relictual or fragmented forms. We called this local knowledge; however, even to give a name to this third type of knowledge remained somewhat controversial throughout the research. A new categorization of it needed to recognize that it could include ‘traditional’ skills and practices (as in the production of particular food varieties in particular local settings), ‘indigenous’ cultural understandings of natural and social processes, ‘experiential’ knowledges built on experiment and observation, and even ‘re-localized’ expert knowledges where standardized knowledges are adapted to the specific features and conditions of a particular local setting. The term ‘local knowledge’ may sometimes be used to differentiate between ‘internal’ and ‘external’ knowledges, and sometimes between knowledges which are ‘formally’ generated and transmitted, for example, in educational settings, as against those which are transmitted primarily by observation, example and/or cultural tradition in informal settings.

Our initial typology of the three knowledge forms became more complicated as the project went on, in part by the need to align it with a different distinction, between ‘tacit’ and ‘codified’ knowledges. In Chapter 7 this distinction is reflected on more explicitly, whereas other chapters use the terms ‘local’, ‘lay’ and ‘tacit’ more interchangeably when discussing the roles of expert and lay knowledges in rural development. While tacit knowledges may be quite widely shared in a society and need not be specific to a given local setting, in practice the research often tended to absorb tacit into local knowledge, on the grounds that it is primarily

non-standardized knowledge which is informally transmitted rather than codified for formal instruction.

All of these categories – and perhaps particularly the ‘expert’ versus ‘lay’ distinction – are social constructions of a specific kind: not only do they carry with them considerable baggage in terms of power, status and cultural capital, but we may not be able to identify in advance of studying any particular instance of conflict, cooperation or negotiation around a development project, how the actors involved construct the varying forms of knowledge present in their environment. Within some projects, actors may be considered the carriers of ‘expert’ knowledge who would not be recognized as such in other projects.

There is, therefore, a continuous difficulty in applying the distinction between expert and lay knowledge; an example of this can be found in the point made in several of the chapters, especially those from central European countries that have quite recently acquired EU membership, that the idea of sustainable development is often seen as an importation from EU institutions and programmes and presents itself to local rural actors as a new, unknown and impractical idea which they simply do not know how to deal with. If that version of ‘knowledge’ versus ‘ignorance’ is used to signal the difference between expert and lay knowledge, we can fall back into the trap of expert-biased knowledge construction. Lay knowledge, as local knowledge, needs to be understood as delivering other knowledge qualities to rural development than those associated with scientific and expert knowledge: site- and situation-specific knowledge, particularism and knowledge sharing. As will be discussed further below, it is through such qualities that the poorly understood participatory approaches encouraged in recent rural and resource management policies are important for sustainable development: not only as normatively grounded but as democratizing institutional decision processes and as a political issue of power sharing and integration of heterogeneous interests. Participatory projects indicate socio-cultural changes in the knowledge practices for development. And the revaluation of local knowledge is a main component of that change. Participatory development and resource management bring back local knowledge and strengthen cultural diversity. After its repression through modernization, local knowledge is returning in social-ecological research.

Ultimately, the knowledge typology with which the research started turned out to be in need of reformulation and refinement, as it became apparent that this classificatory and typifying way of defining knowledge forms seems itself to be driven by a logic of standardization similar to that which underpins and finally reconfirms scientific knowledge as the only valid or important form of knowledge. What the research itself made visible was, instead, the open borders between knowledge forms and their fluency in blending with each other, which has been shown in anthropological research before. But instead of interpreting this as dissolution of distinct knowledge borders that calls into question the distinction between knowledge types, it can be understood as the specific process of developing and reproducing the different knowledge forms. Each of these can gain by taking in elements of others, but they do it for different purposes and

according to their different criteria for valuing knowledge. instead of giving up the typology of knowledge forms because their contours are difficult to grasp, it is necessary to study them in a more in-depth way, with their inherent complexity, criteria and rules of functioning, not by way of linguistic and semantic analysis, but through the social practices of knowledge use.

in line with this, analysis shifted somewhat away from identifying and categorizing the different forms of knowledge in play within a given project, and towards learning about the 'dynamics' of knowledge where some of the fluidity and blending of knowledge forms became visible, showing more of the complexity of knowledge forms and how they interact. how are knowledges transmitted, exchanged, circulated and disseminated among the networks of actors involved; how is this process shaped by existing power relations and institutional settings; what knowledge dynamics, or development tendencies, are found in projects where one or other type of knowledge dominates? these issues emerge in the chapters in this book as a continuing heterogeneity of descriptions and categories for knowledge processes, reflecting not only the difficulties in constructing an analysis of knowledge processes, but also a 'grounded theory' approach to developing social knowledge analysis.

the research in co Ra Son marks the very beginning of studying knowledge dynamics and practices, and much more needs to be done to follow this trajectory. the chapters also show that much deeper analysis is required than was possible in exploratory studies such as these, as the methodological difficulties in identifying the complex knowledge practices require long-term, in-depth and replicated studies to go beyond the first step of identifying the knowledge forms as they are present in the thinking of rural actors and the researchers themselves; but within the time limits of the case studies this was not possible.

How Does Local Knowledge Exist Today in Innovative Rural Development Processes in the Regional and Local Study Areas?

in the context of european societies this question seems pre-formed through debates and research about 'developing' countries or in ethnographic studies of local cultures. it could be argued that the question has little relevance to a european context of rural development, given the long history of formal education in European countries, and the widespread dissemination of scientific and technological knowledge in mass media and everyday life. the obvious effect of this 'scientification' of the knowledge processes is that local knowledge dissolves – even those who have such knowledge no longer think in its terms or are aware of the kind of knowledge they use.

the formal education and professional training processes that large parts of rural populations, farmers and others, have gone through is effective in 'sealing' local knowledge and its experiential sources. taking into account such conditions, it might seem inappropriate to investigate the interaction between local and expert knowledges in rural development projects within a european setting, because 'lay'

actors in all our study areas already have a considerable command over a variety of expert discourses and integrate them into their own everyday practices. However, we see this more as confirming the tendency towards fluidity and blending of knowledge forms mentioned above than as an argument for the final replacement of lay and local knowledge by expert and scientific knowledge. The difficulties of ‘digging’ into local knowledge under conditions of dominant expert and scientific knowledge are evident in research about common-pool resource management, one of the more advanced research areas about local knowledge use.

If local knowledge were to be found in the cases we studied, it would not take the form of ‘traditional’ knowledge entirely unmediated by expert discourses. In agriculture alone, a long history going back before the twentieth century of attempts to modify farming practices in the light of new discoveries by non-farming experts means that very few farmers today access and use only the knowledges about production handed down to them by earlier generations in their family or local community. The difficulty is to show the changing nature of local knowledge and its inclusion of other knowledge forms as practices of ‘developing’ and ‘updating’ local knowledge to make it a continually existing resource for rural development. Local knowledge often becomes visible in situations that are perceived as exceptional, such as overt conflicts between resource users over the future use of rural resources, whether land or other resources. In projects for, and conflicts about, nature and species protection (see Chapters 9 and 12), or about changing resource-use practices (chapter 12), we often seem better able to see something of the continued existence of local knowledge, when the experience of local resource users is all of a sudden a controversial issue. The controversy over clam farming in the Po River Delta (Chapter 6) illustrates this conflict dynamic in an exemplary way, tracing the history of resource use in the locality back some distance into the past. As that chapter concludes, the interaction and blending of lay and local, scientific and technical knowledge about resource use and management is a characteristic feature of rural development that allows learning about the requirements of sustainable development to take place on both sides. This and other chapters show how programmes and projects for rural sustainable development may produce interactions between different forms of knowledge which may be beneficial or detrimental to the overall process of sustainable development – more detrimental when one knowledge form and a specialized or limited knowledge perspective dominates or monopolizes the process, more beneficial the more the specialized, compartmentalized and separate knowledge forms and practices open towards each other.

‘Tacit’ Knowledge and ‘Lay’ Knowledge

Tracing the dynamics of knowledge in processes of both sustainable development and sustainable resource management, the varied description of local knowledge as ‘tacit’ and as ‘lay’ which can be found in the literature emerged as of particular interest.

Tacit and lay knowledge ‘tacit’, or what Giddens (1976) has called ‘prediscursive’ knowledge, identifies the sort of knowledge which we use, more or less without reflection and in routines of everyday action, to manage our interactions with other people. It is created through the normal processes of socialization, as knowledge held by everyone who can be judged to be a ‘competent’ (Garfinkel 1967) member of society, so it is not specific to local settings; but it is often localized in specific cultural forms within communities which have a long history of close internal relationships. Examples could include how to greet an acquaintance on the street, how to show respect for another person, what sort of physical contact with another person is appropriate in conversation, or in bilingual situations (such as in the Scottish case studies), which language to use with what people on what occasions. This tacit understanding of social practices in relationships is particularly important in defining community or territorial boundaries, marking out who is ‘one of ourselves’ and who is an ‘outsider’. It is also peculiarly vulnerable to culturally globalizing influences, particularly through visual mass media such as films, which may offer alternative relational conventions and help to transform the ‘local culture’ as a result.

Tacit knowledge, understood in this sense, appears to be most significant in its effects on local social cohesion and trust. We can link it to Granovetter’s (1995) concept of ‘embeddedness’: that economic transactions require trust, which is not generated by the transactions themselves but originates in the social relationships and social networks which surround these. Granovetter used this concept to explain how networks of small firms can emerge and form successful ‘business districts’, arguing that close social relationships allow the quick transmission of information between firms and encourage inter-firm cooperation in areas like the marketing and promotion of products. However, this specific case of firm-based economic interaction does not give a fully adequate picture of rural development; filtered through a specific economic model of action, it can grasp only part of the practices associated with resource use, production, processing, distribution and consumption within rural development (chapter 2). Embeddedness is not required just for economic or market-based processes but is a component of all the socio-cultural processes in a rural area that help to strengthen the informal social networks and social relations which are often critical in promoting economic development, particularly where this takes ‘innovatory’ forms.

‘Lay knowledge’, in contrast, is explained here as knowledge not about social relationships and social practices but about ‘objective reality’, practical causal connections, or ‘how things work’. In research on knowledge use and dynamics for the management of natural resources, it is this sort of ‘local knowledge’ which is of particular interest. Lay knowledge is manifested in routines of natural resource use as empirical knowledge about natural processes and local eco-systems, or as processes of agricultural and artisanal, non-industrial production (how to grow particular types of plants under local conditions, how to produce certain ‘craft’ objects including local cuisines, local types of pottery or locally specific cultural

activities, folklore or religious practices insofar as they represent worldviews and ethics that guide resource-use practices).

The chapters in this book, which primarily study innovation processes in rural economies, highlight some of the trust-building and social capital quality of knowledge use and knowledge combination. For example, the Swedish chapter (chapter 2) argues that knowledge integration is not only or primarily a matter of methodologically integrating or synthesizing knowledge from different disciplines, origins and quality, but, in relation to resource use and rural development, it is to a large degree a question of building or rebuilding trust between knowledge bearers – scientists, bureaucrats, politicians, and local resource users. For the success of many of the projects reported in this book, the presence of a charismatic leader or individual who plays a range of roles in local society and embodies in themselves a range of different knowledges was crucial, exemplifying a somewhat extreme form of trust building in rural development practices. These people are often ‘outsiders’, either returned migrants or new comers living in the society, but their command of the local tacit knowledge of how to interact with and ‘manage’ relations with others appears to be a strong factor in their ability to lead and influence other project participants; an example, again, comes from Chapter 6 (Italy) in the person of the laboratory biologist who was also the son of a local fishing family. The somewhat casual, exceptional nature of the emergence of such ‘charismatic’ persons cannot be planned, and may in any case be regarded as an undemocratic way to mobilize people for development activities.

Lay knowledge as defined above is reported and discussed to a greater or lesser extent in all the chapters in this book: it emerges as particularly important, for example, in the case studies from Poland (the project to preserve the Polish Red Cow breed), Portugal, Ireland and Italy. This is not a knowledge learnt through ‘normal’ socialization systems, it has to be imparted by certain individuals to other individuals or acquired through particular experiential circumstances; it is generally transmitted in informal situations of learning, and therefore tends to be found in variable, ‘non-standardized’ or ‘non-codified’ forms. This sort of knowledge is vulnerable, not to cultural globalization but to changing market demands for the specific skills or the products which embody them. Lay knowledge can be understood as including and reinterpreting (for specific contexts and sites) scientific knowledge or ‘expertise’, but it is generally not formally recognized or accredited as expert knowledge in its own right and therefore may not command much status or power, particularly in situations of interaction between accredited and non-accredited knowers.

The presence of lay knowledge in a local area or society can be seen as a specific resource for local development, of particular importance in processes of rural sustainable resource management. A number of the case studies of economic development in rural settings (particularly in the reports from Germany, Portugal, Italy and Ireland) refer to this type of knowledge as playing a central role in the design and scope of the development project; other chapters (from Scotland, Norway, Hungary, for example) present projects that were founded on the desire

to preserve and enhance lay knowledges and skills, where these did not necessarily define the work of the projects but were still a key component of their work. In contrast, the greek chapter shows particularly clearly the problems that attend on 'top down'-instigated development programmes when the possibility that relevant lay knowledge is disregarded. However, we would also suggest that in many of the cases studied it was not the lay knowledge of actors but rather their support and acquiescence in the project which was seen as needed for the project's success; or we might say, the project set out to mobilize the tacit rather than the lay knowledges of local actors.

One of the features which is widely taken to differentiate 'lay' from 'scientific' knowledge is that, because of the more or less informal ways in which it is transmitted, lay knowledge is found in variable and non-standardized forms. The effect on lay knowledge when it encounters situations which lead to its standardization or codification was of some interest to us. This began to emerge as a theme in discussions of the ways in which a familiar 'local place' may become 'codified' as a nature reserve or site of special scientific interest (see the Norwegian and German chapters, for instance), leading to disjunctions in knowledge between locals and administrators and to resistance to scientific understandings of local nature. It is evident too in the analysis of certification procedures used to market foods of local origin (see Fonte 2008, which presents most of the case studies from our research which were carried out on the topic of 'local food'). As the Polish chapter (chapter 3) suggests, discussing the project of integrated Fruit production, codification processes tend to be selective both of local producers and of what is regarded as genuine, usable under 'modern' conditions, or scientifically acceptable (e.g. in regard to hygiene criteria) forms of lay knowledge about its production. Unless that selection process is explicitly recognized and carefully managed in the development process (and this may be less likely to happen when those driving the process are external scientific experts or large corporations), it can result in new forms of social exclusion and the creation of new inequalities within the local population. It can also lead to commodification of a product in forms which raise questions about its 'authenticity', as something which embodies the identity and the skills of local producers. Thus, lay knowledge emerges in many of our case studies as both a significant resource for economic development, and as subject to valorization processes which can have socially undesirable outcomes.

Lay knowledge, in relation to food or to other rural products, may sometimes be perceived as 'traditional' knowledge; where it is located in rural areas which have been by-passed and marginalized by programmes for agricultural modernization, it may be associated with the 'pre-industrial' knowledges about agricultural production which have survived and been handed down in such localities over many generations of practitioners. Our research offers alternatives to this interpretation: for example, in the case of what have been called 'food deserts', or rural places which have long been organized around specialized agricultural production for export and where local food consumption needs are increasingly met through globalized retail systems (see the Hungarian and Irish chapters, for

example), we see efforts to ‘re-localize’ the food system and in the course of that, recreate new ‘lay knowledges’ about food production, purchasing and preparation. This is a ‘non-traditional’ form of local lay knowledge, which is created through a variety of sources, including social movements (such as the organic and local food movements), access to accredited experts (often indirectly, through books and journals), experimentation, and sharing of experience. It tends mainly to be transmitted through informal occasions and social networks, although it may sometimes be created through attending formal courses of instruction; and its variability and lack of standardization tend to be seen as valuable assets, rather than weaknesses or problems, in situating it within specific local circumstances. More generally, lay knowledge can be seen as knowledge which is embedded within specific ‘territories’: geographically and socially bounded sets of relationships within which knowledges are accumulated and stratified, but also reproduced, renewed, created, shared, and exchanged.

Rural Areas as Locations of ‘Knowledge Deficits’?

The image of rural populations as lacking knowledge, or lagging behind other groups in society in their possession of knowledge, or human capital more generally, is one which is found in nearly all the stereotypical understandings of the rural in the countries participating in this research. It is strengthened by the frequent association of rural with ‘traditional’. Iso, Corrao and Son reports from a number of the countries argued that the low levels of familiarity with ‘modern’ knowledge among the rural people in their research regions was experienced as a problem by those attempting to initiate development. Lack of new knowledge or lack of interest in acquiring it (among populations who do not see it as having relevance to their own economic and social situations) can operate as a constraint on development efforts. It was most often found where rural populations were elderly, and had experienced out-migration for many decades. It seems that with such diagnoses, specific, although varying, conditions and situations are generalized into an argument that becomes ultimately inexact when used as a diffuse claim of ‘knowledge deficits in rural areas’. In contrast to that, lack of knowledge is better understood as a continuous phenomenon and problem for all participants in rural development – scientists, bureaucrats and local populations – in trying to deal with the new requirements of development and resource management, for example, in projects for integrated rural development.

Without denying that there can be problems around knowledge in some rural areas which pose an obstacle to those promoting particular types of development, as several examples from Corrao and Son have shown, we would conclude that the idea of a ‘knowledge deficit’ should be used, if at all, with care, specifying the conditions of knowledge deficits as well as knowledge that cannot be used for reasons that are situation-, not person-bound. It is often not taken into account, as, for example, is mentioned in the Czech chapter, that knowledge deficits of certain people or groups can ‘mask’ a lack of opportunity to apply knowledge, lack of opportunities

to make use of knowledge rather than lack of education, training, capacity. where project initiators complain about the difficulties of working with under-educated local groups, they may need to reconsider the appropriateness of the development project itself and the way it is managing its relationships with local actors. many of the rural actors who appear in our case studies, if often self-educated, are highly knowledgeable in both 'lay' and 'expert' forms and could be described as 'citizen experts' about a wide range of issues and practices. out-migration can turn into a knowledge resource for rural people, either through migrant return or through the maintenance of contacts with those who have left, opening possibilities for new knowledge through personal or family ties. more importantly, 'knowledge deficits' can be found among external expert actors who try to develop a project in a local area as much as among the subjects of development – both in their grasp of the tacit knowledge needed to manage social relationships effectively, and in their understanding of the significance and usefulness of locally existing lay knowledges. The fact that it is usually the absence of 'modern' – scientific, technological, commercial – knowledges which is complained of largely reflects the existing hierarchization of knowledge in european society, in which local, non-standardized, non-universalized knowledges are ranked at the bottom in status and power.

Knowledge Dynamics in Rural Sustainable Development

Informal Social Ties and Networks

Both 'tacit' and 'lay' knowledges emerged from our research as significant elements in the construction of rural development projects. tacit knowledge can help to create 'enabling environments' in which useful empirical knowledge can be put to work. many of the chapters in this book illustrate the importance to project success of building on, or incorporating into the project, the informal networks in which project participants are involved through their territorial membership. informal social ties and networks emerge as important sites for the circulation and exchange of both 'lay' and 'expert' knowledges relevant to the project; they allow knowledge resources to be exchanged and also to be combined and put to work in innovative ways. this is one of the basic forms of knowledge dynamics observed from the case studies and a building block for strategies of rural sustainable development.

From this perspective, the most effective networks to initiate rural sustainable development were often ones with more than just 'local actors'; actors participating in those networks also included returned migrants, or migrants who remained in close contact with their area of origin through yearly visits, or through their deep interest and study of aspects of the area from afar, perhaps in universities or research institutions. they also often included local administrators or 'project class members' such as agricultural extension professionals, who combined expert knowledge with

a strong understanding of the 'tacit' ways in which social relationships are created and maintained at the local level. many of these actors could be seen as examples of the 'charismatic individuals' referred to earlier, who bring in to the network both their own specialized knowledges and vital connections to other worlds outside the local area. but such individuals were also often found among the local actors themselves; in some studies, they were particularly likely to have been formed out of a history of engagement with specific social movements, such as organic or environmental movements. informal networks of this multi-stranded sort not only provide an environment in which differentiated knowledges can circulate and connect, they can also play an important role in mediating power relations in situations where political structures and power inequalities might otherwise mean that 'lay' actors have very little voice in their own development processes.

most, if not all, of the projects which we studied required some form of 'expert' knowledge, often at the very beginning in order to initiate the project, or at an early stage after the project began to function (see, for example, the 'circle of knowledge' analysis presented in chapter 10, poland). the mechanism of informal ties or networks mentioned above in relation to the territorial integration of actors, their knowledge and their interests, works also for this situation of integrating expert knowledge. but this expert knowledge did not always have to take the same form: in some cases, specialized scientific knowledge was critical (as, for example, in the polish case studies of the orchard and bumble bee projects in the lodz area), but in many others 'citizen expertise', that is the specialized lay knowledge possessed by a person with a passion for some particular topic (food, culture, nature, sustainable house renovation) was what was critical to starting the project. Thus, in some cases 'codified' knowledge – which often had to be 're-localized' in some form – was the critical resource; in others it was knowledge in much less standardized forms, which actors had gained through experience and close observation, augmented by appropriation of scientific expertise through reading or internet use and so on.

however, the impact of expertise on the further development of the project is itself an important issue. as suggested above, it can sometimes have socially exclusive and inequalitarian effects or may block other necessary knowledge for sustainable development. a critical factor here is the social structure which the project develops and through which knowledge–power relations within it are mediated. In many of the cases studied, little attention appears to have been paid to social organizational features within the project itself; it was assumed that these should follow normal administrative relationships, with leadership and managerial power held by those elected to local office or well-placed in local or regional bureaucratic structures, and advisory power held by scientific or business elites. The formal structures external to the project (especially legally based structures of public administration) are often guided, not by common efforts to redefine the situation through informal networks for the purposes of broad cooperation and territorial integration (as mentioned above), but by efforts to shape and dominate core project activities in a conventional administrative approach; whether or not this is the intention, such approaches

may block sustainable development. Such cases show that projects have not yet achieved the autonomy to redefine the situation in accordance with the objectives of sustainable development, but tend to remain bureaucratically administered, which is another way of saying that experts and expert knowledge direct them. moreover, this situation tends to endure because it derives from the given institutional structures of political and economic systems where power, expert knowledge and various forms of capital are concentrated. in some exceptional cases (see, for example, the portuguese, german and Swedish chapters), devising the social organization of the project was regarded as important, or a reconsideration of it was forced by local resistance or discontent. Still, the experiences do not add up to a simple conclusion. an effective design seems to be some form of cooperative structure, either one novel to the area or one that builds on existing cooperative organization that is part of the territorial networks mentioned above.

Knowledge Combination and Participation of Resource Users

projects for rural sustainable development are likely to be successful, then, when they develop informal network mechanisms for territorial integration of actors and knowledge, and, moreover, when they dare to address the difficulties of bringing together and combining expert and lay knowledges. this means that the projects take on the burden of consciously facing conflicts which then need to be solved within the project, through cooperation between the actors, using similar informal processes as have been found for knowledge integration (informal processes for conflict management include, for example, mediation or informal negotiation between the actors in conflict – an issue less studied in CORASON). The mechanisms of informal management that seem vital for rural sustainable development are, from another point of view, the same as those that are discussed as civil society action and empowerment of local stakeholders through participation in projects for resource management. that is, the same social organizational contexts which create cohesive effects using local tacit knowledge (in informal local networks, for example) are shaped to encourage relatively egalitarian and open public or civil society spaces for multi-dimensional knowledge exchange, transfer and collective learning, trust building, interest matching, conflict mitigation and negotiation for enduring cooperation. A similar message can be identified – but in this case, the nuances of the knowledge-sharing processes are suppressed – in the widely found claims that sustainable development projects should be ‘participatory’ in their approach and organizational structures. with the knowledge issues discussed here, the missing element in participation is identified, and that additional component allows participatory approaches for sustainable development to be no longer built only on normative grounds – a political plea for broad participation and interest matching. instead, a very essential element of participation and sustainable development is revealed that tends to escape the attention of scientists, experts and bureaucrats active in rural development: renegotiating and recombining knowledge for the purposes of another development. the core message of participatory development and resource

management often tends to be reduced to normative or ethical convictions; it needs to be based on sound empirical knowledge which would show that participatory projects can successfully deal with resource-use issues in the transition to sustainable development and that this success is due to the way they combine different knowledge forms in configurations that may vary in different phases of a project. The problem may be that neither rural nor environmental sociological research up to now have devoted much effort to studying and comparing the outcomes of participatory and non-participatory projects with regard to the roles and combinations of knowledge within them. In more interdisciplinary research areas, such as common-pool resource management, there seems to be more evidence for the success of local participatory projects for rural development and resource management (see Becker and Ostrom 1995, Agrawal 2003, Berkes, Colding and Folke 2003).

Such research also provides an argument (often missing in other debates) as to how the participation of local resource users is efficient for sustainable resource management. The significance of participation is not as a political form of power sharing, but as an opportunity for the actors themselves to identify knowledge forms and knowledge combinations that are required for managing natural resources in sustainable ways. This research provides complementary arguments to the case studies from CORASON – and it is, moreover, with participatory or local management of natural resources that the main challenges for rural sustainable development become visible. Participation of stakeholders in resource management, knowledge integration, and building of trust are closely connected. Participation, in the sense of knowledge sharing, goes much further than providing occasions for local consultation, which usually means little more than ratification of a pre-existing project plan and objectives. It requires a deliberate strategy to understand the nature of existing social relationships in the locality and to design a project structure which will strengthen these and transform them into forms of active citizenship. While support from local and regional institutions is significant for the survival of development projects over time, that support needs to be carefully monitored to ensure that it does not impose an elite relationship structure onto the situation; it may be as important for these institutions to understand when they should not intervene, as when and how they should.

In effect, sustainable development at the local rural level implies development of civil society as much as of economic practices and relationships. The idea of participatory development, or democracy in development, is a central element in the global discourse of sustainable development, which owes much of its current importance to two sources of debate. One is the body of development literature which first opened up the problematic of 'local knowledge' and how to ensure that this is given respect and status within what are often expert-driven development programmes. This is the debate we have followed further in the CORASON case studies, as it seems to have been widely neglected as much in scientific as in policy discourses. A second, more normative discourse is that of the global environmental justice movement which has shown how environmental degradation is often unfairly concentrated in poor communities and areas, but also

how environmental conservation is often equally unfair to the poor. This is valid not only at a global scale between 'developed' and 'developing' countries, but also within European countries. A key feature of efforts to ensure environmental justice has been a deliberate strategy to empower poor groups and communities so that their understanding of their 'environment' and their knowledge about processes of change and degradation in it can be voiced and heard by those in power.

Investigating the place and importance of lay knowledges in rural development can provide critical insights into both the necessity for, and the difficulties of, ensuring that practices for sustainable development are innovative, collective and participatory, and include trust building as well as conflict mitigation. Rural actors, particularly those whose livelihoods are closely linked to productive use of local natural resources, are often found to have their own understanding of 'sustainable resource use' even if this does not use the terminology associated with sustainable development as a policy and political discourse. We suggest here that livelihood versions of sustainable development (see chapter 1, Scotland) are closely tied to the possession by such actors of lay knowledge about how to use and manage the natural resources they depend on in a way which is economically and culturally sustainable over time. This knowledge is not necessarily always correct or unable to be improved by 'external' knowledges; but it is usually knowledge which has stood the test of time and experience, as well as embodying normative and philosophical relations with nature which are fundamental to human care for nature but not always fully recognized in expert discourses. Participation and knowledge integration in rural development projects require, above all, that the scientists and other experts involved become aware of the limitations of their own knowledge and of previous scientific assumptions about how to know and understand ecological systems and their interaction with productive and social systems. The limitations of scientific knowledge are usually understood as a problem of knowledge specialization or of gaps in research, to be overcome through continued research; this assumes that there is no need for the forms of knowledge sharing and integration discussed here. We would also suggest that the stipend paid by many ecological researchers for some years now to participatory resource management and the importance of local knowledge in 'navigating social-ecological systems' (Berkes, Golding and Folke 2003) does not mean that we can take for granted the reality of such transdisciplinary knowledge integration in the practice of rural development. Participatory forms of development need to open up dialogue between lay and expert knowledges on equal terms; but while saying this is easy, accomplishing it is extraordinarily difficult. This is probably one of the most significant lessons we have learnt from our research into knowledges in rural sustainable development.

Beyond the Policy Process

Rural development programmes and projects that intend to direct the transition towards sustainability illustrate differing, sometimes incompatible, ideas and

approaches to sustainable development and resource management in rural areas. This has led to difficulties and confusion about how to deal with sustainable development. We interpret the results of the *co Ra Son* project as offering a step forward in the practical handling of the difficulties of such a contested concept. First of all, we followed the premise that rural sustainable development is more than implementing policy programmes and projects. The qualities ‘beyond policy’ are different – they imply a long-term perspective beyond the time horizons of policy, management and planning cycles; moreover, they include questions of appropriation and distribution of resources for development; practices of resource use by different groups of rural resource users, their worldviews and ethics that influence their resource use, their livelihood perspectives; and the changes that happen in social and ecological systems through processes called ‘development’. The attempt to approach rural sustainable development through knowledge use and a knowledge practice perspective was intended to make visible such ‘beyond-policy’ components in a hitherto neglected perspective.

Studying rural development through its constitutive knowledge processes seems important for several reasons. Knowledge forms and knowledge use can be seen as social realities in their own right as they are incorporated in social action and in socially structured practices of knowledge use. But in *co Ra Son* the primary interest was not only to describe and document the different knowledge forms that influence sustainable development. Rather the purpose was to use the knowledge perspective to make the social complexity of sustainable development visible in another way, one that promises to help solve some of the problems and conflicts involved in the long-term development process. Knowledge of different origins (scientific, managerial, local) and of different generalities (conceptual, theoretical, empirical, normative) is not a passive medium for development, but a central management tool for the various types of resources used in rural development. Managing different knowledge forms is itself a major part of sustainable resource management and development. It is not to be reduced to a medium of communication that melts into the analysis of the language practices through which it is communicated. Rather, our interest was to develop an evaluation of the social, cultural and institutional sustainability of different forms of knowledge and of the interactions between them. Opening up this somewhat closed formula now, in discussing the results from the research, we can say: rural sustainable development, beyond evoking problems of distribution and redistribution of resources at different territorial levels under the overarching aims of intra- and inter-generational equity (problems we have not addressed in *co Ra Son*), is a transforming practice that requires new awareness of, and sensitivity to, knowledge questions. It does not entirely dissolve into questions of knowledge use, but many of the problems that come up in practice, such as conflicts over access to natural resources, are dealt with to a high degree as knowledge questions, including interpretation, combination, integration of knowledges and the difficulties or conflicts emerging with that.

One of the first consequences of such a knowledge perspective on sustainable development is the abandonment of an implicit but seldom considered premise of

policies and programmes for sustainable development: that sustainable development can be achieved through generalized and standardized approaches that can be transferred from one region or country to another, and require, foremost, a solid scientific knowledge basis. They do undoubtedly require scientific knowledge, but if there is a critical point in the intensive debates about adaptive management, sustainability science and holistic or transdisciplinary approaches in research and knowledge use, then it is this: that science or scientific knowledge is no longer providing a safe knowledge base for sustainable development, it does not allow risks to be minimized, but can in certain cases create larger risks. This, however, cannot be made visible from an 'intra-scientific' perspective of specialized, disciplinary research, but requires critical reflection on scientific knowledge itself, which is enhanced through the transdisciplinary perspectives of knowledge integration such as are discussed here. The process of sustainable development is one of permanent insecurity, and this makes awareness and reflection about the knowledge used in that process a strategic priority. The strategy of combining different knowledge forms then becomes understandable from another point of view: not as optimizing knowledge for a conventional process of goal attainment, but as becoming aware of knowledge boundaries, as has been formulated in a paradigmatic way as 'adaptive management'. Taking biological and cultural diversity and the social and ecological differences of rural areas into account is an imperative in ecological research, but the social forms and implications of that, visible through the knowledge practices, are hardly studied.

Processes of sustainable rural development are to a large degree linked with the revitalizing of local and lay knowledge, traditional and non-traditional – artisanal knowledge that is found with regard to agriculture, food processing, fishing or forestry, for example. Local knowledge and technologies are becoming interesting again under the objectives of sustainable development. Innovations of importance for sustainable development are not only those which use newly developed technologies, but are often a rediscovery of old knowledge and experience as innovative in a new time, place and context. Natural resource management can happen in many different forms, often coexisting side by side, through a variety of actors and a variety of activities (nature protection, bureaucratic landscape and water management, rural tourism, local handicraft); they may partly supplement each other, or partly contradict each other, or simply not interfere with each other at all. The multi-faceted and heterogeneous social and ecological realities at regional and local levels of rural development allow for a variety of approaches and for approaches that do not require a broad consensus from all the actors involved. It is in recognition of this social and ecological heterogeneity that we use the term trans-political conditions for rural development, arguing that the logic of policy- and power-centred processes cannot grasp them sufficiently.

Whatever conceptual models of the policy process are used, whether of government-dependent hierarchical bureaucracy and elitist- or expert-dependent top-down approaches, or of people-centred, participatory, power- and knowledge-sharing bottom-up approaches to rural development, it is still evident that policies

are only a part of broader social processes that include cultural, economic and ecological components as important dimensions. Using a dualistic picture of top-down and bottom-up approaches to policy implementation, somewhat similar to Korten's contrast between the ideal types of 'macropolicy' and 'micropolicy' approaches, is already a simplification of the policy process. To extend the concepts of policy or politics further and further in order to grasp an ever more complex social reality, as for instance in Beck's (1992) notion of 'sub-politics', Giddens's (1991) 'existential politics', or Stehr's (2003) 'knowledge politics', is not a promising solution; these tend to extend or redefine the policy process and space by 'politicizing' new issues, even that of knowledge, under a perspective of regulation and control. These remain variants of 'seeing the whole from the logic of a part'. The argument we suggest is that significant parts and components of sustainable development cannot be formulated in the language and the logic of policy processes or politics. For us, the social reality of rural and sustainable development is multi-faceted, and the knowledge forms and processes found in it connect heterogeneous processes of production and consumption, resource use and resource management, education and awareness building, cultural values and ethics, that cannot be subsumed under a single unifying logic, not least that of a political process.

Reconnecting this analysis of the broader meaning of sustainable rural development with the specific cases discussed in the previous chapters and with ongoing scientific and policy debates about rural development, we draw some general conclusions about how and how far policy and programmes can influence social processes of rural development.

Institutional Perspectives on Rural Development: GOs and NGOs

a contrast can be drawn between two conceptual models of how to guide processes of rural sustainable development, at both the policy level and the level of dialogue between the actors:

1. a discourse coming from political institutions of government and sectoral or specialized public agencies and administrations that has centred around the conceptual model of ecological modernization.
2. a local, livelihood-oriented loosely organized discourse, more a set of ideas and practices of sustainable resource management, which includes elements of a people-centred and governance-driven transition, and captures better than the first model the policy and decision-making processes which are outside the reach and control of governmental actors, more in the hands of NGOs and new social movements.

This distinction, originally formulated to grasp the differences between practices for transition towards sustainable development in developed and developing countries (see Lee, Holland and McNeill 2000), can be reformulated to include

the conventional distinction between top-down and bottom-up approaches or, in David Korten's terms, macro- and micro-policies. The first variant is more driven by the policy discourse about sustainable development which has evolved in eu policy – it might be described as a discourse from the initial phase of sustainable development and constructed following the institutional realities and practices of european or industrialized countries, with little attention, however, to the specificities of rural development. As our chapters illustrate, in the process of transition towards sustainability, more and more procedural components of the second variant become visible, as this variant is close to the discourses about participatory development and new governance. Both themes shape to a large degree debates about trends of change in late modernity – to the extent that sustainable development is already taken for granted as a new reality, especially in the debates of ecological economists (Sneddon, Howarth and Norgaard 2006). Whether this is wishful thinking or a specific form of normatively influenced analysis will not be further discussed here. It is more in line with the examples from Costa Rica to identify the second model as just as partial as the first, but from a contrasting perspective. Both conceptual models of the policy process are only partial social realities, showing different institutional arrangements and guiding ideas about policy change; what both have in common is being discussed at a time which is still the beginning of a transition to sustainability, and in neither of the models is the long process of sustainable development discussed sufficiently with regard to the components that we want to direct attention to: knowledge components, the long-time perspective, and the plurality of participating actors.

Historical and Temporal Perspectives for Rural Development

Thinking in terms of 'generations' of conceptual models or paradigms for sustainable rural development can provide a heuristic tool for assessing progress and improvement of the knowledge flow into rural development concepts and strategies. Our research started to discuss this using three models of rural development identified by Marsden (2003) as a sequence from (a) modernization, to (b) critique of productivism, to (c) sustainable rural development. These models help to clarify the processes of change in paradigms and thinking about rural development, and we can see in parallel with them how emerging ideas of sustainable development successively enter rural development discourses. In the beginning, sustainable development was no more than nature protection, conservation and environmental policy, and in practice it is still that to a large degree. Since the 1990s it has been subjected to ideas about integrated and trans-sectoral resource management, which have meanwhile become mainstream models; these specify that 'three dimensions' of economic, social and environmental sustainability should be integrated with each other. The effect is that sustainable development should now be more clearly and critically related to the practice of resource use and management in rural and other production processes. However, this is still an idea born in the early phase of

a transition to sustainable development, without sufficient reflection on its long-term requirements.

The question of which variant of sustainable development can be effective in practices of local resource management and conservation remains unresolved for the time being. The sequence of phases from modernization to post-productivism and sustainable development grasps some of the reality of the historical process of changing contexts of rural development, but to understand these as a continuous progress towards a pure form of sustainable development, when the remnants of modernization and the first and incomplete changes under the post-productivist model have been overcome, is too simple. Although our chapters show that sustainable rural development is often interpreted using such models from different phases of rural development, this leaves unclear what is required for the transition to sustainability in terms of ideas, knowledge and resources. These are the points to be highlighted from our research.

Sustainable rural development is not successfully achieved when the two older paradigms are replaced by the one that Marsden called, simply and programmatically, 'sustainable development'. All three paradigms give only fragmentary, partial pictures of the complex nature of sustainable development. This complex and changing nature is not grasped through pre-fabricated conceptual models; rather, what is needed is a recognition that sustainable rural development implies a continued search for, and improvement of, knowledge as an incremental approach to a faraway goal – one that will not be achieved in the short-term time horizons of conventional public planning processes, or even in the more extended time frames of 20- or 30-year scenarios that have come to be used to project development trajectories, as in the case of the national environmental objectives in Sweden or the Polish Sustainable Development Strategy 2025. A process stretching over several generations is one that is beyond the horizons of planning, projecting and policy.

Implications of knowledge integration for the reorganization of formalized policy processes The dominant reality of rural development in European countries is still – and increasingly – one of politically directed development activities, initiated by and dependent on external funding, policy programmes and expertise. The results and arguments our research has produced can be used to reflect on what the centrality of knowledge components in rural development requires in terms of supporting policies and programmes. Most of the case studies presented in the chapters of this book demonstrate rather clearly the complicated issues of defining sustainable development, identifying the policy networks to be built for successful projects, and the mechanisms or instruments for policy implementation and evaluation for rural sustainable development.

Definitions of sustainable development at the local level These vary from actor to actor even in a single project and there is hardly any seeking of consensus about a joint understanding of the terms. This, however, is less a weakness of

the projects and actors, more a reflection of the differences in the discourse and practice of local actors. For them, sustainable development is not a concept they have to deal with by way of definition, explication or reflection as project managers and scientists are required to do for the purpose of finding criteria and operational definitions. Their understanding of sustainable development emerges indirectly, through the knowledge and production or resource-use practices applied in the projects. In the cases studied this can be interpreted as maintenance or revitalization and strengthening of the knowledge and experience of the local inhabitants that cooperate with experts to make sure that their projects can be carried out. To differentiate between the economic, social and environmental conditions of sustainability is to look at their practice from another, bureaucratic, planning or scientific logic. In the traditional resource-use practices which the projects make use of or learn from, all three aspects have been included without separating them.

Policy development through actor networks This has not been a major theme in the case studies that reflect more local social practices than policy processes. The conventional discussion of policy processes as following top-down or bottom-up approaches is not very relevant for understanding the core processes of rural sustainable development, exemplified by the projects as trans-political processes for which policy is only partly an influence. Rather than following an ideal-type construction of policy processes and their hierarchies, many case studies show a pragmatic form of rural development practice in which both top-down and bottom-up approaches coexist, without paying attention to their compatibility or incompatibility: when involved in a project the rural actors make sure that their influence and knowledge are maintained in the core processes of the local projects.

Mechanisms and instruments for policy evaluation and implementation These are not the main components of the projects studied, and the innovative character of the projects is not revealed in new policy instruments and evaluation procedures that reflect to a large degree the perspectives and interests of the experts in power, the scientists and bureaucrats of the 'project class'. The perspective of many local actors is not that of the external participants, but rather one of gaining influence and control over the projects with the help of their experience and knowledge and minimizing external influence, intervention, guidance and resources. A new culture of evaluation, one that includes participatory evaluation and requires less evaluation through external experts with specific mandates, has not yet been put forward, but can be expected to develop as the projects proceed towards participatory and knowledge-sharing projects (for the evaluation debate see further the multi-project: Knickel et al. 2008). Therefore, rather than top-down or bottom-up approaches, one can speak about a divided practice in which heterogeneous approaches coexist, but the bureaucratic rationality of evaluation is not the dominant one that decides on the success or failure of the projects.

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