


Commons in Transition

INSTITUTIONAL OPTIONS FOR THE CONSERVATION OF BIODIVERSITY: EVIDENCE FROM THE CZECH REPUBLIC

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Prague, 11-13 April 2003

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Draft 2/04/03

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Abstract

The paper concentrates on changes in property rights and policies surrounding interaction between agriculture and nature in the Czech republic. In the first part the recent situation is reviewed. The institutional and organisational features and their development during the transition and recent years are illustrated on the case study on the White Carpathian protected landscape area. The key point in conservation in the White Carpathians (as in the number of other marginal areas) is to maintain grassland management in large scale. While environmental policy lacks measures for maintaining grassland management, the agricultural policy launched respective incentives, however, without sufficient environmental concern. There are two other problem areas hampering effi-

cient organisation of conservation: outstanding land reform problems and little involvement of local population in determining conservation priorities.

In the second part, the paper examines three policy options for enhancing sustainability of the organisation of the provision of landscape and biodiversity on farmland. The policy options are proposed each reflecting the identified problems in the White Carpathian case study.

Key words: landscape, biodiversity, property rights, conservation management, Central and Eastern Europe

INTRODUCTION

The paper refers to sustainable land management in marginal areas. These areas are often protected for its landscape and biodiversity values. Much of the land has poor soils and the areas tend to be underdeveloped. Historically, the low intensity farming that took place maintained the richness of the wildlife and the diversity of the landscape. Collectivisation in the 1950s and the subsequent intensification of agriculture threatened the area's natural values. In order to curb some of these adverse effects Protected Landscape Areas were designated in 1970s and 1980s.

The political change in 1989 and the subsequent economic reforms have led to both a sharp economic decline and major structural adjustments in agriculture. Whilst these have resulted in reduced pressures on the natural environment, they have also led to the extensive withdrawal of land management practices that are essential to the maintenance of landscape and biodiversity. The available nature protection policy measures and approaches, however, were not appropriate to these new threats, being rather blunt controls over the intensity of production.

New agricultural legislation and policy introduced in 1997 recognise the need for compensation for restrictions on agricultural practices and have provided a basis for the gradual introduction of incentives to cultivate marginal land. However, this policy has not integrated with the governance of environmental protection. The obstacles to the long-term sustainability of land management in the Czech republic and policy options to deal with them are illustrated on the White Carpathian Protected Landscape Area case study. We identified two other principal institutional imperfections in land management in the White Carpathians: division and uncertainty surrounding property rights to the land; and the limited involvement of local people in determining how areas should be managed and developed.

Cultural landscapes and biodiversity on farmland even in protected landscape areas are outcomes of human interactions with nature. Thus their state will always depend on the values and priorities of current local, national and global populations and the mechanisms by which the priorities are transmitted to agents providing environmental qualities. The central question of this paper rests in options to improve institutional arrangement in order to get more environmental values on a sustainable basis.

This paper proceeds as follows. First we introduce theoretical concepts. Then we explain how the provision of environmental goods was organised in the case study area - the White Carpathians and make general conclusions. The final section defines and examines policy options for institutional change enhancing sustainability of the organisation of the provision of landscape and biodiversity on farmland

THEORETICAL CONCEPTS

Our attention is paid to three goods (assets) – land, agricultural products (conventional or ecological), and landscape and biodiversity. Property rights over these goods changed during the last decade. Land reforms (Land Law, 229/91) returned titles to land to original (pre 1948) owners and their heirs in 1992-1993. Ratinger and Rabinowicz (1997) listed outstanding problems with delineation of property rights to land: The ones most pertinent to the landscape and biodiversity management are the uncertain subdivision of property due to inheritance; and the prevalence of unidentified/inactive owners. The steady depopulation of the marginal regions over a long period of time has exacerbated these problems. The heirs of the original owners may now live far away, may be unaware of their property or may have such a small or uncertain stake as to provide insufficient incentive to them to pursue their claims.

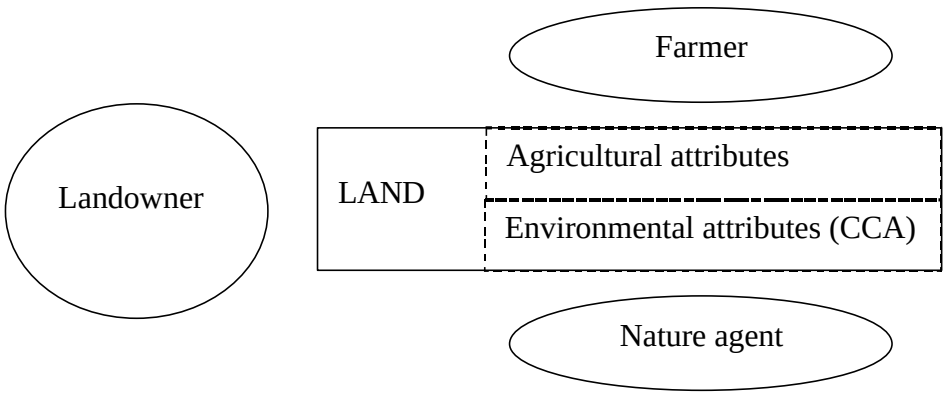
In the effect of market liberalisation and commercial reforms farmers (as all other entrepreneurs) acquired economic property rights over their "food & fibre" output. Since that, farmers' incomes have depended on selling their products not on discretion of central planners.

Landscape and biodiversity is another output stemming of the land. For reasons which will become apparent later we divide environmental output "landscape and biodiversity" into four categories: Landscape (as composition of meadows, pastures and arable land, its tillage etc.), landscape amenities (hedges, trees, (traditional rural) buildings etc.), biodiversity (diversity of species on a large area) and micro habitat protection (nature

reserves). We deal with non-rival and (partly) non-excludable goods (Slangen 2001, 2002) specially if we consider their intrinsic values.

Lippert (2002) suggests associating the bundle of capabilities (to provide food and fibre and to provide environmental qualities) to land and distinguishing between agricultural and environmental attributes of land ownership. Bromley and Hodge (1990) use a broader term 'countryside a community attributes' (CCA) to a bundle of non-food&fibre attributes associated with land. Obviously, these attributes will not necessary be controlled by the same person. The fact that different agents may optimise agricultural and environmental attributes may lead to 'divided ownership'. While property rights to agricultural attributes are supposed to be held by farmers, environmental attributes may finally be in hands of a person or organisation different than farmers ('nature agent') (for illustration see Figure 1).

Figure 1 Lippert's schema



Source: own illustration

The question is which institutional arrangement (governance structure) ensures the optimal provision of environmental qualities. The arrangement will depend on transaction costs (here: costs of enforcing property rights) occurring in providing and transferring environmental attributes. Lippert (2002) distinguishes three kinds of transaction costs: costs of excluding, cost of measuring the benefit, costs of monitoring inputs. If the sum of production costs (inc. opportunity costs) and costs of excluding is below the value of an environmental quality sooner or later will occur market remunerating the providers' effort. If costs of excluding are prohibitive, while production costs are less than the (social) value of the environmental attribute a territorial authority may promote its provision. Then the remuneration modality will depend on costs of measuring the output (Lippert, 2002):

a) If these costs are low (justifiable high) then a result related remuneration by the state of the person or organisation improving the environment will be preferable.
b) If costs of measuring are prohibitive then an action-related remuneration will be preferable. Since the output is not measurable (at acceptable costs), the measure must rely on such (farming) practices, which are supposed to produce desired environmental effect.

Falconer (2002) pays particular attention to transaction characteristics as assets specificity, observability and inseparability in the context of farmers participation in voluntary schemes for provision of landscape and biodiversity. In Williamson's theory assets specificity refers to the fixed costs related to a transaction or better to the low opportunity costs that assets have for an alternative use (Vernimmen and others 2000, Williamson 1991). These fixed costs may relate to particularity of the site, long term investment or knowledge. Low separability (high inseparability) is often due to joint production of environmental goods provided by agents. Joint production (of a number of agents) might be associated with low observability of individual contribution, and hence high cost of measuring it. This we have already considered. However, there are often joint productions, for which inputs of individuals are rather complements than substitutes. Consider the production of landscape, if one land operator refuses provide/ maintain certain landscape features (attributes) extra landscape management activity of another land operator will not compensate (Falconer, 2002). Following Williamson (1985) we can distinguish four types of contract-cooperation modalities: spot market, obligational market, primitive team and relational team (Table 1).

Table 1 Governance structure in respect to separability and assets specificity

	Low assets specificity	High assets specificity
Separabilty	*Spot market*: short term contracts and highly individualised incentives (high observability)	*Obligational market:* contracts of longer duration likely, easy implementation
Inseparability	*Primitive team:* problems in identifying individual contribution to overall performance. Contracts are more complex than the spot market, with more costly monitoring required. Longer duration contracts (given the costs of renegotiation), but still relatively short term as low specificity.	*Relational team:* complex organisation; tendency to opportunism-cooperation and shared values needed. Long term contracts to capitalise on the costs of building team capacities with a greater role of organisational incentives over monetary incentives.

Source: Falconer, 2002

Slangen (2002) following Lyons and Mentha (1997) is more precise and distinguishes between contracts (terms under which property rights are modified/exchanged) and ar-

rangements (under which contracts are implemented). Three types of contracts are suggested classical, neoclassical and relational. In classical contracts the identity of parties does not matter, price is most important co-ordination mechanism, safeguard is of little importance and term is short. On the other pole is the relational contract. The identity and personal characteristics of parties in the relational contract are crucial, price is of minor importance as a co-ordination mechanism, safeguards are very important and the term is very long. In between there are neoclassical contracts, in which the identity of parties matters, price is less important as co-ordination mechanism, safeguards are important and term of contract is longer. Obviously, contracts and governance structures are closely related. Intuitively, classical contracts relate to spot markets (from Table 1), relational contracts to relational teams (which may take a form of environmental cooperative) and neoclassical contracts to primitive teams or obligational markets. Actually, transaction characteristics determine both features of contracts and features of governance structures. The above discussion is summarised in Table 2. As Menard (1997) pointed out the best contract is a contract which can be set up and implemented under low costs, with simple enforcement procedure (Menard, 1997). Therefore, the choice (or evolution) of the governance structure will depend beside the above discussed transaction characteristics on the completeness and complexity of contracts (Slangen, 2002 b). Incompleteness results from bounded rationality, particularly if the environment is uncertain, and from opportunistic behaviour of the partners. Complexity has to do with writing of and implementation of contracts mainly as a result of an unclear distribution residual control rights between parties.

The attribute like biodiversity and landscape being an impure public good or common good lies according to Barzel (1997) in public domain; therefore, we have to deal with complex contracts. The contract might be settled as if all possible events are foreseen i.e. as complete; the corresponding governance solution will be the (principal) agent model. In practice, it will be difficult to take all future possibilities into account, contracts for landscape and biodiversity tend to be incomplete. Then the arrangement will depend mainly on the importance of horizontal co-ordination.

Table 2 Transaction characteristics and organisation

Transaction characteristics	*Features of contracts/organisation when transaction costs tend to be high*	
Excludability	non-market governance structures	
Assets specificity	need for long term contracts	
Measurability (observability) of	action related contracts	

output		
Monitoring	commitment and trust needed, safeguards important	
Inseparability (low separability)	horizontal coordination important	

Source: own classification

For those attributes/environmental qualities for which horizontal coordination is essential the relational contracts and relational teams (environmental cooperatives) are proper arrangements. For the others it can be hybrid forms based on neoclassical contracts. When result related measures are justifiable and when specialisation and scale effects can be expected introduction of 'nature agent' (e.g. Conservation, Recreation and Ammenity trusts, Hodge, 1991) can be considered, who has to be the 'residual claimant' to the outcome of his effort (Lippert, 2002). Now, the question arises how the discussed transaction characteristics, contracts and governance structures relate to various environmental goods/services from the family of landscape and biodiversity. We might get a notion about the linkage between goods and transaction characteristics from Lippert (2002) and Falconer (2002) (Table 3).

Table 3

	Cost of exclusion	Assets specificity	Measurement cost (observability in the reciprocal way)	Inseparability (jointness in inputs)
Landscape	High, prohibitive	Tends to be high	High	High
Landscape amenities (hedges, trees, etc.)	High	Rather low	Low	Low
Biodiversity	High, prohibitive	High	High (attempts made)	High
Micro habitat protection	High	High	Rather low (definitely possible)	Low

Source: Lippert, 2002, Falconer 2002

This allows us to build an image of "optimal" governance structures for landscape and biodiversity provision. It is obvious that due to high costs of exclusion we have to deal with non-market organisations. Assets specificity tends to be high for the family of landscape and biodiversity goods, claiming long term contracts. Due to high inseparability, the "landscape" and "biodiversity" will require significant horizontal coordination. Results and individual contributions in protecting microhabitat or providing certain landscape amenities are observable and measurable, therefore, governance might be result oriented and relatively simple. Lippert suggests that landscape amenities and microhabitat protection might be provided by (non-farming) 'nature agent' also due to specialisation and scale effects.

We distinguish between the intrinsic value of the diversity and existence of species on one side and the aesthetic value of landscape and visible richness of the nature on the other side. We would argue that meadows in the White Carpathians provide public goods to the global society in the form of the former and to the local society in the form of the later (for an analogous example see Hanley and others 1997). This distinction indicate another (possible) level of divided ownership beside that originating from the agricultural (food and fibre) and environmental. This definitely has an implication for the "optimal" governance structure.

Due to prohibitive costs associated with environmental transactions (discussed above) the private rights based regime leads to sub-optimal production of environmental output (Grafton, 2000). Bromley and Hodge (1990) suggested departing from the traditional model and let the management (and exclusion) rights reside with the community or the state. If community rights are to be successful in addressing common pool problems, the collective interest must be accounted for the decision-making and behaviour of resource users (Grafton, 2000). Ostrom (1990) stresses that well defined geographical boundaries, rules acceptable by the community and tailored to the resource, monitoring and enforcement capacity, resolution mechanism for disputes, participation on most resource users in changes to collective rules and recognition by the outside authorities of collective rights are necessary conditions for enduring community rights. Obviously, community rights based property regime is similar to the relational team described above, deploying community social capital (commitment and trust). State rights based property regime is appropriate when large co-ordination is needed, and economies of size exists in terms of processing of information, monitoring and enforcement (Grafton, 2000). In both, community or state based property rights regimes the legal ownership of land does not matter unless it generates significant costs, which do not occur when sole ownership takes place. One can consider current protected landscape areas as state rights based property regimes. Evidently, there might be an alternative arrangement based on the relational team bringing together local people with their social capital, farmers and representatives of "global/national interest" (the state).

WHITE CARPATHIANS CASE STUDY

The White Carpathians are a mountainous area in the East of the Czech Republic on the border with Slovakia. The area was settled for agriculture in the 16th and 17th century when much of the forests were cut or burned down. The poor soil ensured a pastoral agriculture of extensive cattle and sheep grazing with small domestic plots cultivated for cereals and potatoes. Traditional farming - unmechanised and relying on low inputs - remained characteristic until the middle of the 20th century.

After collectivisation, in the period from the 1950s to the 1980s, there was an increase in the concentration of cattle for both dairy and beef production. There was a switch to housing the animals throughout the year. Artificial fertilisers were applied to the grassland, and the grass and hay were mechanically cut. The Protected Landscape Area designation, imposed in 1980, was intended to safeguard biodiversity from these changes.

The protected area extends to 71,500 hectares, just over half of which is agricultural land. The zones with strongest protection - including restrictions on fertiliser and pesticide use and prescriptions on certain aspects of land management - cover 28,300 hectares, about a third of which is agricultural land.

Since 1989, the recession in dairy and beef markets has resulted in reduced concentrations of cattle. On the one hand, this has allowed a beneficial extensification of production and animals have started to reappear on pastures. On the other hand, the less accessible meadows and those with restrictions on fertiliser application have little value any more to the farmers. The area of agricultural land not being used has grown, reaching 5% by the late 1990s.

The significance of the landscape and biodiversity of the White Carpathians are recognised nationally and internationally. The meadows are amongst the most species-rich plant associations in Europe, including many protected species. The mosaic of meadow, pasture and forests and the varied topography produce a variety of habitats, including some plant life adapted to dry conditions and some to humid conditions. This biodiversity can be diminished in a short period of time by such practices as fertilising or mulch-

ing, or by idling the land (Willems and Van Nieuwstadt 1996). The land has to be mowed or grazed. Stopping such management leads to shrubby growth which reduces species diversity.

Table 4 Farm Structure in the White Carpathians

Farm Size	Share in the Number of Farms	Share in the Area
Above 500 ha	0.2%	48%
10 – 500 ha	0.8%	16%
Less than 10 ha	99.0%	32%

Decollectivisation and land restitution have left a dual farming structure. A few large farms over 500 ha occupy almost half of the agricultural land; while 99 per cent of farms are under 10 ha and together account for about a third of the agricultural area. Most of the latter are household plots of less than 2 ha. The household plots and small holdings are mainly farmed for direct consumption and to supplement other household income. The small and medium-sized commercial farms are run by people, often pensioners, who are keen to re-establish their family farms. Survey evidence suggests that these two groups are deeply committed to the landscape. The large commercial farms, in contrast, are very profit oriented. They are also sensitive to changes in market or policy incentives. They usually have land outside the protected zones. Typically their businesses are differentiated into intensive food and fibre production and extensive environmental quality management.

ANALYSIS OF THE CURRENT INSTITUTIONAL ARRANGEMENT IN THE WHITE CARPATHIANS

GOVERNANCE STRUCTURES STEMMING FROM THE ENVIRONMENTAL POLICY

The environmental policy for designated protected landscape areas recognises direct regulations (on the use of fertilisers and pesticides, on grazing, etc.) and contracting for improving landscape and biodiversity (Law 114/1992). A requirement of proper grassland management is not explicitly mentioned in the legislation; it is argued by the environmental administration that it follows from the Law on the Protection of Agricultural Land (334/1992, a revised version 231/1999). This is obviously a weak point – such a "legal" requirement is difficult to enforce. Originally, regulations in protected landscape

areas were taking off of property rights without compensations. As pointed out by Slangen (2001, pp 25), large extent of uncompensated regulations on resources would result in their incomplete or inefficient use. Thus the result of uncompensated regulations was not only the loss of income of farmers, but also idling (abandonment) of land reducing provision of landscape and biodiversity attributes in the White Carpathians.

Environmental legislation is implemented, monitored and enforced by the local administration of protected landscape area (LA PLA). The competencies and range of tasks of this body have increased as significantly as the extent of conservation requirements towards farmers and local communities since 1992. LA PLA is generally supposed to manage all environmental attributes: landscape, landscape amenities, biodiversity and microhabitats (see Table 3). However, the actual main LA PLA activity concentrates on the fulfilment of regulations (as fertiliser application, restrictions on grazing) and negotiating and governing contracts for microhabitat protection and landscape amenities. The landscape and overall biodiversity management relies on information dissemination to agricultural landscape management contracts (before 2000) and LFA payments (after 2000) because LA PLA contract possibilities are very limited.

LA PLA contracts for microhabitat protection and landscape amenities present very detailed management prescription with precisely calculated value of the service. In this case the governing body (LA PLA) knows exactly what it wants the producer (a farmer) to make and hence it can enforce the contract (Shleifer 1998). The contracts assume separability and sufficiently low (acceptably high) measurement costs. These contracts are in principle available (accessible) for any land user operating in the area. However, it follows from interviews with LA PLA representatives that the identity of parties matters. The administration is concerned of the ability and reputation of the contractor to provide the service in a sufficient quality and at a reasonable low/high cost. Farmers are interested in these contracts, particularly, when they wish to restore degraded land (often previously abandoned meadows). It creates a self-enforcing safeguard. The contracts are not made for more than a year. The contracts (the programme) are criticised mainly for the uncertainty to be concluded: there is no guarantee that proposed management agreement receives money from the state budget in the end (plus the time span between the proposal and payment). In the light of the theory we outlined, the LA PLA contracts are incomplete if we take into account the period the contracts are prepared. Generally, contracts are not complex - if farmers are interested (i.e. they also envisage “agricul-

tural" benefit) they usually get the contract (if there are financial resource), if landholders (owners or tenants) are not interested (because of the lack of "non-environmental" benefit) then the LA PLA looks for a nature agent. In either case – contractors are residual claimants.

Since the budget is very limited, contracting stemming from the environmental legislation is used for improving or maintaining the highest natural values or for costly restoration of the habitats of valuable species. There are obvious constraints of the LA PLA to maintain biodiversity and landscape in larger extent by these types of contracts.

While observability or separability of transactions covered by the LAPLA contracts is high, it is not the case of those maintaining/enhancing overall biodiversity and landscape, in fact, those subjected to legal requirements for a certain farm practices (no fertilisers, mowing). Monitoring capacity of the LA PLA is very limited; monitoring and enforcing related to biodiversity and landscape is in general costly and in particular accompanied with high organisational costs stemming from the "transitional" land tenure system. First, LA PLA identifies a landowner (in the cadastral office) and then the landowner leads to a tiller. It is obviously an inefficient system, since there are thousand landowners (and many of them are not identified), but much less operators. Therefore (to avoid these costs), rather than in sanctioning improper practices, specially those which are subjected to the MoA support programmes, the LA PLA sees its role in permanent and patient education of agents acting in the White Carpathians. Extension capacity of LA PLA is also limited, however, close co-operation with other organisations, particularly NGOs (e.g. Czech Union for Nature Protection - CSOP, Information Centre for (development of) Moravske Kopanice - ICMK) has been developed. The LA PLA noticed increasing interest of local agents - farmers as well as municipalities - in information and exchanging opinions on conservation practices over the last decade. (Sharing values and willingness to co-operate can be exemplified on many LA PLA contracts that were initiated by farmers.)

GOVERNANCE STRUCTURE TO ADMINISTRATE INCENTIVES OF PROGRAMMES OF THE MOA – AGRICULTURAL AGENCY OF MOA

The regional agricultural agencies (AA) of the MoA are responsible for administrating contracts stemming from agricultural policy. In large scale protection of landscape and biodiversity has been encouraged by payments from the budget of the MoA. Initially

(1997-2000) it was support to landscape management; in 2001, it was replaced by cross compliance associated with compensations for less favoured conditions and environmental restrictions. The proclaim objective of this programme is to modify farming practices in the way which yield most environmental quality (biodiversity and landscape). This is understandable, since "farmland biodiversity and cultural landscape" are historically outcomes of agricultural cultivation of land. However, the program was launched at the time when farmers had tended to stop cultivating land at all. Therefore, the primary objective of the MoA programme was to stimulate cultivation (keeping farmers) through income incentive, while environmental objective was supposed to be achieved through cross compliance. The original programme was not restricted to farmers, therefore, nature agents (mowing and hay harvesting companies) emerged, who in contrast to farmers primarily oriented on the production of environmental quality. Two sorts of opponents of this arrangement appeared; the first ones (farmers and their associations) argued that money determined to support farm income flew out of the sector, while the other ones expressed their doubts whether "nature agents" contributed to the sustainability. The later was based on the observation that nature agents were often not local, thus lacking local knowledge and commitment to provide the service if the programme conditions and budget continued to vary from year to year. MoA responded to this criticism and restricted the eligibility to only farmers by adding the condition of minimum livestock unit (0.15) per hectare of which at least a half has to be cattle or sheep. By doing this MoA has coupled environmental attributes to "food&fibre" production.

Minimum livestock unit's condition on the MoA contracts induces more or less commercial farming with relatively sophisticated marketing (beef market). This kind of "prescribed" farming seems not to be economically viable or at least the conversion is costly. Therefore, farmers need supplementary assistance. At the moment there are suckle cow and ewe premiums, a premium for cattle or sheep on pasture and payments for ecological production. Accepting the later the farmer is driven into even more sophisticated marketing. In the effect,

a) farmers maximise income from (conventional) beef and sheep production, while environmental services are minimised to the level to get still the fixed payment per hectare. The transaction producing and delivering the public good of landscape and biodiversity has become complex with quite a high degree of uncer-

tainty due to the instability of beef market and underdevelopment of sheep market.

b) if a farm switch to ecological production, the provision of landscape and biodiversity is included in farmer' objective functions. However unknown markets for ecological products put at risk the price premium. In addition ecological farming requires considerable knowledge (human capital). The complexity is high and it is likely that the objective function is not maximised.

Until recently, the AA lacked capacity to monitor all plots to which payments were assigned; hence, there was a high risk of opportunistic behaviour and hidden actions of farmers. In 2000, the AA monitored the region by aerial screening for the first time and the evaluation was consulted with the LA PLA. The screening has shown that farmers did not cultivate bands and strips of meadows along forests already invaded by shrubs and young trees. This –interpreted as falsely declared- area accounted up to 20 percent of the total declared area. The AA claimed the subsidy being proportionally returned, but the "misbehaviour" was not penalised.

It was evident from interviews that land users (farmers) were becoming aware about this monitoring capacity of the AA. Legally – farmers are entitled to get the payment on the all registered area. It is in interest of farmers to remove all shrubs and forest invasions. However, the removal is not without costs. Farmers will not do it until the costs are outweighed by benefits, e.g. fixed costs per hectare drop, revenue (over a period) per hectare increases. The former can be due to expanded area, the later due to beef premium or better beef price and expanding beef production. If grasslands are out of the zone 1, biodiversity and landscape value of shrubs and bushes can be (it is likely) higher than the one of meadows. In the end, MoA payments may contribute to a reduction of biodiversity and landscape value.

It is important to understand that aerial screening disclosed places deficient on treatment for a long time where meadows had already reverted to scrub – containing thicker stems of shrubs than the ordinary mechanisation could cut. In light of the explanation given in the previous paragraph farmers have had no incentive to remove shrubs and treat the whole registered area so far, on the other hand they have had no basis for declaring less area. On the other hand, for monitoring the quality and current (short term) absence of treatment (current compliance) AA has remained lacking capacity. It brings us to the issue of trust and commitment. However, the identity of parties gets only little attention in MoA contracts. The payments are mandatory and the LA PLA approval of current

compliance (not breaking environmental regulations) is formal. Actually, the LA PLA cannot do more than confirm that there is no record of a conflict in the recent past keeping in mind that its monitoring is insufficient too.

The positive on the agricultural support policy enacted in 2000 is that it has introduced compensations to regulatory taking off (restrictions on fertiliser application) in the landscape protected areas (mainly in the zones 1 and 2). Necessary to point out that these compensations are not a separate programme in mountainous areas, but it is supposed that payments in zones 1 and 2 are big enough to cover also income losses due to the restrictions. It was evident from interviews in the White Carpathians that farmers are rarely aware of this fact.

Despite the fact that the protection governance has been given legally to LA PLA, MoA contracts determine the provision of biodiversity and landscape. These contracts are (were) weak management agreements with action related remuneration. They lack most of contractual features relevant to transaction characteristics of biodiversity and landscape (identity of parties, longer duration, safeguards, non-price coordination etc.). The MoA programme is largely criticised by LA PLA for these imperfections. This attitude prevents LA PLA officers to take the agricultural support as a serious effort to promote production of landscape and biodiversity.

WEAKNESSES OF THE CURRENT SYSTEM

Generally, commercial farmers have exhibited their willingness to provide landscape and biodiversity by responding positively in large extent to environmental and agricultural policy incentives, although, their commitment has been limited to minimum income they need to survive. Currently, the maintenance and improvement of biodiversity and landscape relies on commercial farming. In contrast, owners/operators of land having no livestock have been "effectively" excluded from the agricultural support. Some landowners in order to get the payments attempted to start cattle or sheep production, but the majority of particularly small landowners has been driven to rent their land to large commercial farmers/farming companies. Large operators inherited and gained the monopoly position on the local land (lease) market, i.e. there is often one large operator surrounding the village. Thus the opportunity value of land has dropped significantly and rents have fallen to zero. In the effect, they gained local monopoly and monopsony in providing environmental values. The position of large operators is even strengthened

by the fact that large farms reduce the need and cost of horizontal co-ordination. Also LA PLA prefers to deal with large farmers in provision of overall biodiversity and landscape. However, more horizontal co-ordination is still important in several respects: scale effects exist in conservation of some habitats and species, in information collection and distribution and in organising marketing of ecological products. This need is significantly undervalued by both LA PLA and AA. The gap is filled by the NGO – Information Centre for the development of Moravske Kopanice[1] (ICMK). ICMK has initiated mutual communication among farmers, exchange of experience and knowledge and transfer and spread of environmentally proper farming practices. It has also encouraged farmers to organise themselves in a marketing cooperative to coordinate production and distribution of ecological and locally specific (labelled) products. The listed activities indicate that ICMK plays an important role in vertical coordination too. Since the NGO has mediated the communication between farmers and authorities, it has contributed to improved coordination between LA PLA and AA.

LA PLA expressed its mission in the preservation of high natural values for global society while it almost completely omitted the fact that the protected area was first of all the environment of local inhabitants and might be as well a place for recreation of urban people. Officers of AA criticised LA PLA for little understanding that maintaining human settlement (farmers) in the region would require to balance economic and conservation interests.

Local people are concerned about the aesthetics of their environment as well as the biodiversity. However, the not-commercially-farming part of local communities found it difficult to participate in protection of landscape and biodiversity although their concerns fit with those of LA PLA. This contributes to the reservation of local people to conservation activities of commercial farmers.

Local authorities (mayors) pointed clearly that they found the wildlife and landscape character belonging to the local community in many respects. Therefore, they claimed to be involved in organising provision of these environmental qualities. In the current support policy of MoA, the local municipalities missed a role for small local land users and owners who (mayors believed) might substantially contribute to the character of the area.

[1] Moravske Kopanice are a sub-region of the White Carpathians. However, the influence of ICMK exceeds the sub-region.

On the other hand, there is an evident wish of commercial farmers, particularly those who switched to ecological production, to have good reputation among the local people, but they also felt that the current arrangement did not enable them to gain it.

Also NGOs miss adddress the involvement of local people in provision, co-ordinationa and finally positive consumption of environmental values like biodiversity and landscape. The ICMK has concentrated on commercial farming and environmental attributes. The other NGOs tend to participate in conservation either directly (as nature agents), providing some conservation services on their costs or indirectly, by increasing awareness of general public and donors. There is an NGO closely related to the LA PLA (The Czech Union for Nature Protection, CSOP) doing both. CSOP shares not only LA PLA's perception of conservation problems, but most of the LA PLA officers are members of CSOP too. Thus, activities of the CSOP in the protected area are considered to be LA PLA activities by other actors in the region. The intention of the CSOP as well as of the LA PLA is to renew most valuable meadows, often already assigned as nature reserves, to the original pre-collectivisation extent. It means in many cases to clean in fact already afforested meadows. The CSOP/LA PLA are even more keen on to do it when they realised that on the newly cleaned meadows is the biodiversity within a few years the highest. This activity, is difficult to understand by the other farmers. Because such areas are usually remote and poor on nutrients for livestock feeding, it seems to farmers strange or unfair that resources are spent there. The farmers argue that their meadows and pasture nearby might have lower diversity of species, however, they landscape value is high (by contributing to very nice scenery).

POLICY OPTIONS

The case study identifies obstacles to the long-term sustainability of land management in marginal areas:

- the division and uncertainty surrounding property rights to the land (or better CCA);
- the limited involvement of local people (particularly those that are not commercial farmers) in determining how the area should be managed and developed;
- poor horizontal coordination including the difficulties of integrating measures and policies for agricultural support and environmental protection – in the effect
- split vertical coordination (between the LA PLA and MoA)

- insufficient (MoA) contracts to govern transactions relating to biodiversity and landscape

Here we present three policy options, addressing the above-identified obstacles.

a) The state represented by LA PLA takes over the ownership and management of all the land that is most valuable from a conservation point of view
b) Improved horizontal and vertical coordination by integrating environmental and agricultural policies at all levels, it should also include improved contracts for biodiversity and landscape.
c) Agri-environmental policies are delivered through local partnerships which ensure that they are responsive to local people.

The options concentrate first of all on provision of overall biodiversity and landscape. They are proposed to highlight some aspects of alternative property rights setting and institutional arrangements.

POLICY OPTION A) THE LA PLA TAKES OVER THE OWNERSHIP AND MANAGEMENT

The officers of the LA PLA would like to see a simplification in the institutional arrangements surrounding the management and control of the land, i.e. unified ownership of all land attributes. They consider the most effective way of achieving this as being through the state acquiring the most important land in a sense of its natural values.

The LA PLA itself would then become the provider of the public good, contracting out the maintenance tasks such as mowing the grass. In this way many of the problems to do with inter-agency liaison and the inadequate delineation of property rights could be overcome. The LA PLA also sees this as a means of avoiding the opportunistic behaviour of actors (farmers claiming meadow management payments for land that has reverted to scrub).

The aspirations of the LA PLA to hold land, however, do not command widespread support. The representatives of the municipalities, the officers of the Agricultural Agency and local farmers all oppose the LA PLA's preferred model. The municipal representatives fear that it would force people from the region leading to a loss of rural amenities. The Agricultural Agency officers argue that the landscape of the White Car-

pathians was a cultural one that was the outcome of the interaction between farming and nature. The local farmers fear that they would lose their livelihoods.

The key element of this proposal of LA PLA rests in holding exclusion right.

It is obvious from the case study that LA PLA feels in the position of claimant, i.e. holding management, but not the exclusion right over ecological attributes. LA PLA blames agricultural policy of protecting farmers against exclusion and hence, the management (rules) is difficult to exercise. In fact, the owners of land do not hold the exclusion rights (not only is that it costly) over all CCA, particularly, ecological attributes either (due to being in PLA). Because it is impossible to separate agricultural and ecological attributes and distribute the control over them to farmers and the LA PLA respectively, coordination is needed.

The purchase of land by the state might be regarded as very pragmatic approach in the respect of lowering coordination costs. However, unified ownership will improve coordination only seemingly. As the separation of agricultural and ecological attributes is impossible, also leasing agricultural and ecological attributes separately is impossible. At the same time LA PLA may loose provision of landscape features, which are linked to farmers' dwelling in the countryside, and probably are better achievable at the community level coordination or even individual property rights regime.

In contrast to current LA PLA contracts, the contracts for overall biodiversity and landscape will have to be input related, with much higher monitoring cost and requiring significant horizontal co-ordination of contractor activities. Moreover, we found that farmers'- owners' economic interest was to invest in the improvement of the resource when removing shrubs and this will vanish. As pointed out by Falconer (2002), farmland biodiversity and cultural landscape maintenance require building up a relational team, which a need will not change with the change of ownership, therefore more stable (long term) cooperation with agents will remain very important.

Despite the potential benefit of state based rights, many examples exists of how they led to the degradation of common pool resources, especially where state based rights were superseded preexisting private or community rights (Grafton, 2000).

POLICY OPTION B) IMPROVED HORIZONTAL AND VERTICAL CO-OPERATION BY INTEGRATING AGRICULTURAL AND ENVIRONMENTAL POLICIES

The second option responds to the loss of environmental benefit due to the split of coordination competencies between MoA and MoE, and due to insufficiently designed contracts. It is proposed as a unified agricultural and environmental policy framework that sets certain restrictions on land use (and compensated them) and provides incentives to farmers to produce environmental qualities. This option recognises that the land and natural environment in protected areas as the White Carpathians are probably best managed and conserved through extensive farming.

The new aspect which differentiates this scenario from the current policy and organisation rests in that, while financial resources will remain flowing from the budget of MoA, the co-ordination will be in hands of the Local Administration of Protected Landscape area. In practice, the contracts will be made between farmers and the LA PLA; the choice and targeting of measures will be decided by the LA PLA. To enable the achievement of desired environmental effects the agri-environmental policy has to be rich in measures. Therefore we suppose that also the agri-environmental programme framework will be set up in close co-operation between the MoA and the MoE at the national level. Grassland management will be ensured through neoclassical contracts, the duration will be expanded (to 5 years) and the applicant will have to demonstrate that he/she has the capacity to provide the service in expected extent and quality. Non-use values (e.g. scrubs along the forests) will be recognised and hence contracted with farmers. However relational contracts will be still necessary for overall landscape and biodiversity protection. This necessity is given, for instance, by highly fragmented land ownership that can hinder long term contracting of many high natural valuable localities by either classical or neoclassical way.

In protected landscape areas it will require strengthen/building up capacity of LA PLA to prepare, negotiate and co-ordinate new contracts. To implement contracts with neoclassical character requires deploying social capital of the local social arena. It seems (from the case study analysis) that a sufficient level of social capital is present in the White Carpathians. Doubts may arise if the situation is similar in all other 27 protected landscape areas and national parks.

Another question is if the option improves participation of non-farming population. It can be expected that MoA budget can be distributed only to farmers and hence a need for additional MoE measures and budget will remain.

The proposed arrangement for PLAs will not be extensible to organising the provision of landscape and biodiversity in marginal areas outside the PLAs. The organisation outside the PLAs will require increasing the capacity of agricultural agencies (to ensure that the contracts will be neoclassical). However, a local partner with environmental concerns will be desirable.

POLICY OPTION C) AGRI-ENVIRONMENTAL POLICIES DELIVERED THROUGH LOCAL PARTNERSHIPS

This policy option responds to imperfections in horizontal and vertical coordination in the current arrangement, poor MoA contracts and insufficient involvement of local people in the decision how the area should be managed and developed. In this scenario, farmers are still the entitled users (owners, rightful tenants) of land, but the local community has a right and a capacity to influence the level and quality of environmental services provided in the PLA; i.e. to set rules (management right) and regulate access to the resource (exclusion right). The scenario reflects the argument that the local community is the most important consumer of environmental goods. It might be the landscape in general, definitely a number of landscape amenities, some wildlife and it can be also a spot nature reserve or protected animal, which will contribute to the exclusivity of a place (village) and may attract tourists. Basically, this option would consist in increasing the significance of the local community in influencing decision-making. It would require a substantial revision of the policy framework on one hand and local arrangement on the other hand. The main change would rest in the need for consensus amongst all local actors (representatives of the local people, the LA PLA, representatives of the farmers, the AA, etc.) about development and conservation priorities at the local/regional level. To get the consensus an organisation is needed. We suggest an environmental co-operative consisting of above mentioned actors at least, which will be obligatory in the protected landscape areas and voluntary outside them. The co-operative will facilitate public discussion on conservation in the area of concern. The role of the LA PLA would shift from that of master planner to that of representing ma-

tional and global interest in the public discussion. The important output of the public discussion and the work of the cooperative will be a master (management) plan. In the protected areas it will have defined minimum contents. The master plan sets the rules of using land in agricultural and environmental attributes. It is evident that agricultural, environmental and rural development policies will merge at the local level. It will be preferable if the policies are co-ordinated at the national level as well. Similarly to Option b) the policies have to be rich in offered measures. Also the budget should be reasonably balanced. To ensure a serious involvement of municipalities and to underline their decision-making role co-financing (rather very small) is proposed. The introduction of a co-operative and the involvement of local authorities will increase horizontal coordination and move on to relational contracts. Of course, the national programme/budget framework should be settled for long period to ensure the costs associated with building a relational team are covered.

There are several difficulties associated with this policy option. First of all it would represent a major shift from current arrangements. It would require a new financial framework, which might be difficult to agree at the very top level if agricultural lobby is too strong. Another weakness of the scenario is if the power of the local community is too high and environmental awareness low the production of environmental goods will likely be much lower than socially (nationally, globally) demanded. Further, local community/co-operative may lack capacity to control farmers, who are too large at current farm structure and strong due to specific agricultural policies. Farms of one two thousand hectares operate on an area of two or more villages. It might require that villages come together and create micro-regions (it can be the whole protected landscape area), but it will definitely require that the power of community or micro-region based environmental co-operatives will be recognised by the government. And in the end, there might be little potential for collective action, which would lead to a failure of this policy option.

The appeal of this policy option is in the assumption that if the local community get more responsibility in the organisation of environmental services then conservation awareness will grow up in the area and the local community will give their support to the local farmers as the providers of the services. If such a policy is successful then the effect of social learning amongst policy actors (especially local community and farmers) will increase substantially the sustainability of the nature conservation.

The options were also designed to highlight certain aspects of institutional arrangements for provision of landscape and biodiversity. We particularly looked at characteristics as who actually organises, sets rules and provides landscape and biodiversity, which kind of organisation form is available, what is the need for social capital and how are reflected economies of size or need for large scale co-ordination. Table 5 summarises and compare options in the respect of mentioned characteristics. One can observe the gradual change of the role of the state through the options. While in the first option the ste is completely responsible, in the third option the state sets minimum rules and authorises locally, regionally based body - environmental co-operative to organise provision of biodiversity and landscape. The participation in decision making of farmers or nature agents gradually increases. Hand by hand, the need for social capital is rising.

Table 5 Comparison of option characteristics

OPTION	A	B	C
Who does organise?	State	State/ participation of farmers essential	Local partnership
Who does set rules? (management right)	State	State	State + local partnership
Provider	State	Farmers	Farmers, nature agents
Organisation/ contracts	Principal agent, classical contracts	Hybrid, neoclassical contracts	Environmental Co-operatives/ relational contracts
Need for Social capital	Little concern	Medium (to enable neo-classical contracts)	High (to enable collective action)
Reflection of economies of size, ability of large scale coordination	High in principle, doubtful in practice	High	Low-medium (depends on the size of a co-op)

Source: own classification

In the scenario A the presence of local inhabitants is not of concern, while in the other two scenarios local people matter. The state will carry high costs of horizontal co-ordination if it is not able to deploy local social (and often also human) capital. Such a organisation will require a lot of well trained staff and well designed decision making procedure. The scenario C is preferable, to scenarios A) and B) if there is little benefit from economies of size in terms of information and enforcement. Measurement cost is also important determinant for the choice of options. Local partnership may significantly reduce these costs due to a large level of trust, state base regimes may carry these costs and deploy relatively expensive technical equipment. Locally/regionally based organisations will always tend to suffer inability to envisage implications of their decisions in the national or even global context.

If attributes (groups of attributes) are (weakly) separable from other countryside and community attributes then all three regimes may co-exist. However it seems that the option A has only very little potential to improve the provision of landscape and biodiversity. It may be used in the case that there is actually very little interest on the side of local land users/owners to cultivate land in the way which ensures high natural values. The option B) is very close to the current arrangement. The transition cost is rather low – it is more political cost (loss of control) which will be paid. One can also see adopting the option B as the first step of improving organisation for providing landscape and biodiversity. The following step will rest in merging with the option C wherever it will be relevant.

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