

***The Impact of Regime Transition on the
Environmental Protection of Common Property
- Lessons Learned from Rapid Transition to
Democracy and Market Economy in the Baltics***

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Introduction

The environmental legacy of the communist regime was a mixture of nature conservancy areas and large unused territories near military stations on the one hand, and heavily polluted industrial zones and agricultural areas on the other. This environmental legacy created a platform for public uprising in the late 1980s, turning into a demand for changes in the economic and political system. Not surprisingly, in many of the 'post-communist' countries, individual rights to a clean environment were included in their new constitutions.

The break down of the communist regime exposed the question whether the transition to pluralistic democracy and market economy would create a situation in which a sound and effective environmental policy would develop more easily than in established market economic democracies linked to administrative traditions and well-established 'rules of governing'? The optimism reflected a *tabula rasa* assumption that has been the mainstream economic strategy for regime changes in 'post-communist' countries exposed by the World Bank and other international financial donors often referred to as 'Washington consensus'. However, the optimism was questioned by theories focusing on a *legacy of the past* in which social structure and knowledge embedded in institutions will continue to shape individual activity (Hardi, 1992; Murrell, 1992). In this respect the 'legacy of the past'-thesis is essentially conservative. However, it is thought possible to change institutions faster than could otherwise be expected through for example international co-operation and aid programmes that import new technical knowledge.

Vogel and Kun (1987) argue that "... each nation regulates the environment much the same way that it regulates a wide variety of other areas of corporate conduct" (:128). It may be asked if the choices of strategies towards democracy and market are reflected in the choices in environmental policy, and if so what consequences may a radical strategy based on *tabula rasa* assumptions have to the environment contrary to a gradual strategy focusing on a *legacy of the past*. In order to focus the discussion, I concentrate on one specific problem: Nutrient leaching from agricultural production to ground and surface water.

Estonia and Lithuania are chosen as two cases to illustrate the difference in regime transformation and choice of environmental policy instruments.¹ In the first section,

¹ Estonia and Lithuania are geographically next to the Baltic Sea together with Denmark, Sweden, Finland, Latvia, Poland and Germany. I have chosen to exclude Latvia, the third 'Baltic country'

the character of nutrient leaching from agricultural production in relation to the choice of policy instrument is discussed. In the second section, I discuss how the choice of transition strategy spill over on the policy choices in the environmental sphere (choice of policy instruments). Subsequently, the impact of choices of different policy instrument on protection of common property is examined. In the concluding section, I discuss the perspectives for environmental protection in Estonia and Lithuania taking EU-membership ambitions into consideration.

1. The environmental problem and choice of policy instruments

The choice of policy instrument is important because it focuses on central aspects of institutions. First, the focus is on organisational structures which reflect the administrative capacity for policy implementation. The questions asked are how is the hierarchical order between different units in the implementing organisation? How is competence and responsibility distributed? On which criteria is staff selected and promoted? Second, the focus is on policy instruments as an institution which is supposed to change the behaviour of the regulatee. According to rational choice institutionalism, individuals react to institutions in the manner of individual utility maximisation while normative institutionalism argues that individual reaction to institutions is constrained by a 'logic of appropriateness', i.e. building of values of normative and traditional origin. Thus, combining the two arguments historical institutionalism points to institutions as a factor generating distinctive outcomes through its functional and normative structuring of collective and individual behaviour (Hall and Taylor, 1996, Norgaard, 2000b). Consequently, choice of policy instrument effects policy implementation through the degree of administrative capacity and the degree of its instrumental and normative compatibility with informal norms and values held by the regulatee whose behaviour the policy instrument is supposed to change.

The problem of eutrophication of waters caused by agricultural production was in many countries not seriously recognised until the middle of the 1980s. International agreements² acknowledged the problem, and several countries made commitments to reduce nutrient leaching to waters by 50% before 1995. In the case of the Baltic Sea, this goal has still not been reached. The point at issue is how the state through its

because Estonia and Lithuania constitute two cases where differences in their strategies to transitions or regime changes are reasonably clear.

² The Baltic Sea Environmental Declaration, 1992. The Helsinki Convention, 1974. It is estimated that in 1990 about 50% of eutrophication into the Baltic Sea came from nutrient leaching from agriculture, World Bank Study, 1993.

legitimate use of power can force or persuade individual and independent actors (in this case farmers) to act in accordance with the political goals of the state.

The case of nutrient leaching from agricultural production is a complex environmental problem because contrary to nutrient leaching from industry and households it is not possible to use 'end-of-pipe'-solutions. Thus, nutrient leaching from agricultural production touch directly upon the farmer's production behaviour, i.e. change in the tradition of conventional agricultural production is imperative.

The measures most frequently used to minimise nutrient leaching from agricultural production are among others:

- Establishment of storage capacity for animal manure,
- Regulating the timing for spreading of animal manure
- Restrictions on the maximum amount of nitrogen applied per hectare (from animal manure and chemical fertilisers)
- Requirement to have buffer strips along water courses (extensification of environmentally sensitive land)
- Introduction of harmonisation rules implying correspondence between amount of animals and tilled land.

These measures will basically have a negative effect on the individual farmers economy; building storage facilities is a direct investment, to have buffer strips along water courses as well as restrictions in use of chemical fertilisers result in agricultural output reduction, which means less income, etc. In theory and in practice, different policy instruments are available for each of these measures. Thus, the choice of policy instruments, how public policy is to be realised, is essential to the question whether farmers will change production behaviour or not.

Categorisation of policy instruments can follow a continuum between mandatory requirements and voluntary instruments.³ Whether a policy instrument is defined as mandatory or voluntary is seen from the point of view of the regulatee; in this case the farmers. Regulation defined as rules in the form of prohibition followed by sanctions and permits, is placed on the one end of the continuum as the most mandatory instrument. In this case, the regulatee has no choice but to obey the instrument if he does not want to break the law and be subject for sanctions. On the other end, we find information, advice, education and negotiation as the most voluntary instrument.

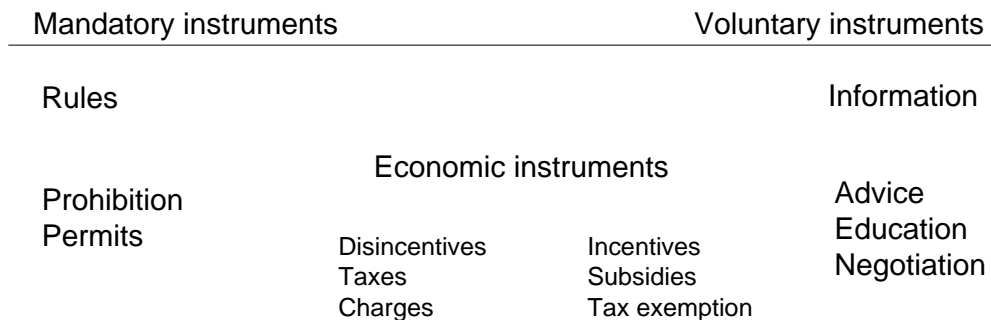
³ This is based on Mitnick (1980) and Vedung (1994). A related dimension to this categorisation is the degree of constitutionality.

Whether the regulatee change behaviour according to new knowledge or not is complement based on his own free will. Economic instruments such as taxes and subsidies are placed between these two extremes. It is fruitful to distinguish between economic instruments imposing a disadvantage to the regulatee in the form of taxes or charges as a more mandatory economic instrument and economic instruments imposing an advantage to the regulatee in the form of subsidies and tax exemptions.

Rules are conventionally thought of as being the most mandatory of policy instruments as they consist of precise requirements formulated in legal acts or administrative regulations formed on the basis of legal acts.⁴ However, the implementation of rules requires administrative resources in order to control that actual behaviour corresponds to the requirements of the rules. These administrative resources include staff and knowledge. Thus, the aspect of control is the Achilles' heel in the choice of rules as a policy instrument. The point is that the efficiency of control on the regulatee decides whether rules are in fact a mandatory instrument. Contrary to a voluntary policy instrument, rules do not change individual preferences through knowledge and/or economic incentives.

Economic policy instruments are based on the assumption that individual behaviour is rational according to economic 'cost-benefit' calculations, and that changes in the price of a commodity will change the purchase. In theory, economic instruments are thought of as being neutral to lack of administrative control capacity. It may be argued that in reality economic policy instruments are more mandatory than rules (Eckerberg and Niemi-Iihlati, 1996).

Figure 1. A categorisation of policy instruments according to the degree of voluntary compliance



⁴ I believe that a more strict use of the continuum would differentiate between 'prohibitions' and 'permits' since 'permits' are based on an application from the regulatee. Thus, essentially, the regulatee voluntarily commits himself to the regulations, if he wants to require certain things.

The environmental efficiency of economic disincentives as a policy instrument is not indisputable. In this context, the example of introducing tax on chemical fertilisers in order to reduce the amount applied will be used. Changing the price level on chemical fertilisers produces a disincentive to apply more fertiliser on tilled land than the absolutely needed amount. In this respect, 'green taxes' will be more mandatory than rules restricting the amount of nitrogen applied per hectare. However, if a tax on fertiliser were to change behaviour in accordance with the political intention, it is important to know the 'pain level' of prices; i.e. how large should the tax be for farmers to change behaviour and apply less chemical fertilisers? This is a difficult question to answer. Swedish National Agricultural Agency estimates that a tax on chemical fertilisers should increase prices about 300% for farmers to reduce their level of application.⁵ Therefore, in this case, the theoretical assumption that taxes will change behaviour is of questionable character. Thus, taxes on chemical fertilisers introduced in Sweden in 1985 and in Denmark 1998 have had the character of a fiscal revenue more than a policy instrument used to pursue environmental goals.⁶

Realising the difficulties of raising the prices of chemical fertilisers sufficiently to reach the political goal, a combination with other policy instruments has been tried out. For example, in Denmark in 1998, a tax on chemical fertilisers was introduced. Farmers are exempted from the tax, if they apply chemical fertilisers according to state fixed application norms.⁷ This combination of rules and economic disincentives may prove to be effective in changing farmers' behaviour measured as a reduction in application of chemical fertilisers. Another question is whether such a combination can be as efficient in non-stable economic systems as in the post-communist countries?

Economic incentives work differently than economic disincentives because they are based on the fact that the state establishes the economic basis to create a personal interest in changing behaviour. In the case that the goal is to reduce application of chemical fertilisers, the state could use economic incentives in the form of subsidies to support farmers who do not apply chemical fertilisers and thereby hold the farmers economically neutral. To some extent, that is what the state does when supporting ecological farming. Still, it is the voluntary individual decision of the farmers whether or not they want to change their farming into ecological production.

⁵ Reported in Eckerberg, (1994): 91.

⁶ The Danish parliamentary debate January 1998, *Folketingstidende*.

⁷ The application norm depends on soil and crop estimation. Furthermore, the allowed application of chemical fertilisers is reduced in accordance with differences in stable systems and household animals following the harmonisation requirements.

A combination of policy instruments has also been tried out in the case of rules requiring storage capacity for animal manure. These rules place large investments on the individual farmer, and in Denmark the state has followed up these rules with subsidies for some of the expenses. However, in this case, the mandatory aspect of the rule is more important to the regulatee than the voluntary aspect of economic incentive.

Information and education of farmers is the most voluntary of policy instruments. The argument to use voluntary instruments in agro-environmental policies is based on the fact that the control element on diffuse pollution sources is impossible. The state does not have administrative resources to control every single farmer 24 hours per day. To some extent, it could be argued that a certain social control should function, thus requiring farmers to act in accordance with rules. Nevertheless, if the value and knowledge system among farmers comply with conventional farming and not sustainable production methods, this social control will not exist. Changing production behaviour requires new knowledge and information, which as the main force of voluntary policy instrument in agro-environmental policy supports the potential element of social control in small agricultural settlements.

The development of environmental policies in post-communist countries has been under press from economic hardships and new political orientations caused by the political and economic transition itself. Furthermore, the breakdown of the economy and agricultural production has had a very positive impact on the pollution level questioning whether environmental legislation was necessary at all. The next section discusses how the actual changes in environmental policies and the choices of policy instruments reflect more general choices of regime transition.

2. Environmental policy and economic and political regime transition

Strategies towards regime transition developed in the economic sphere have focused on three different dimensions. First, *the phase*, whether stabilisation and liberalisation should be decided before institutional changes or vice versa. Second, *the pace*, whether changes should go fast (radical) or slow (gradual). Third, *the scope*, whether the state was seen as a 'minimal' state thus following a neo-liberal approach or 'active' following a West-European type of welfare capitalism. The three dimensions have formed two specific transition strategies as shown in figure 2.

The radical transition strategy reflects the neo-liberal expectation that formal institutions will shape the behaviour of economic actors; i.e. if prices are liberalised,

Figure 2. Radical versus gradual transition strategy

Strategy Dimension	Radical	Gradual
Phase	Stabilisation and liberalisation - first Institutional changes (privatisation) - second	Institutional changes (privatisation) - first Stabilisation and liberalisation - second
Pace	Fast	Slow
Scope	Minimal state/ maximum market	Active state intervention and market regulation

the market will adapt rapidly to the new situation and create economic efficiency based on competition. In the political sphere, the transition strategy reflects inclusiveness, the degree of popular participation, and the extent of executive dominance in the institutional arrangements of state administration. Thus, the radical strategy is based on elite dominance and strong executive institutions, while the gradual strategy reflects the development of corporate structures, a high level of popular participation and a dominance of the legislative over the executive (Norgaard 2000).

The development of transition strategies for post-communist countries has focused on political and economic change. Looking back on the past ten years of transition process, this discussion seems too narrow. It has been argued that the development of social policies should be 'second ordered' policy objectives; i.e. in terms of time be later than the development of political institutions and economic policies (Hausner et al. 1995). This difference in time orientation could also be seen in attitudes of the political elite in the early 1990s in the Baltic states, where environmental policy were ranked lowest among ten policy issues with economic stabilisation on the first place (Steen, 1996). The regime changes have not only required the development of policies that would create a new political and economic system. New politics have been developed to solve problems of environmental deterioration as well as many other social problems.

The claim of differences in space or time horizon has not in reality been the case. Rather, the challenge to regime transition has been that environmental protection had

to be decided simultaneously with political and economic reforms. Figure 3 illustrates three dimensions displaying the content of regime changes.

Crucial to the success of regime transformation is whether or not changes of value systems will be consistent with democratic tradition, with competitive market behaviour and with production practices that include environmental externalities. The point at issue is how policy strategies from political and economic regime transition ‘spill over’ on environmental policy decisions? This question will be discussed in relation to first; institutionalisation of environmental policy; i.e. the establishment of an administrative system such as Ministries of Environment and environmental protection laws, and second; choice of policy instruments to reduce nutrient leaching from agricultural production.

In general, the political and economic strategy in Estonia has followed a radical strategy while the transition strategy in Lithuania has been gradual.⁸ The radical strategy in Estonia reflects consensus between the elite (Steen, 1996; 256) on a deliberate policy to change the Estonian development path towards Europe. One

Figure 3. Dimensions in the political, economic and environmental transition

Transition issue Dimension	Political system The state	Economic system The market	Environmental protection
Stabilisation	Nation building Political independence (1991) Constitution and election law	Liberalisation of prices and legalisation of private production	Clean-up of polluted areas
Institutionalisation	Legal and judicial system Administration capacities	Financial institutions Competition laws Contract law	Environmental ministry and legislation
Change of value system	Civic and civil society Political parties and independent organisations	Competitive markets and mutual trust as basic to contracts	Sustainable production practices

⁸ Mygind, 1995 gives a comprehensive view over the economic transition in the Baltic States. A good view over the political and institutional transition is found in Norgaard et al. 1999, 2nd edition.

explanation was the ethnic tensions in Estonia created by a large Russian population forming the basis for a strong nation building concern. In the economy, stabilisation had primacy. As early as in 1990, the Estonian kroon was strictly tied to the Estonian reserves of hard currency and gold. This decision soon created a stable finance system, while the privatisation process (the institutional aspect of a market economy in the form of private ownership) started later in the process, and was based on a strong state control. In agriculture, the establishment of private ownership to land went slow because of restitution of land to former owners (before 1945), and because the political intention was to maintain a high agricultural production through a continuation of the soviet industrial type of agricultural production (Pajo et al., 1994).

Contrary to Estonia, Lithuania followed a gradual strategy placing more concern on the survival of institutional resources. Furthermore, conflict within the elite resulted in corporatist or consocial arrangements. In agricultural policy, the policy of an 'active' state is manifested in direct subsidises to farmers compensating for reduction in prices that followed open market relations. The privatisation of industry and land as the core element in institutionalisation of a market economy was initiated early in the transition period. In accordance with the corporatist arrangement, the privatisation was based on social arrangements and the distribution of free vouchers to every adult person with the intent of spreading the ownership among the population.

The next question is how these differences in transition strategy were reflected in the countries' environmental policy? I will begin this discussion by recapitulating the theoretical arguments combining the rationality of choices of transition strategy with the choices between mandatory and voluntary policy instruments.

The radical strategy based on neo-liberal views is combined with the mandatory policy instruments, thus believing that formal institutions will harmonise individual behaviour with the political goals. Moreover, according to the neo-liberal view and the ideal of a minimal state, the state should not interfere in the market through economic instruments. However, it may be argued that if the state uses economic instruments it should not discriminate among producers. On the contrary, a gradual strategy is more likely to be combined with voluntary instruments. The argument is that institutional changes must take the existing structures into account. Accordingly, the better way to change behaviour is to change attitudes through change in knowledge. Furthermore, the difference between mandatory and voluntary instruments also reflects the two different views inherited in the state-market relation combining a 'minimal' state with a radical strategy and an 'active' state with a gradual strategy. Thus, economic instruments are more compatible with an 'active' social-democratic

state than with the ‘minimal’ state. In addition, the use of economic instruments creating an incentive to the regulatee reflects concern of the gradual strategy in inclusiveness through corporate arrangements and reform through changes of knowledge. Figure 4 shows the linkage between the choices of environmental policy instruments in Estonia and Lithuania and the choice of transition strategy.

According to figure 3, choice of stabilisation versus institutionalisation in environmental policy is understood as the choice between environmental clean-up policies (stabilisation first: the radical strategy) and establishment of ministries of environment and environmental legislation (institutionalisation first: the gradual strategy). The Estonian ministry of Environment established in 1988 was in the beginning of the transition period a relatively new institution with young and dedicated employees. The question of institutionalisation was settled differently in Lithuania. Prior to national independence in 1991, an independent Ministry of environment was non-existent since environmental issues was treated in sector ministries according to Soviet traditions. After 1991, Lithuania did not chose to institutionalise the environmental issue in an independent Ministry subordinated to the government. Instead, a Department of Environmental Protection directly subordinated to Parliament was

Figure 4. The linkage between transition strategy and choice of environmental policy strategy in Estonia and Lithuania

Transition strategy Choices of environmental policy instruments		Radical strategy	Gradual strategy
		Estonia	Lithuania
Institutionalisation		1988	1994
Rules		X	(X)
Economic instruments	Taxation	X	X
	Subsidies		
Information		(X)	X

created. It was not until 1994 that the Department of Environmental Protection was transformed into a Ministry of Environment.

In the case of institutionalisation, the choice of strategy in environmental policy did at first glance not reflect the general transition strategy. However, I find that the early decision on institutionalisation in Estonia was not a part of the general transition strategy, but reflected the importance of environmental policy in the last years of the Soviet regime. It also reflected the speed of change in Estonia where a deliberate transition 'away' from the soviet system in this case could be seen in an early institutionalisation of the environmental issue. Furthermore, when the transition period began in 1991, the fact that the Estonian Ministry of Environment was relatively young in terms of administrative traditions and staff made the Ministry an effective instrument in the process of changing environmental policy and formulating new legislation. In reality, the early institutionalisation did correspond with the theoretical assumptions behind the radical transition strategy; i.e. the focus of fast changes making a sharp break with the past. Moreover, the establishment of a Department of Environmental Policy in Lithuania as the first step towards institutionalisation did not have the intended positive influence. It was external to the government, and consequently did not play a significant role in the formulation of governmental policy. It is likely that in reality this specific institutional arrangement had a negative impact on the formulation of Lithuanian environmental policy since the absence of an institutional actor within the government playing in favour of the environment could give the sector ministries a more open arena. Thus, the relatively late institutionalisation of environmental policy suggests a gradual strategy of institutional changes taking into account the existing structures and vested interests of farmers' production interests. Thus the spill over from the general transition strategy is seen in the choice of institutionalisation.

The Estonian strategy in choice of policy instrument can be characterised as radical on at least two grounds. First, Estonia introduced in 1994 very detailed and strict regulations on the use of fertilisers (Ollas, 1995),⁹ i.e. the choice was to place firm regulations of production behaviour on farmers. Second, with respect to the use of economic instrument the Estonian government has followed a strict neo-liberal approach. The farmers have not received any subsidies or support in relation to environmental policy or as compensation for the economic recession following the break down of a Soviet economic system, and hence, important export markets for Estonian agricultural products in especially Russia. The neo-liberal approach towards

the Estonian farmers had even more severe consequences because it supported a ‘non-tariff’-policy implying that Estonian food products could not compete with import of cheap (and subsidised) agricultural products from primarily EU-countries. Obviously, this policy was very unpopular among Estonian farmers. Even so, it did not change when the Estonian Agrarian Party was part of the government coalition in 1994.

In Lithuania, the strategy towards leaching of nitrogen from agricultural production has been non-existence of rules on storage capacity, harmonisation and restrictions on application of nitrogen (Danish Agricultural Advisory Centre, 1996). However, this strategy was supplemented by special efforts in the North-East of Lithuania; the Karst-zone. The Karst-zone is special because the soil is very sensitive to leaching, and application of nitrogen goes directly into the ground water, which locally is used for drinking water. This environmental situation constitutes a direct link between production practices and contaminated drinking waters.¹⁰ A special Karst Region Management Programme (implemented by the Tatula-fund) was set up in 1992.¹¹ The programme introduced special regulations in the area including restrictions on application of nitrogen according to the varying sensitivity of the soil. It also introduced economic incentives to farmers who applied ecological production methods and a special educational effort in order to educate farmers on new production methods.

Financing has been the major problem in post-communist countries when it comes to implementation of environmental policies. Together with many other post-communist countries, Estonia and Lithuania have set up environmental funds.¹² These funds are typically based on environmental fines and charges, including as in the case of Estonia fines collected through offence of hunting and fishing regulations (Estonian environment, 1994). However, the amount of money allocated to these funds does not correspond to the amount of money needed. The lack of financing relates to clean-up policies as well as introduction of economic incentives. In this context, the difference between Estonia and Lithuania is that while Estonia has focused on raising finances to clean-up activities, Lithuania has used the major part of its available finance on incentives to change knowledge and production processes. The next section discusses

⁹ The requirements on amount of animals per hectare (harmonisation rules) were even stricter than in some EU-member states such as Denmark (Danish Agricultural Advisory Centre, 1996).

¹⁰ According to survey, (Mydske 1996) 80 per cent of respondents among the farmers in the Karst zone indicate that a reduction or elimination of amounts of fertilisers used would improve water quality (pp. 180;202)

¹¹ Personal interview with Mr. Gutkauskas, programme manager and former advisor in the Ministry of Agriculture, 1993 and 1995.

¹² Poland has had some success with so called ‘depth swoop’-arrangements where part of foreign debt is transferred into domestic environmental purposes.

how these choices in policy instrument may effect changes in the production structure and, thus constitute a new and environmental friendly regime.

3. Protection of common property as an outcome of regime transition and choice of policy instrument

Developing environmental institutions and policy instruments was the first step towards protection of common property in post-communist countries. The question is how adequate these institutions and policy instruments were to protect the common property measured by change in farmers' production behaviour. Change in production behaviour is here measured as 1) the perspective for administrative control following the introduction of mandatory instruments, and 2) the perspective to create attitudes compatible with changed production practices.

As a mandatory regulation on farmers, the introduction of strict rules in Estonia was formulated in the Ministry of Environment while the Ministry of Agriculture was not included in the work, and only reluctantly supported the content of these.¹³ The efficient implementation of the regulation can be questioned on both of the above measures. First, Estonia had no well-defined hierarchical order between the central and the local level. Neither the Ministry of Environment nor the Ministry of Agriculture had direct authority on the departments at lower level (districts). Furthermore, the regulation formulated by the Ministry of Environment was to be implemented and controlled not by environmental authorities but by the agricultural sector itself. The institutional framework of unclear distribution of authorities between the environmental and the agricultural sector indicates that strict rules would be difficult to enforce. The early institutionalisation of a Ministry of Environment and employment of dedicated and young personnel was in this situation not sufficient to secure successful implementation of environmental rules. Moreover so, because the rules were met with hostility by some farmers as well as agricultural advisors and local authorities, who expressed no intention of following the rules, or controlling their compliance with them (Danish Agricultural Advisory Centre, 1996).

The question of rule enforcement was not as much an issue in the Lithuanian case. The Karst-zone was the only area subject for regulations that limited the maximum amount of nitrogen applied per hectare. The control with compliance was delegated to the regional environmental unity (department). According to an employee of the regional environmental office in the Karst-zone area, their capacity to control

¹³ This argument is based on personal interview with the official responsible for agro-environmental policy in the Ministry of Agriculture, 1994.

compliance with the zone-regulations was far from sufficient (my interview, 1995). The lack of administrative capacity in the Karst-zone indicates that if extended to regulate the agriculture in general, strict rules would probably not be implemented.

The question in both Estonia and Lithuania has been whether there has been a change in attitudes towards more sustainable or ecological production behaviour in the years during regime transformation.¹⁴

A survey conducted by Budvytiene and Foster (Mydske, 1996) among the farmers in the Karst zone indicates that only 30 per cent of farmers in the area were aware of the special restrictions. Of these, 64 per cent indicated that the restrictions caused problems (pp. 179 and 201). Consequently, the need of information seemed rather high. Furthermore, when asked about the main hindrances to successful farming in the Karst-zone, the respondents indicate more general hindrances such as the fact that prices offered by processing enterprises do not cover production expenses and shortage of financial possibilities to acquire technology. The economic subsidies to agricultural producers in the Karst Region focused directly on these hindrances. In 1995, a special distribution system was developed under the Ministry of Agriculture implying that farmers committing themselves to change production practises toward ecological farming were guaranteed higher prices. According to my own interviews among farmers and officials in the Karst Region, this kind of economic incentive created a more positive attitude towards new production methods. However, the Karst Region Management Programme is not just a charming little story. When it came to attitudes toward sustainable production, the farmers were divided. Slightly more than half of the respondents answered that they would apply to new ecological or sustainable production practices, while the other half saw the future of Lithuanian as well as their own farming as a continuation of the conventional farming of the past (Mydske, 1996; 181, 207). However, this is not a shortcoming of the Programme as much as a sign that attitudes and internalised knowledge is very difficult to change.

In Estonia, a survey carried out among Estonian farmers in 1995 shows a similar picture (Mydske, 1996: 157). Approximately 40 per cent of the respondents indicate some familiarity with the restriction on application of nutrients, while 60 per cent know nothing about them. Furthermore, on the one hand the respondents show a general positive attitude towards a change in agricultural practices implying application of smaller amounts of nutrients, and on the other hand, a willingness to

¹⁴ The analyses are based on two sources. First, two case studies conducted by Kaja Peterson in Estonia - the Matsalu Wetland Management Plan, and Vilija Budvytiene together with Walt Foster in Lithuania - the Karst Zone Management Plan (Mydske, 1996). Second, personal interviews in Estonia and Lithuania with ministerial officials, local authorities and farmers in the period 1993-1995.

apply more fertiliser, if and when they can afford it. Taking into account that at the time of the survey fertilisers were in general not affordable, the willingness to apply more fertilisers does not necessarily mean negative attitudes towards some kind of sustainable production practices.

Attitudes supporting conventional farming are difficult to change. Even in an area as the Karst-zone, where conventional farming has direct implication to the quality of the drinking water of the farmers themselves. However, intensive education creating knowledge on non-conventional farming methods together with the establishment of economic incentives that make non-conventional farming economically feasible can change production practices. The lesson from the Karst-zone still is that in order to have an effect on the outcome (changes in production behaviour), education and economic incentives should be supplemented with rules indicating the mandatory requirements and thus the ultimate demand towards the regulatees.

4. Perspectives for environmental policies in post-communist transition countries

The economic recession following the breakdown of the soviet regime had an immediate impact on the level of pollution. In the agricultural sector, the amount of nutrient applied per hectare decreased radically and consequently the leaching of nutrient to ground and surface waters. This change could not be expected to last when the countries regained economic strength. Nevertheless, it was in this difficult situation that post-communist countries had to develop the basis for the future environmental policy.

In political and economic regime transition, Estonia and Lithuania have followed two different strategies; the radical and the gradual. The choice in environmental policy – the institutionalisation of environmental policy and choices of policy instruments – follows these two strategies thus supporting the suggestion by Vogel and Kun that countries tend to regulate the environment in much the same way as they regulate other kinds of corporate conduct. In this way, the regime transition had a direct impact on the choices made for environmental protection of common property. But what are the perspectives for the protection of the common property; the ground and surface waters?

In Estonia, the process of regime transformation has been implemented more radically than in Lithuania. Looking at change in GDP (per cent), the economy began recovering in both countries in 1995. By then, the recession in the period 1990-1994

had been much deeper in Lithuania than in Estonia.¹⁵ The early institutionalisation of mandatory and rather strict rules in Estonia did not reflect the actual situation in the country, the economic, social and knowledge conditions of the farmers. Rather it was a political sign of a deliberate policy towards regime transition that included the environmental policy issue showing the effect of early institutionalisation, where young and dedicated employees in the newly established environmental ministry had to show their importance. However, the early institutionalisation did not create an administrative capacity to implement the strict rules. This was partly because the control was placed with the agricultural sector authorities which conflicted with the authors of the environmental authorities and partly because of the lack of a hierarchical structure between the national and local level. This institutional conflict caused non-compliance with the rules among farmers thus out-ruling the mandatory element in policy instrument and radicalism in transition strategy.

Contrary to the radical strategy in Estonia, the gradual strategy in relation to agro-environmental policy seems to have better perspectives in Lithuania. The gradual strategy has still not resulted in economic growth rates comparable to those of Estonia, but the economy is slowly recovering. The late institutionalisation of environmental institutions should indicate a more pessimistic perspective to Lithuanian environmental policy. I find that this is questionable since the gradual and voluntary strategy through use of knowledge and information together with some though limited subsidies has caused changes in farmers' behaviour in the direction of more sustainable production practices in the Karst-zone. Whether this positive development will extend to other areas in Lithuania remains to be seen, and one should hesitate in being too positive. First of all, the natural sensitivity in the Karst-zone imply that extensive application of nutrient will immediately effect the ground water which is used there as drinking water. Consequently, there is an individual interest among farmers to change behaviour. However, when the survey was conducted in the early period of the Karst-zone management plan's existence, the attitudes among farmers did not even in this more extreme environmental situation support changes in production practices. Apparently, the state support and help to create domestic markets did create a more positive attitude. Secondly, the slow economic recovery does not provide the state with sufficient finances for a large-scale subsidy programme. On the one hand, the Lithuanian case displays a general lack of institutionalisation in environmental policy, and on the other support to changes in

¹⁵ Actually, this contradicts the assumptions that the radical theory is based upon, i.e. a severe recession in economy in the beginning but then better economic performance in the long run (Przeworski, 1991). Arguing that the radical strategy may prove to create a more stable economy after

agricultural practices through knowledge and state subsidies. In this respect, the Lithuanian strategy has focused on value change. The perspective is change of knowledge, which in agro-environmental policy is especially important since changing behaviour according to rules is too difficult to control and sanction. A further perspective of value changes is that such changes are imperative to social control, and thus the perspective for implementation of rules as mandatory instruments.

This paper concludes that early institutionalisation of environmental policy is not imperative for a positive short-term outcome of agro-environmental policy. In the specific case of agro-environmental policy focusing on nutrient leaching from agricultural production to surface and ground water, early institutionalisation may conflict with the needed change in knowledge, technology and attitudes towards production practices. Rather, it may be argued that an early focus on voluntary commitment from farmers to new values and production practices through information, exchange of knowledge and subsidies is a more adequate basis for changes. However, this argument cannot be generalised without analyses of more cases over a larger time-span than what I have been able to do here. Secondly, the findings are strictly limited to the specific environmental issue and cannot be generalised to other issues.

The future development is in both countries connected to their association to the European Union. Since 1995, Estonia and Lithuania have started the process in changing institutions and legislation in accordance with the *acquis communautaire*. The ambition to become EU-member states is caused by a variety of reasons. Foreign policy concerns is one reason reflecting that the two countries share frontiers with Russia and the experiences of 50 years under Soviet occupation. Economic trade policy concerns is another reason as the EU-membership will result in access to the European market, which has become vital because of the breakdown of the Russian economy. A third reason is that the EU-membership will involve access to the EU-structural funds and to the Common Agricultural Policy (CAP). If the EU-system does not change its present structure, EU-membership to Estonia and Lithuania will imply a potential increase in financial means to change administrative systems as well as to use economic incentives as policy instruments in agro-environmental policy.

all can be based on change in GDP (per cent) in 1999 where Estonia still improve the economy (1.9 per cent) while Lithuania faces a decrease (-4.4 per cent) (www.bcemag.com).

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