ENVIRONMENTAL POLICY AND PRACTICE IN EASTERN AND WESTERN EUROPE

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Environmental Policy and Practice in Eastern and Western Europe

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INTRODUCTION

This book contains the papers presented at an international conference with the title of "Environmental Policy and Practice in Eastern and Western Europe", held in Pécs, Hungary May 30th – June 1st, 1994. This conference was the outcome of discussions between the Planning and Environment Study Group of the Institute of British Geographers and the Centre for Regional Studies, Transdanubian Research Institute of the Hungarian Academy of Sciences. The conference organisers and editors of this book, identified a range of common interests in exploring the development of environmental policy and practice across Europe, at a time when two years had passed since the World Conference on Environment and Development in Rio. This set down an substantial global agenda for action for the 21st Century, much of which has no obvious or easy path for implementation. Only through dialogue and co-operation at all levels, including across the continent of Europe, can ways forward be found.

The participants at the conference in Pécs, drawn from a range of different countries, were concerned with finding effective solutions to environmental problems and with aiding the process of improving environmental quality. In particular, there was an awareness that in terms of the scale of current environmental problems, there is, to an extent, a divide between the West and Eastern and Central Europe, and that moves towards economic and political integration need also the integration of environmental standards and performance. On the one hand, political and economic changes in Eastern Europe are providing access to environmental problems, whilst on the other they are strictly limiting attainable results.

The focus of the conference on environmental policy *and* practice, was intended to encourage discussion of the realities of environmental policy and the analysis of why intentions are not always reflected in outcomes. Different countries now have a range of experience of trying to implement environmental policies with variable levels of success. Policies have adapted and changed in various ways in an effort to improve their practical effectiveness and efficiency, and to reflect changing standards and expectations. Such policy development can clearly be traced through the five Environmental Action Programmes of the European Community with a shift from, for example, separate sectoral environmental policies, to an integration of all policies across sectoral divides within the framework of 'sustainable development'. There is a need to continue this process of review, allowing lessons to be learnt for the countries concerned, but also for others seeking to learn from or emulate their experience. In this respect the 'modernisation' of environmental policies in Eastern and Central Europe can usefully draw on the careful analysis of policy approaches in the West. The papers in this volume in various ways, in various national contexts

and across a wide range of topics, seek to contribute to an ongoing process of developing environmental policy and promoting efficient environmental protection and management.

The editors would like to express their thanks to the various sponsors of the conference in Pécs and to all who participated in a stimulating and productive event. The support in a number of ways of the Hungarian Academy of Sciences, the British Council and the Institute of British Geographers is particularly acknowledged.

Dr Gordon Walker *Dr Fodor István*

I Agendas for Environmental Policy and Practice

ENVIRONMENTAL INTENTIONS AND ENVIRONMENTAL DEEDS: ANALYSING THE POLICY-IMPLEMENTATION DIVIDE

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Summary

A discussion and review is provided of past experience with and future prospects for the implementation of environmental policy. The related ideas of 'implementation gaps' and 'symbolic making' are used to shape the analysis of the various factors identified as standing between intentions and outcomes. Trends demanding and potentially achieving better implementation of environmental policy in the UK and Europe are revealed, with five elements seen as forming an emerging 'policy-implementation continuum'.

Introduction

Environmental policy achieves little without implementation. Only through policy implementation can the statements and intentions of governments and environmental managers be translated into action on the environmental issues they are concerned with (Levitt 1980, Baram 1985). Over the past three decades, as attempts to manage the environment have extended and developed, many inadequacies, deficiencies and failures have been revealed. Policies have to an extent adapted and changed to reflect this experience, in the search for more effective, efficient and lasting methods of environmental management. There is a continuing need to analyse policy successes and failures, as new approaches are tested and as both environments and economic and social contexts change over time.

This paper focuses on policy and implementation using two concepts: the first is the concept of the 'implementation gap' (Dunsire 1978), the second is the theme of 'symbolic policy-making' (Edelman 1964, 1971). The two ideas may be usefully related. The 'implementation gap' – what happens when policies put into practice, somehow fail to produce the intended effects – may in a large measure be related to 'symbolic policy-making'. This is the notion that policies not only have a practical

and material existence, but also serve symbolic purposes. The existence of environmental policy is a symbol that government is concerned and taking action. In fact, the policies provide the impression that environmental problems are being effectively tackled, whilst in reality this may not the case. Nevertheless governments gain political support by being seen to be legislating, even if that legislation is not contributing to the management and/or solution of the problem.

In this context, the paper seeks to identify and review the diversity of factors that can stand in the way of environmental policies achieving their stated aims and intentions. It first explores the complexities involved in defining policy and implementation. Looking ahead into the decade before us, it then finds evidence of new strategies and principles which may provide more effective and implementable environmental policies. Lest it be accused of undue optimism, it also warns of a new generation of environmental and political symbols which may cloud policy-making and its implementation.

Evaluating intentions and outcomes

It would be useful to be able to provide clear and universal definitions of policy and implementation. However, there is in practice no simple dividing line between policy decisions and implementation. Ham and Hill (1993) highlight the ambiguities in both policy and implementation as distinct concepts, noting the continuous process of interaction which occurs between the two, so that policy continues to be made and evolve as it is implemented.

This interaction may operate at a number of different levels. For example in the European Union, implementation of environmental policy is often taken to mean the translation of European Directives into national legislation. Significant concern has recently been focused on the disparities emerging in inadequate implementation and enforcement (Bennett 1993, Collins and Renshaw 1993, Renger and Nathanson 1992). There is clearly though a further stage of implementation in the carrying out of that national level policy to realise impacts of some nature on environmental quality. Policy may similarly have multiple levels with the translation of general policy statements into more precise legislation or regulation.

For these reasons, it is perhaps easier to think more generally in terms of intentions and outcomes (Hogwood and Gunn 1984, pp 13-24). The questions posed in this paper then seek to explain why the intentions of those managing the environment fail to be fully reflected in outcomes. Disjunction between intentions and outcomes may be complete or partial; it may relate to unexpected negative outcomes ('side effects') which serve to create additional problems whilst the primary aims of an environmental policy are realised; it may relate to outcomes being realised but only at higher than expected costs.

However it would be naive to suppose that implementation can be so easily assessed. Many environmental policies are clouded by ambiguities and uncertainty in both intentions and outcomes. Intentions may always be subtly altered over time and there is potential for outcomes to be fortuitously realised *despite* limitations or

failures in policies. For example, recent declines in levels of pollution in parts of Eastern Europe since political liberalisation, have been revealed as more to do with the steep economic recession and multiple plant closures, rather than the achievements of new environmental legislation (Manser 1994, Federal German Ministry of Environment 1991). At the other end of the spectrum, ambitious policies may not meet their objectives, but the process built to achieve implementation may result in certain advances, particularly, if the surrounding high profile raises public perception of the issue. Perhaps most complex of all are situations where 'hidden agendas' and 'non-decision making' dominate the administrative and political arena in which environmental policies debated and developed (Rees 1992, Blowers 1984).

Evaluating the intentions or outcomes of policies is for these reasons more difficult than may appear at face value. Baram (1985) comments on the lack of simple formulae or solutions to what is an inherently complex task.

The policy-implementation complex

Dunsire (1978) coined the phrase 'the implementation gap' to describe the shortfall between public policy intentions and their outcomes. The search for explanation has been approached from a variety of perspectives – technical, administrative, inter-organisational amongst others (Gunn 1978, Bardach 1977, Hood 1976, King 1976). Hogwood and Gunn (1984) perhaps provide the best survey from a general policy analysis perspective.

The blurring of intention and outcomes, which makes implementation an unattainable goal in many instances, hints at a notion of a 'complex' of factors, introducing the ambiguity and complexity of the real world. The following summary seeks merely to focus on certain of these factors which have surfaced when implementation problems have arisen in environmental policies. Eight factors are highlighted in no particular order of importance. Many rarely occur alone, and in any one particular instance, a number of them tend to be closely inter-related.

(1) Limitations in scientific understanding

Fundamental to the success of much environmental policy is a sound scientific understanding of the environmental problems involved and of the actions that may be taken to address these. Without such understanding policies may have negligible, unintended or unforeseen impacts. Problems arise with scientific understanding in two ways. First, from limitations in scientific methods, and secondly, from the manner in which science is incorporated into policy decisions.

Uncertainties in knowledge are inherent to the scientific process, even more so where problems are 'trans-scientific' in character as are many in the environmental sphere. Such uncertainties may precipitate conflict and disagreement which can delay and effectively prevent the translation of general policies into more specific targets and legislative criteria, as is the case with global warming (Bolin 1994). In other circumstances uncertainties may be ignored and hidden in the rush to make policy based upon simple clear and instant answers (Macgill 1987). As Sandbach (1982) notes science may also be selectively used to suit political ends and to reflect

the relative power and political significance of those to be affected by environmental policy measures. In whichever way the results of scientific investigation are used, there is clear potential for poor or misguided policy formulation and implementation.

(2) Lack of policy integration

Integration problems are of two kinds. The first relates to the separation of environmental policy from other areas of government activity so that, for example, environmental policies which seek to reduce emissions from traffic and energy use, may be at odds with transport policies which promote road building and car use. Environmental objectives may thus be frustrated and obstructed by the force of other more powerful government objectives which fail to recognise the importance of their environmental implications.

The second integration problem relates to the traditional way in which environmental management has been divided or 'fragmented' according to environmental media (Mandelker 1993, Baram 1985). Thus what has been termed administrative jungle may develop with different agencies being responsible for pollution within the factory environment, and externally with different agencies being responsible for pollution of the air, water and the land, but no one organisation able to take a holistic view of environmental protection (Ball and Bell 1994). For example a power station could reduce its sulphur dioxide atmospheric emissions by spraying the gases and delivering the resulting effluent to a water environment (Royal Commission on Environmental Pollution 1976). In this way environmental problems are transferred but not solved.

(3) Lack of social context

For successful implementation, the social and economic environments should not be structured in such a way that they create barriers. The 'tyranny of small decisions' encapsulates the notion that the success of a policy is contingent upon individuals overcoming their established ways – attitudes may change, but changes in behaviour do not automatically follow. Thus a policy's success is held to ransom by the need to accomplish personal shifts in behaviour. Examples here include recycling, energy efficiency and shifts in transport use. In the latter case shifting people from private to public transport has to overcome major obstacles in how the two modes are perceived and how personal identities and behaviour patterns have become established around the use of the car.

(4) Failure in Spatial Jurisdiction

A problem long recognised but still widely experienced, relates to the difficulties of governments or organisations attempting to address problems which are created beyond their jurisdictional boundaries. Many attempts are now made to establish environmental policies on an international scale (Carroll 1988). Experience has shown that achieving policy agreement and ensuring that implementation universally takes place is not easy. This tale is not very different whether looking

eastwards towards the River Danube (see Kovacs's chapter in this volume), or westwards to the River Rhine (Johnston and Brown 1976).

(5) Lack of political support

The pivotal role sometimes exerted by the political establishment in undermining the implementation of environmental policy is well documented (Sandbach 1982, Goldsmith and Hildyard 1986). The factors which create this situation are however complex and cannot always be superficially ascribed to the extent to which powerful financial interests are affected (Sandbach 1982). The reality of a powerful complex of 'political interest communities' cannot be denied as exemplified by recent abandonment of the UK government's policy to instigate a national register of contaminated land (Maltby 1994).

(6) Failures in resource and administrative commitment

Problems of resource and administrative commitment are fundamental and underlie many of the factors already discussed. There are many examples. Only last year in the United Kingdom, considerable concern was created in certain circles when it became clear that tight financial constraints in the wake of the November 1993/1994 budget, could affect both of Britain's key pollution control agencies, the National Rivers Authority and H. M. Inspectorate of Pollution (ENDS 1993a). .

(7) Failures in compliance

Environment policies have often required or prohibited actions being taken by bodies, organisations or individuals (Hawkins 1984). Here there can be failures in ensuring compliance with these requirements of a varying nature (Hanf 1993, Richardson, Ogus and Burrows 1983). Firstly, policies may require actions which are so strongly and universally opposed or ignored that prosecution or other enforcement action becomes unrealistic and unviable. Secondly, policies may lay down requirements that are technically or economically impossible in the time scale allowed, so that non-compliance becomes inevitable. Thirdly, failures in compliance may be the product of a complex bargaining process, between regulatory officials and representatives of enterprises, which does not necessarily accord with the application of uniform rules and application (Downing 1983).

(8) Limitations of openness and public participation

Openness and public participation in decision making is an area which focuses attention not solely on the nature of policies themselves but also on the processes by which these are decided. Experience has shown that policies which have little public support or have been derived from a process with little meaningful public participation or public scrutiny are less likely to be effectively implemented. Policies made openly with public involvement are likely to better ones, will help establish trust between public and regulator and reduce obstructive conflict, and enable public assistance with implementation and compliance.

Complaints of inadequate public involvement in decision making have been a constant

operation of big public inquiries (Altemann 1982) and limits on access to information (Frankel 1984, Walker 1989), to the almost complete lack of a public voice in communist Eastern Europe (Manser 1994).

Towards a policy-implementation continuum

At a governmental level many of the factors identified above, have combined to create what various authors have referred to as periods of 'symbolic policy making' (Edelman 1964), which have reflected more the needs of politicians than those of the environment, and have yielded 'impressive programmes but poor results' (Weidner 1986). Various countries have been accused of adopting a symbolic politics of the environment, including Japan in the 1960s (ibid), the US through much of the 1960s and 70s (Mandelker 1993) and the Soviet Union throughout its entire history (Elsom 1992). Both 'implementation gaps' and 'symbolic policy-making' have been, and still are characteristic of countries right across Europe, Western, Central and Eastern. They are not the preserve of the East or the West (Georgieva 1992, Mandelker 1993).

In the early 1990s there has however been evidence of a dynamism in environmental policy which may be progressing beyond political symbols to find more effective and implementable policy solutions. Thus the deficiencies of previous policies have been recognised and new approaches and principles are being adopted which have the potential at least of having more substantial impacts on environmental concerns. These new features can be seen at a number of different levels.

Some of the problems identified have generated particular specific responses. These include, for example:

- the precautionary principle as a response to problems of scientific uncertainty, which although variously interpreted (Milne 1993) implies that action should be taken before scientific proof about the damaging effect of suspected pollutants is finally established (O'Riordan and Cameron 1994).
- integrated pollution control (IPC), as a response to fragmentation problems so that pollution control is enacted by one body across different environmental media (ENDS 1994). IPC is gradually coming to fruition in the UK and is also being pursued at a European level within the Fifth Action Programme (Wurzel 1993).
- economic instruments which are increasingly seen as more effective and cost efficient ways of achieving environmental goals, and of influencing the context within which decisions are made by both producers and consumers in a market economy (Pearce et al 1989, Tahmassebi 1992).

At a more general level there are signs of more pragmatic approaches which acknowledge the value of a *diversity* of policy tools (Glass 1994, Rees 1988). It is no longer a case of seeing market mechanisms as an alternative to regulations laid down by regulatory authorities. As exemplified by Powell's chapter in this volume,

the recent experience in the USA, sees the Environmental Protection Agency adopting a strong command-and-control approach to ensure the success of the new marketable permit system being introduced.

At the level of institutional frameworks for policy-making and implementation, an array of inter-linked elements are emerging tighten the links between the two components. To paraphrase Barrett and Fudge (1981), it may be useful to conceptualise the emerging frameworks as creating a *'policy-implementation continuum'*. These recognise the oft-repeated truism that implementation 'cannot be conceived as a process that takes place after and independent of the design of policy' (Pressman and Wildavsky 1973, p329). Evidence of a re-casting is provided by an examination of recent trends both in the United Kingdom and in the European Union, with the publication of the 5th Environmental Action Programme (EAP), 'Towards Sustainability' (Com (92)23 Final; OJ C138, 1993)

(1) Recognition of the policy-making-implementation continuum

The House of Lords Select Committee on the European Communities noted critically that "too much environmental legislation is formulated and drafted with insufficient attention to its eventual implementation" (House of Lords 1992, p47). Attempts to integrate a wider range of concerned and interested parties are features of current initiatives within the European Union's EAP. Amongst the more ambitious of these will be the Consultative Committee, which drawing "representatives from business, local authorities associations, trade unions and environmental and consumer groups" (ENDS 1992a, p23) will allow these to engage in a formal dialogue before new legislation is proposed. This policy of attempting to internalise the environmental lobby at the European level will present both the pressure groups and the Commission with a series of dilemmas (Mazey and Richardson 1993). Thus for example, the pressure groups may be difficult to engage in a co-operative dialogue with the Commission and national governments at one level, while at the same time maintaining a high profile 'whistle-blowing' role bringing to media and public attention. Ironically in the past decade the Commission has come to rely quite significantly on this unofficial policing by environmental groups, for example the campaigns run by Friends of the Earth on nitrate pollution and the run-up to the privatisation of the water industry in the UK (Rose 1990).

(2) Policy auditing

A multitude of policy audit processes are being advocated by various bodies, all designed to achieve what may seem to be a more 'level playing field' regulatory environment. A number of specific areas may be highlighted.

The greater emphasis placed on environmental monitoring and the data it generates to allow policy evaluation has resulted in calls for improvements in the quality of the data (ENDS 1992b). The UK government itself, keen to promote a better image of its environmental record given that it is not the only culprit when it comes to non-compliance with European directives, has advanced the idea of an 'audit inspectorate' to monitor directly this compliance (ENDS 1992a). The Commission of the EU has itself proposed a Community network of national environmental

inspectorates. It seems that this network would be in a position to audit the ways enforcement and implementation is approached by the relevant national regulatory authorities (ibid).

(3) Access to Environmental Information

There can be little doubt that one of the pillars of the new dynamism relates to developments in public access to environmental information. In the UK early developments in the form of the Local Government (Access to Information) Act 1985 and public registers on water pollution and waste disposal were supplemented by the provision for further disclosures made under the Environmental Protection Regulations 1992 (S. I. 1992 no 507) (Ball and Bell 1994). However these regulations which saw implementation of EU Directive (DIR 90/313/EC) into domestic legislation in the United Kingdom will lead to even wider availability of information on the state of the environment. It is certainly too early to assess its impacts, even though a range of problems have already been highlighted. The lack of clarity over organisations it affects and the range of information that they covered (Ball 1994) together with the difficulties of access, awareness and interpretation of the data itself have been already highlighted (Friends of The Earth 1993, Birtles 1993).

(4) Targets and Reporting mechanisms

The publication of 'This Common Inheritance' (HM Government 1990) and its subsequent updates may be seen as the start of an attempt to provide a comprehensive and continuing appraisal of targets embodied in environmental policies (although to a far lesser extent than in the earlier Dutch National Environmental Policy Plan). Together with publication of 'The UK Environment' (Department of the Environment 1992) which collates and reviews environmental information in an easily accessible format, it would appear that there is a significant shift in the nature of public reporting of environmental information and objectives.

The development of a suite of target-based environmental policies and their systematic review is still largely in its infancy. The former were never particularly favoured by past governments during the 1980s. General economic policies followed in the UK have tended to promote the notion that with most targets, the timetable for implementation has to remain flexible, given substantial public spending. Characteristic of the tension arising between benefits and costs, and a government keen to be seen to be setting targets, yet insisting on the flexibility of implementation, is the UK policy on statutory water quality objectives (SWQOs) introduced by the Water Act (1989) and consolidated by the Water Resources Act (1991) (Department of the Environment 1992).

(5) Public Access to Courts

Public access to courts to ensure compliance with environmental laws has been a central characteristic feature of much legislation in the United States of America since 1970. It provided a new avenue for environmental organisations to exercise influence on the conduct of policy, especially if they lacked the political resources to influence the legislative or executive branches of government (Smith 1992). That

some 'environmental battles' fought in the courts created delays and confusion in public policy implementation was seen as a major disadvantage in comparative assessments of environmental policy regimes. In the UK the comparatively small role given to the public through the legal system to promote compliance with environmental legislation was seen as a positive benefit.

However there has started a slow re-appraisal of this position. Carnwath (1992) analysed the need for a specialist court for environmental enforcement given the recent important changes in both planning and pollution control laws. Amongst his ideas was the possibility of setting up an environmental division of the High Court. Indeed the recent publication of the opposition Labour Party's environmental strategy document highlights the need for a clean "bill of rights" giving people rights to good quality air and water, which individuals will be able to pursue through the courts, through a new division of the civil courts (Brown 1994, p4). In a similar vein, a debate on implementation of EC environmental legislation in the House of Lords on European legislation saw a variety of statements urging legal reforms for environmental cases providing an extension of the rights of access to the courts for individuals ands non-governmental organisations (ENDS 1993b p26).

Conclusion

Faced with an inevitable list of complexities and difficulties involved in turning intentions into outcomes, and an agenda of new challenges and opportunities within what we have termed the emerging policy-implementation continuum, what prospects are there for the success of future environmental management?

On the one hand, the various features of this policy-implementation framework may be seen as genuine responses to identified deficiencies in previous practice and the formal expression of the embeddedness of public support for environmental policy. Eastern European countries in particular now have the potential opportunity to set up new policy and implementation structures which make radical changes from past practice incorporating the best of Western European experience and learning from past mistakes.

On the other hand, not all commentators have evaluated these changes in such a positive manner and clearly there will be both old and new obstacles to surmount. Macrory (1992) examining some of the new changes in the UK believes that they form 'a potent mixture unfamiliar to British practice'; 'the new formalism', as he brands the changes, may add complexity and prove in some instances to be counter-productive. These new features may thus yet turn out to be more products of 'symbolic policy-making'. Indeed it is not difficult to find candidates for the symbolic policies of the 1990s. Above all the clarion call of 'sustainable development' has become a concept easily abused by those wishing to present a modern environmental image, but with little intention to define what it actually means or to follow through to achieving it. As Mandelker (1993, p116) notes, "political symbols provide a shortcut for mobilising support in a complex society where issue debate is difficult and public attention in the issue attention cycle is brief". From this

perspective broader societal trends at national and international levels must only serve to favour the symbolic over the substantial, prompting the continued need for careful scrutiny of both what is intended and what is achieved.

N.B. A fuller version of this paper is available from the authors.

References

ALTEMANN, R. (1982) Planning for Public Participation: the design of implementable strategies, *Environment and Planning B*, vol 9, pp 295-313

BALL, S. (1994) UK Environmental Law 1993, *Integrated Environmental Management*, no 26 February, pp 2-4.

BALL, S. and BELL, S. (1994) *Environmental Law, (2nd ed.)* Blackstone Press, London.

BARDACH, E. (1977) *The Implementation Game*, MIT Press. Cambridge, mass.

BARAM, M. (1985) Implementation and evaluation of regulations, in H. Otway and M. Peltu, *Regulating Industrial Risks*, Butterworths, pp 57-75.

BARRETT, S. and FUDGE, C. (1981) *Policy and Action.* Methuen, London.

BENNETT, G. (1993) The implementation of EC environmental directives: the gap between law and practice. *The Science of the Total Environment*, 129, pp 19-28.

BIRTLES, W. (1993) A Right to Know: The Environmental Information Regulations, *Journal of Planning and Environmental Law, July*, pp 615-627.

BLOWERS, A. (1984) *Something in the Air: corporate Power and The Environment.* Harper & Row, London.

BOLIN, B. (1994) Science and Policy Making, *Ambio*, vol 23, no 1, pp 25-29

BROWN, P. (1994) *Labour plans freeze on road building*, The Guardian, 20th July, p4

CARNWATH, R. (1992) Environmental Enforcement: The Need for a Specialist Court, *Journal of Planning and Environmental Law*, September, pp 799-808.

CARROLL, J. E. (1988) *International Environmental Diplomacy.*, CUP, Cambridge

COLLINS, K. & RENSHAW, D. (1993) The Implementation and Enforcement of European Community Environment Legislation. in Judge, D. (ed.) *A Green Dimension for The European Community*, Frank Cass

CONWAY, G. R. and PRETTY, J. N. (1991) *Unwelcome harvest: agriculture and pollution.*

Department of the Environment (1992) *The UK Environment*, HMSO London.

DOWNING, P. B. (1983) Bargaining in pollution control. *Policy Studies Journal, 11(4)*, pp 577-586.

DUNSIRE, A. (1978) *Implementation in a Bureaucracy*, Martin Robertson, Oxford.

EDELMAN, M. (1964) *The symbolic uses of politics*, University of Illinois Press, Urbana.

EDELMAN, M. (1971) *Politics as Symbolic Action* , Markham Publishing Co. Chicago.

ELSOM, D. (1992) *Atmospheric Pollution,* Basil Blackwell, Oxford.

ENDS (1992a) Towards sustainable development: a blueprint from Brussels, Report 204, Environmental Data Services.

ENDS (1992b) Implementation of EC law, Report 207, Environmental Data Services.

ENDS (1993a) *NRA, HMIP in budget squeeze,* Report 226 November

ENDS (1993b) Law Lords urge legal reforms for environmental cases, Report 216, Environmental Data Services.

ENDS (1994) *Integrated pollution control,* (Environmental Data Services, London).

Federal German Ministry of Environment (1991) *Basic Guidelines for Ecological Recovery and Development in the New Lander*, Bonn, Germany

Frankel, M. (1986) Environmental Secrecy, in Goldsmith E and Hildyard N, *Green Britain or Industrial Wasteland?*, (Polity Press, London)

Friends of the Earth (1993) 'Delivering the Right to Know' Proceedings of a European Conference London, (FoE, London)

GEORGIEVA, K. (1992) Environmental policy in South-eastern Europe: Green desires, Gray Realities. *Environmental Impact Assessment Review*, 12, pp 239-243.

GLASS, N. (1994) Economic instruments in the UK *Integrated Environmental Management,* no 26 February, pp 17-18

GOLDSMITH, E. and HILDYARD, N. (1986) *Green Britain or Industrial Wasteland?*, (Polity Press, London)

GUNN, L. (1978) "Why is implementation so difficult?", *Management Services in Government.*

HAM, C. & HILL, M. (1993) The Policy Process in the Modern Capitalist State. (2 ed.) (Harvester Wheatsheaf, London).

HANF. K. (1993) Enforcing environmental laws: the social regulation of co-production in Hill, M. (ed.) *New Agendas in the Study of the Policy Process.* (Harvester Wheatsheaf, London).

HAWKINS, K. (1984) *Environment and Enforcement: Regulation and the social definition of pollution,* (Clarendon press, Oxford).

HOGWOOD, B W. & Gunn, L. A. (1984) *Policy Analysis for the Real World.* (Oxford University Press. Oxford).

HM Government (1990) *This Common Inheritance: Britain's Environmental Strategy,* Cmnd. 1200 (HMSO, London).

KING, A. (1975) 'Overload: problems of governing in the 1970s', *Political Studies,* 23, pp. 284-96

LEVITT, R. (1980) *Implementing Public Policy* (Croom Helm. London).

MACGILL, S. M. (1987) *The Politics of Anxiety*, (Pion, London)

MALTBY, J. A. (1994) Back to Contaminated Land: a survey of recent developments, *Integrated Environmental Management*, no 28, pp 15-17.

MANDELKER, D. R. (1993) Environmental Policy: the next generation, *Town Planning Review*, vol 64, no 2, pp 107-117.

MANSER, R. (1994) Going West: Market Reform and the Environment in Eastern Europe, *The Ecologist*, vol 24, no1, pp 27-32

MACRORY, R. (1991) 'Environmental Law: shifting discretions and the new formalism' in *Frontiers of Environmental Law*, Lomas, O. (ed.) Chancery Law Publishing

MAZEY, S. and RICHARDSON, J. (1993) Environmental Groups and the EC: challenges and opportunities, in D. Judge (ed) *A Green Dimension for the European Community* (Frank Cass, London).

MILNE, A. (1993) The Perils of Green Pessimism, *New Scientist*, 12th June 1993, pp 34-37.

O'RIORDAN, T. and CAMERON, J. (1994) *Interpreting the Precautionary Principle* (Cameron May, London).

PEARCE, D. et al., (1993) *Blueprint 3 Measuring Sustainable Development.* (Earthscan London).

PRESSMAN, J. and WILDAVSKY, A. (1973) *Implementation,* (Univ. of California Press, Berkeley, CA.)

REES, J. (1988) Pollution Control Objectives and the Regulatory Framework, in K Turner (ed) *Sustainable Resource Management: Principles and Practice*, (Belhaven Press, London)

REES, J. (1992) *Natural Resources: Allocation, Economics and Policy* (Methuen, London).

RENGER, M. and NATHANSON, N. (1992) Green words or black deeds?: the implementation of European environmental law, *European Environment*, European Environment, vol. 2 part 4 August

RICHARDSON, G., OGUS, A. and BURROWS, P. (1982) *Policing Pollution, A study in Regulation and Enforcement.*, (Clarendon Press, Oxford).

ROSE, C. (1990) *The Dirty man of Europe: The great British Pollution Scandal,* Simon Schuster, London.

Royal Commission on Environmental Pollution (1976) *Air pollution Control: An integrated approach (Cmnd 6371)* (HMSO, London).

SANDBACH, F. (1982) *Principles of pollution control* (Longmann, London).

SMITH, Z. A. (1992) *The Environmental Policy Paradox* (Prentice Hall, New Jersey).

TAHMASSEBI, C. H. (1992) Government role in achieving environmental goals: market forces versus regulation, *Energy Policy*, vol 20, no 10, pp 959-962.

WALKER, G. P. (1989) Risks, Rights and Secrets: public access to information on industrial major hazards, *Policy and Politics*, vol 17, no 3, pp 255-271.

WEIDNER, H. (1986) Japan: the success and limitations of technocratic environmental policy. Policy and Politics vol 14, no 1, pp 43-70.

WURZEL, R. (1993) Environmental Policy, in J. Lodge (ed) *The European Community and the Challenge of the Future* (Pinter, London).

THE NEW HUNGARIAN ENVIRONMENTAL POLICY

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Introduction

A country like Hungary wishing to join the European Union – changing all the time and considering environment protection to be more and more important – has to overcome her environmental problems in a way that allows the great economic and social transition to end successfully. The everyday and consequential conflicts related to the beginnings of the transition into the market economy (privatisation etc.), the strong change of direction in foreign trade and the various problems strengthened during the changes (increasing poverty, unemployment, crime etc.) do not always favour long scale strategic thinking, which is a basic principle of environmental policy. Beside the foreign debt per capita being extremely high, the debt towards our environment and future generations can also impose bigger and bigger burdens on us. This is exactly why in the program of the new Hungarian government alongside the market economy and social security we need to gradually build environment protection in close connection.

Environmental protection itself, the intersectoral and integrative activity formed after World War II, is characterised by many changes and transitions. During the present great social-economic transition, more opportunities may be available for environmental aspects to be integrated into general economic policy. In a broader sense, the formation of a new type of social-economic structure is needed which can avoid the difficulties of the consumption centred and wasteful models of the market economies. The aim of this must be the realisation of sustainable development in the long term.

In the past, it became apparent that the development of a national environmental policy concept is necessary, because:

1. There is a very close connection between the quality of environment and the state of health of the population, the main characteristics of which are that the population of the country is diminishing, that the spectacular fall of infant mortality in the past decades has stopped so that, now it is double the European average and that lifetime expected at birth Hungary is at the bottom of European rankings. On

the whole the physical and mental situation of the population is influenced by environmental factors in a more and more unpleasant way.

2. The competitiveness of national economies and products being international in traded are judged by their environmental characteristics. Meeting the criteria for OECDS to the admission and the association agreement with the European Union, the full membership hoped to be gained in the next decade and the quality requirements coming to the fore at the same time, make it necessary to integrate environmental aspects into the economic and social policy of the government.

3. The environmental situation of the country and the composition and implementation of an environmental policy that can be regarded as modern, are an important part of a favourable image in international diplomacy and public opinion. The international economic organisations, financial and development institutions consider it to be a basic part of their credit allocations and development programs, that environmental effects are taken into consideration. Thus we must ensure that resources obtained in two way are used in an environmentally sound manner.

Considering all this it can be understood that if economic policy still handles environment protection with a 'leave it principle', because of the high scale of costs, this can hinder the development of the economy, creation of social welfare and the substantial improvement in quality of life for a long time, and so hinder the chances of joining the European Union.

Hungarian environmental policy in the past

In Hungary it became apparent in the eighties that the state of environment, both on regional and national level had deteriorated to such an extent that it was clear that the protection of the environment should be listed as one of the priority issues both from a social and economic point of view. The basic economic problem of environment protection is that the market except for occasional cases and without extra measures, does not force the source of environmental burdens to bear their consequences.

This recognition was pushed out of the public agenda in the rush of the transition and if lost part of its strength. So environment protection has been devaluated over the past few years. The leaders of environmental policy should emphasise that the connections between society and the economy need to be reformulated. Environmental policy and social activity should be adjusted to these new conditions.

The signs of the environmental crisis can be observed in the deterioration of the quality of all the environmental elements. Air is heavily polluted over around 4% of the territory of the country, and over one fourth of the population live in these areas. In our big cities and the settlements along the main thoroughfares air quality often reaches critical values. The reasons for this can be traced back first of all to obsolete private and industrial cars (the average age of the cars is around 10 years), the still high proportion of two-stroke cars (around 25%) and in several cases regional planning-development mistakes. In some fields there has been progress over the past few years, but it does not mean that we have radically dranged inherited problematical structures.

Over the whole country, but especially on the Great Plain the pollution of grand waters is a major problem, for which the improper use of artificial fertilisers and pesticides and the impurity of the communal and industrial waste waters are responsible. Over the past decades the water supply of the settlements developed considerably, however the speed of development of canalisation and waste water clarification lagged behind this (the proportion of the population supplied with running water is over 95% now and directly linked households are also above 75%, while the households connected to the public drain are only around 43%). In Hungary the water of around half a thousand of settlements is polluted with nitrate and arzene, a significant proportion of these are concentrated in regions with small villages.

The degradation of one of the most important natural resources of the country is also on significant scale due to the agro-technology implemented for decades and production techniques disregarding ecological endowments. Beside water and wind erosion, soil acidification means significant problems. The quantity of waste in the country is because of the raw material demand for production is very high, but the rate of recycling is low. The collection and recycling of the increasing unregulated quantity and type of wrapping materials is a new problem (lack of refilling, deposit system, selective waste collection etc.).

The connection between energy and environment must be mentioned separately. It is well known that the Hungarian economy used 2-3 times more energy to produce one unit GDP than the average developed industrial countries even in the past. At the same time it is also apparent that energy production and use are to a great extent responsible for environmental pollution – mainly air pollution. CO2 emission depends directly on the structure of energy use, which in Hungary in 1990 was 75 million tons. The Parliament strengthened the UNO Climate Change Frame Agreement in December 1993, when Hungary undertook like the EC member states to reduce the carbon-dioxide emissions after 2000 to the average level in 1985–1987.

The use of energy sources has altered significantly in the last decade. On one hand in a lot of places natural gas substituted coal and oil, on the other hand the Paks Atomic Plant started operation. The increase of gas use resulted in the decrease of sulphur-dioxide and carbon-dioxide emission and solid (dust) pollution. Carbon-dioxide decreased by 20%, sulphur-dioxide by 10 and dust by 60% in 1992 compared to 1990.

The economic recession has also contributed significantly the decrease of environmental damage from energy use, as with the fall of production less energy was used. Now we must do everything to increase energy saving, because the energy not produced does not cause environment pollution.

Transport sources of air pollution are the second most important after electric energy production. Transport causes about one fourth of the sulphur-dioxide emission and unfortunately it plays a significant role also in the emission of carbon-monoxide, volatile hydrocarbons, lead and other heavy metals. Unlike other air polluting sources the present road infrastructure affects mainly the most densely

populated parts of settlements. Thus the environmental damage on mankind is significant.

A separate problem is the deterioration of buildings through air pollution. It affects especially monuments and historical town centres.

The noise and vibration impacts of transport have similar damaging effects both from a health and architectural point of view. These significantly damage the state of buildings.

After the brief overview of the worst problems let us see what we could do in the previous government period to solve these problems. The environmental policy of the past four years was embodied in the short and long term environmental plan of the National Renewal Program and the Government. According to investment priorities water protection was in first place (55%), and second air and soil protection (15-15%).

The level of environmental support from the budget increased between 1991-1993, although due to inflation though their real value could not be maintained. While the support of the Central Environmental Fund increased significantly as a result of the product fee imposed on fuels, the level of the budget for waste water management has not been good.

The PHARE program offered 70 million ECU (about 7 billion forints) for environment and nature conservation between 1990–1994. While in the first two years these resources were largely spent on studies, since 1992 pollution reducing investments have come to the fore alongside the unchanged priority to modernise the pollution measuring network.

European norms in the field of environment protection

It has for several years been the first multilateral international cooperation priority of the Ministry of Environment and Regional Policy to fulfil integration aims, from among which European integration is very important.

One of the most important requirements of joining the EU, is legal harmony in the field of environment protection.

Twenty years have passed since the appearance of the list environmental law. Law II in 1976 concerned with the protection of the human environment, considered innovative in its time, fulfilled the demand in the 70s that environment protection should be stated in/an as a social problem. All the same it bore the characteristics of its particular era, so the law did not really specify what most happen and environment protection was not properly integrated into social-economic processes.

This is why the government decided that the renewal of the 1976 law is necessary, and the development of a new environmental law. The government accepted the act of the new environmental law on January 13, 1994 and handed it to the parliament in February. This Act was born as the result of a long participative process, considering the proposals and comments of a number of national and international professional, scientific, social and economic organisations. The Act includes the consequences of the most up-to-date environmental rules and

economic regulations adapted for Hungary and those of the international environmental conventions.

All around Europe the reconciliation of interests, harmony of regulations, legislation, specifying responsibility and executive roles, decision making and preparation, and new institutional forums belong to the tools of modern environmental policy.

These tools are the basis for the new practice of national environmental policy, which promotes the harmonious use of our environment following the general aims of sustainable development.

Beside general legal harmony in the field of environment protection environmental information and data management harmony are of particular importance.

In accordance with the 313/90 principle of the Council of the European Communities (07.06.1990 about free access to environmental information), in which the duties of the member states concerning the adaptation into their own legal system must be met by 31.12.1992 – the necessary regulation must be produced as soon as possible. Related to this the following must be made clear and put in order:

- the publicity of the environmental information (as wide range as possible)
- ensuring the access to environmental data
- the guarantees of civic rights
- the role of administration connected to environmental data and information

With the regulations regarding publicity and access to environmental data the new environmental law wishes to fulfil general social and international demands this field. The information duty is expected to prevent environment users from polluting the environment because of the fear of publicity (A lot of foreign examples prove that in certain cases publicity can have as big a role in pollution prevention as that of environmental authority activity.)

Beyond the various aspects mentioned as examples, the aim is to integrate the approach of the Fifth Environmental Action Program of the European Union into the processes of strategic planning and the action programs of national environmental policy.

The title Towards Sustainability considered to be too modest by some and falsely exaggerating by others is deliberate. The EU political and action program dealing with environment protection and sustainable development confirmed by March 1992 was derived in preparation for the Rio conference of UNCED. This program accepted by the community determines the long term environmental strategy of the European Union until 2000 and beyond and indicates the directions of development. The document determines the participants in environmental policy, the role and responsibility of certain groups and especially important the role of economic sectors of society in the formation of environmental policy. It also specifies the aims to be reached, and the necessary tools and cooperation reflecting identified environmental problems. Finally it indicates priorities and states the necessary regulations and their costs.

The fifth action program of the EU on the whole states the new European strategies for environment protection and development, from which all present and

future member states should develop their own environmental policy. In close harmony with the contract of association and the above mentioned document was the National Environmental and Natural Policy Concept (later on Concept) prepared and accepted by the Hungarian Government in spring 1994.

The basic principles of the national environmental policy

The Concept prepared at the Ministry of Environment and Regional Policy is based on the principles crystallised in the environmental policies of the developed western countries in the past 20-25 years, and generally accepted at the international forums. So among others the Concept took into consideration the conventions and proposals of the UNO, OECD and the European Council and as I have already mentioned it handles the requirement that Hungary should follow the conditions for fully joining the European Union in the elaboration of her environmental policy.

The Concept is divided into two main parts, the concepts of environmental policy and nature conservation policy. The common appearance of the part concepts is justified by the demand for integration, although in its approach methods, task and tool system it is about two independent professional fields, but of course not separate ones, but completing each other. Corresponding this the concepts, strategies and programs of environment protection and nature conservation should be closely harmonised.

The Concept details and explains basic environmental and natural principles accepted and implemented internationally. These principles play a significant role in the elaboration of the strategy to be followed for reaching the particular aims and choosing tools for implementation.

The main aim of all of this is the gradual transformation to sustainable development. The core of sustainable development is that in the general development process we must constantly strive for a balance between the social, economic, technical and environmental conditions. In the policy concept it is not only the creation of ecological interdependence and stability that can be found, but also the moral responsibility to achieve development which fulfils the demands of the present generations without endangering quality of the life of the future ones. The basis of this a establishing reasonable and longer term reducing the production and consumption of natural resources.

The principles of environmental policy were established with sustainable development as the main aim. The first of these is the principle of prevention and caution, the substance of which is that it does not rely open clearing op after damage has occurred, but it is rather trying to avoid and prevent damage from taking place. To achieve this, technological development should aim to improve the quality of the and protect the environment as efficiently as possible and with acceptable social costs. Environmental policy should in this context be able to harmonise with social and economic development.

The cautionary principle should be implemented in the cases where heavy or irreversible environmental damage may occur in the future. The most characteristic examples of this are problems connected to chemical materials, the questions of

nuclear security and global climate change posing a threat in the long term. The possible scientific uncertainties related to these problems can not be the reasons to postpone the decisions and regulations necessary for the prevention or reduction of future damage to the environment.

For the prevention of environment pollution the environmental impacts should be considered at the earliest stage of development and planning and decision making processes. For this environmental impact assessment should be implemented consistently. This has been compulsory for a determined set of planned activities since 1993 in Hungary. With the methods of the preventive regulations and the interventions afterwards the following hierarchy should be followed:

– The prevention of the formation of pollution with the development of production and consumption practices which reduce the overuse of resources, the quantity of polluting materials and unnecessary burdens on the environment.

– The consistent recycling of materials and resources into the production-consumption systems.

Economic development and environment require each other, so environmental policy should be integrated into economic policy and sectoral policies should consider the role that environment protection can in certain cases contribute to the decrease of economic and social problems.

With the development of environmental policy it must be remembered that environment is a dynamic system: the effects on the environmental elements (air, water, soil etc.) can spread over from one element to the other, so an integrated approach between the various part of environmental policy is also necessary.

The two integration processes above form the principle of integrated problem approach.

An environmental policy concept for the long term should be based on the durability of laws connected to the environment. It means that the reform and enforcement of the legal system should ensure that all the regulations in force should be implemented strictly and that there is no possibility to include exceptions. In the environmental legislation it must be stressed that the environment can not be endangered irresponsibly. For this environmental legislation should be two-sided activity: on one hand the development of a comprehensive environmental basic law and the related regulations is significant, on the other hand environmental concerns should be continuously integrated into the general economic and social legislation so that it can meet the new challenges. The implementation of the principle of sustainable development can only be achieved with wide scale social cooperation. To spread the new environmental ethics, forms of behaviour, environmental sensitivity and awareness, legal and institutional frameworks must be created allowing the direct participation of individuals, social groups and non-governmental organisations in the preparation of laws individual decision making and implementation processes.

We must make an end the obsolete view and practice which considers environment protection to be a matter beyond the economy, making occasional interventions generally afterward the damage has occurred like putting out fire. The existence of market relations does not solve environmental problems by itself, so it

is justified that the state intervene. The more expensive, but clean technologies and products must be made competitive. The economic methods for this are already well known in international practice. The main motive in the enforcement of market mechanisms is the strict implementation of "the user pays" and "the polluter pays principle". The enforcement of these principles means that the legal subjects undertaking activities that use or pollute, burden and damage the environmental resources must bear full responsibility for this – including a financial one as well.

At the formation of the environmental legal system, institution system and system of economic tools a regional approach is an important principle. It includes the right and opportunity for local and regional governments to determine the local and regional environment pollution fees, limit values and in general the environmental requirements in the polluting sectors.

The cost effectiveness of environmental interventions is increased if they do not concentrate on the elimination or decrease of a pollution source, but they regard the carrying capacity of a region as a starting point and choose the technically most proper and economically most effective methods.

In the integrating Europe which on the western end has national frontiers which mean even less the regional programs improving the environment become extremely significant. Deriving from the unique geographical situation of Hungary regionalism is an indispensable principle for environmental strategy. It makes indispensable the implementation of programs developed and accepted together with the neighbouring countries for the protection and development of the boundary ecosystems and the prevention and reduction of pollution spreading over frontiers.

The principle of subsidiarity meaning that the primary responsibility and decision making competence should be kept on the lowest level of the political and management hierarchy, is closely connected with regionalisation and European integration. It presumes the formation of a constructive partnership between the central, regional and local governments. The effective cooperation of the different levels and the clear division of competencies are created by the harmony of environmental administrative regulations.

Starting out from the principles described above, were the aims and priorities constructed which make sustainable development, in the connected system of environment-society-economy and the harmonic coexistence of mankind and nature feasible.

In order to reach these aims the development of a National Environment and Nature Conservation Program reaching to the millennium – based with in the Concept – is necessary.

CHARACTERISTICS OF ENVIRONMENTAL PROBLEMS IN EASTERN-CENTRAL-EUROPE

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Introduction

The underlying reasons for environmental conflicts in Hungary can be considered typical of Eastern-Central-Europe (Enyedi – Gijswijt – Rhode 1987, Kornai 1993).

The only way to end the serious economic-social and ecological crisis in the Eastern-Central-European region including Hungary, is to set up a new ecologically friendly strategy for developing the economy which also covers environmental elements (Gerken 1990). Our aim is to reveal, by exposing the trends of the burdening of the environment, that the severely degraded environment of the region can hardly take further burdening without lasting ecological damage and environmental disasters (Our Common Future 1987). The future dilemma of Hungarian society is that sustainable development can hardly be realized along with the survival strategies which derive from the overstrained state of the economy (nowadays we cannot talk about development and the near future also contains much uncertainty) (Feladatok a XXI. századra 1993).

Changes in the burdening of the environment in Hungary

The pollution of the environment has the same causes in Hungary as in other states of Eastern-Central-Europe. In the 1940's ecologically healthy and barely polluted regions were characteristic (Fodor 1993).

The arbitrary industrialization, that started under Soviet pressure in the wake of World War Two, resulted in the fast deterioration of environmental quality. Heavily polluted regions appeared which have, by today, become ecologically critical regions. While analysing the reasons behind this phenomenon, it becomes apparent that besides industry, other sectors (such as agriculture, traffic, or the underdeveloped infrastructure) also largely contributed to the degradation of the environment.

The impact of industry on environment

The centralized, strong and extensive industrialization, including the fast development of metallurgy (iron and aluminium) based on out-of-date technologies, led to the growth of other environmentally damaging industries: mining industry etc. These industries looted our natural resources not only by wasting both energy and raw material, but they also burdened our natural environment with such an amount of pollutant materials which could not be processed by the self-purification systems of nature.

By the middle of the 1960's the level of several air pollutant elements reached and in some cases exceeded even 10-15 times the limits in the region around Pécs. The phenomenon of exceeding the limits is characteristic of other industrial regions of Hungary as well. In the meanwhile the extensively developed chemical industry also became a very significant source of pollution. The industrial investments of the 1960's and 1970's did not take environmental aspects into consideration so the amount of emitted pollutant materials increased abruptly. Chemical and toxic waste materials, illegally dumped at unknown sites, are especially serious problems, since they act as hidden time-bombs. The majority of these sources are dangerous to the air, water and soil even today.

The trend of increasing environmental pollution breaks in the 1980's. Environmental pollution from industry decreases for several reasons. Among them the appearance of environmentally friendly technologies as well as technologies producing little waste can be mentioned, and also some environment protection measures, the effect of which can hardly be felt yet. The general recession in the field of production plays a more important role, as a result of which the use of raw materials, energy, water etc. have decreased significantly (Hungary's National Report 1992).

The improvement of the quality of the environment, achieved in this way, is nevertheless, very uncertain since the economy in crisis cannot produce the high additional costs of environmental protection. The mining industries, which are closed down, cannot carry out the most minimal restoration work treating the environmental damage they had caused.

The impact of agriculture

For along time we paid only secondary attention to the role of the agriculture in causing the environmental crisis in Hungary. Agriculture, however, turned out to be a major source of pollution between 1965-1975. Before the 1960's such production technology had been used which had perfectly harmonized with the environment. Small-scale farming had applied this up to the 1950's. Because of the low level of chemical processing the first collectivised large-scale farms did not result in substantial pollution of the environment and thus no significant health damages were observable (erosion is not considered here). So the effects of environmental pollution caused by the first large development of industry and the chemical industry were followed only later by the significant impacts from agriculture. On

the one hand, because the chemical industry had to increase its production to such a level, so that it could fulfil the unreasonably wasteful demands of the agriculture concerning chemical processing. This process was largely encouraged by distorted economic regulations. Agricultural cooperatives were interested merely in the quantity of production. On the other hand, agriculture became a part of economy of considerable means only in the second half of the 1960's and beginning of the 1970's. The extensive development of chemical processing increased agricultural pollution, because the price of the rapid growth in the production was limitless fertilisation and use of pesticides. The fact that the growth in production of fodder-crops led to an increase in the number of stock-breeder farms which caused serious pollution in Hungary was not environmentally friendly either. We do not blame the pace of growth in this process, rather the use of the wrong technology.

The real size of environmental damages can, however, at the moment only be estimated. That is the reason why we have not taken it into consideration in our research so far, since our knowledge is very limited as far as the health damaging effects are concerned, except for only a few areas (eg. the contamination of ground waters – nitrate concentration). Nonetheless, as a result of complex synergistic effects this was also a reason why the number of tumours doubled between 1976-1986 (Fodor 1991).

Traffic

Traffic pollution is becoming a more and more significant factor causing health damages. Between 1940 and 1960 the major source of environmental pollution was the railway. This, nevertheless, caused only local ecological problems at several places in Hungary, mainly near railway stations. The importance of road traffic as a potential source of environmental pollution has increased since the 1960's. (The estimated number of cars in Hungary in 1945 is 4000, in 1950 13054, 1960 31268. This number has been increasing rapidly since then; in 1970 238 563, in 1980 more than one million, in 1990 almost two million and approximately 200 000 trucks.) The fast increase in the number of cars; the majority of heavy traffic being transferred onto public roads; the gradual ageing of the car pool, containing mostly Eastern-European made cars, thus having bad environmental characteristics, are all factors in the growth of pollution.

Infrastructure

The infrastructure is underdeveloped in Hungary, and this is a permanent cause of the environmental crisis. The growing deficiencies of infrastructure have deteriorated the quality of the environment in parallel, since 1945.

Environmental pollution involving health damages, caused by underdeveloped infrastructure, grew worse between 1950 and 1990, even though the infrastructure of our settlements had been far from developed even before 1950. The development of production as well as social infrastructure has been greatly neglected since 1950 (agricultural infrastructure was even more underdeveloped than industrial). As a

result of the deficiencies in the infrastructure, the 'scissors of public utilities' (the gap between water supply and sewerage) enlarged thus increasing the pollution of eg. the surface-waters and soil. In the meanwhile the problem of waste materials became nationwide, also adding to the danger, since its damaging impact on the human health appears today. There are 3800 officially registered waste dumps for public waste at 3050 settlements in Hungary (Hungary's National Report 1992).

The estimated number of illegally used waste dumps 15-20 times outnumbers those legally used, when this question was examined in some medium-size town (the number of inhabitants exceeds 40 000) besides one legal waste dump, there were at least 50 illegal ones.

New possibilities and sources of danger in the field of environmental protection in Eastern-Central Europe

The political restructuring and introduction of the market economy, as well as the related economic restructuring of 1989–90, may provide new hopes and possibilities for increasing the efficiency of environmental protection in Eastern-Central-Europe. One striking element of basic economic change is privatization. Recent experience shows, however, that privatization processes do not lead to a decrease in environmental pollution in similar ways, or indeed at all in some cases.

Namely without definitely enforcing the aspects of environmental pollution, they provide numerous other sources of danger, which are rather typical in Eastern-Central Europe.

The impact of privatization processes on environmental protection in Central-Eastern-Europe and Hungary

Privatization processes have a very serious impact on environmental protection in wealthy and economically well-developed western societies as well as in Eastern European countries struggling with crisis situations and the lack of capital. The way environmental protection is managed in developed market economies differs from that characteristic of economies in transition where the lack of capital often goes hand in hand with the low level of technology, the waste of raw materials and unreasonably high energy consumption.

As there is such diversity, economic priorities cannot be the same either, thus environmental protection takes a completely different position in the West and in the East. As a result of this, privatization processes concern environmental protection differently in eastern and western economies.

As for the impact of privatization on environmental protection, the Hungarian experience is very similar to that of other countries in Central-Eastern-Europe (Czech Republic, Poland, Slovakia, Romania).

It is widely known that the business positions of the sectors and industrial companies (primarily in the field of heavy industry and war industry) imposing the heaviest burden on the environment, have considerably weakened during the recent period of economic restructuring. The mere fact that the production has significant-

ly fallen back in these critically important parts of the economy could decrease damaging emissions even though other factors remained unchanged. This kind of improvement, however, does not derive from systemic development, rather the simple quantitative result of a decline in production.

Nonetheless restructuring dependent negative phenomena also appear along with the relative improvement of environmental quality. The weakening positions of large-scale industries and agriculture lead to a massive fall in the number of productive working-places. Under such circumstances the significance of working-places is upgraded both from business and employment point of view and the massive inflow of active capital initiates the provision of new working-places by applying such technologies which may activate the so-called 'back yard' effect.

Admit it or not, we are absolutely conscious of the damaging consequences of 'uneven development' between the east and the west in the field of environmental protection. In countries with well-developed economies environmental protection is more advanced and consequently regulations are stricter. That is why the flow of active capital (especially in the form of second class, environment polluting technologies which are still capable of profit making) to underdeveloped countries means a considerable danger, since the main motive is to face less strict regulations.

Hungarian experience shows that the business transactions which increasingly endanger the environment are very often covered by promises of developing private foreign trade, multiplying their capital in convertible currency, creating new working places etc. thus there is hardly any chance of finding the critical cases. The biggest problem is that ways of providing new working-places, that are objectionable in environmental respects, are accepted with ununderstandable social tolerance in this economically critical situation.

To select and eliminate technologies and patterns of consumption which can be damaging to environment is very difficult in such a situation where not only a few critically significant companies and branch specific lobbies are to be fought against, but ten thousands of business actors and hundred thousands of regular consumers.

According to research findings in this field, the positions of environmental responsiveness have not improved together with the expansion of the private economy in Hungary.

Along with the strengthening of the private economy central budget incomes have grown therefore the position of environmental expenditure could have improved as well. The increasing budget deficit, however, results in decreasing budget contribution of the business sector and this deficit is disadvantageous to environmental protection which has been treated so far as budget surplus. The amounts allowed are obviously not enough for systematic use, rather urgent, clearly aimed projects can be financed from these sources.

Emission limits for Hungary based on decisions of the environmental Rio convention, can only be kept with the presence of several conditions. First of all we need to be familiar with the allocation, intensity and spread of potential emission sources.

The rapid proliferation of businesses, privatization, and the liberalization of business regulations without doubt add to the risk of increasing the burden on the

environment. Gaining and systematizing environmental information as well as creating proper observational systems are of utmost importance in a situation like the one described earlier. This subsequently induces demand for expenditure which can only partly be covered by supportive financial sources coming to Hungary.

A whole range of production and consumption examples prove that the liberalization and deregulation of the economy is followed by the strengthening of the so-called 'back yard' effect. Importing large quantities of environmentally damaging substances, second-hand cars, transferring worn out technologies from economies that have introduced stricter regulations are only the most striking negative examples, without the slightest hope of efficient protection. It should be understood that there are such additional tasks concerning observation and control under the circumstances of the newly forming market economy which have no clear source to provide the financial cover.

The frequent deficiency in the accuracy of information is a basic problem. In a country with its economy in transition not only data about personal income are modified but the activities prohibited by environmental regulations are also concealed.

The abrupt proliferation of businesses involves the danger that the extent of environmental damages will significantly increase. The possibility of enforcing responsibility, nevertheless, becomes doubtful even in case of later clarification of the situation because of identification or other problems, or simply because the business may have been wound up in the meanwhile. All decisions related to the inflow of active capital or the import of consumption goods, as well as industrial investment projects where the burdening of environment might appear, inevitably need to be examined from an environmental aspect. The legal background of this must also be established.

The above mentioned phenomenon of hiding facts must be strongly emphasized since being familiar with the objective map of the burdening of the environment, is an essential condition to defining the level of aggregated emission. This is also a reason why it is so extremely urgent to prepare Hungary's map of the burdening of the environment.

It is widely known that the enforcement of environmental responsibility mostly depends on avoiding property related legal insecurity. The property reform that was introduced during the past three years has numerous disturbing consequences in respect of this question. The number of these cases in which the person of the owner is clear and definite is very small both in the field of production and services. Besides the property majority of the state, subsidiary companies were formed within large companies with considerable capital where private capital is also present to some extent. The basic problem in case of half state owned – half private owned division of property is that the partly private owned inner companies transfer not only a significant share of the operational costs but also the consequences of burdening the environment to the state owned 'cover' company. In such a situation it can easily happen that neither of the two sides undertake the relevant responsibility for environmental damages and the compensation for these. This is the least advantageous background for deciding the responsibility for environmental damage.

Further disadvantageous consequences of the spreading of the private economy is the consumption and wasteful attitude which becomes stronger in business planning and calculation. Therefore businesses do not show any inclination towards increasing either productive investment or established profits. This attitude leaves no doubt that saving the productive foundations or the intactness of environment is not a priority.

The barely perceivable 'looting attitude' present in economies in transition threatens primarily the environment and also basic capital. The freedom to venture unfortunately resulted in the loosening of owner, state and professional control. Taking advantage of this situation has a number of consequences already.

In our research we do not suppose that a direct relationship exists between the changes in ownership and the growing chances of environmental deterioration. It would be a big mistake, however, not to notice the apparent signs of the increasing burdening of environment. We do not believe that any kind of recent environmental retardation derives directly from changing ownership. Searching for the above mentioned relations serves primarily to call attention to the new situation in quality.

Privatization is not dangerous to the environment in itself, but in the special setting where ownerships are being changed. The position of the environment cannot improve because of the 'original accumulation attitude' of economic transition (and/or privatization). This notion refers to the almost complete lack of moral control and also the fact that correction mechanisms are not activated even in case of the most striking fraud. Such surroundings have been created in which there is no intervention even when criteria more important than environmental damages are not met.

Striving for property at any price, violating the written and unwritten rules of business morality, pursuing huge profit in the shortest time possible have brought about a situation in which the importance of environmental aspects are devalued more than at any time earlier.

If privatized property were private property in the real economic, legal and moral sense of the word, we would have to worry less about the increasing danger to the environment. Besides independent management and free profit, private property also includes strictly enforceable responsibility for the state of the property and environment in the long run.

The relationship of environmental protection and privatization has a less frequently researched but equally important aspect. This is the possibility to apply it to businesses loosely related to environmental protection, for example privatizing the collection of waste materials or establishing and operating a company that specializes in environmental protection. Local governments have privatized only a small number of environmental services so far, and except for a few positive examples the private development of neither the environmental branch nor the services has become regular.

There are very significant reserves for the development of production profiles and services aiming at and supporting environmental protection. The lack of interest, liquid capital, appropriate infrastructural conditions explains the under-

utilization of these possibilities rather than giving reasons for the acceptability of these restrictions.

Private economy cannot undertake the state's responsibility over the development of infrastructure even under the most favorable circumstances. Several examples of waste incineration, contaminated water management, and traffic rationalization show that these more and more urgent problems cannot be solved without developing infrastructure which demands huge investments from the state. One of the most striking features of economies in transition nonetheless, is the state's gradual retreat from these fields. Foreign sources may be potential alternatives, although the utilization of these would require a business-financial-market plan to be prepared, which only a handful of applicants would be able to fully complete.

The increasing burdening of the environment is a consequence of consumption and production which can be ignored or trivialized only temporarily; state measures must, however, be administered to prevent and eliminate actual and potential damages in the long run.

The question is very complex, the above mentioned problems are only part of the environmental aspects of privatization. We would like to give a further analysis of, for example, to what extent environmental interests are realized in the broad system of regulations in economic restructuring dependent privatization. Our previous research in connection with harmonizing interests concerning these aspects has revealed a whole range of deficiencies. The aim of further research work is to answer the question of how various interests (unemployment, new working-places, recession, solving the economic crisis) can be harmonized within the process of economic restructuring with the full consideration of environmental priorities.

We plan to carry out research on existing regulations, then evaluate those and give further proposals which aim at better enforcement of environmental interests in the forecoming period of this long process. Another part of the research is to focus on regional aspects and the possibility of regional regulation will also be analysed on the basis of existing legal material.

We also examine the regulations of economic restructuring from the point of view of environmental protection.

Summary

The elimination of differences in the field of environmental pollution, as part of the procedure of joining the European Union, will cause a lot of problems even around the turn of the millennium. The reason for this is that the countries of Eastern-Central-Europe need to solve the problems of economic, social, and ecological crises at the same time. Hungary is a typical example of this, since all the environmental damages that are characteristic of Eastern-Central-Europe can be found here, as well as the social-economic processes hindering the successful realization of the new environmental policy. The paper tries to survey this problem, while examining the sectors that contributed the most to the pollution of the environment, and analysing the new sources of danger which may derive from social-economic restructuring e.g. through privatization.

References

ENYEDI, Gy. – GIJSWIJT, A. J. – RHODE, B. (eds.) (1987) Environmental Policies in East and West. European Co-ordination Centre for Research and Documentation in Social Sciences. Taylor Graham, London

Feladatok a XXI. századra. Az ENSZ Környezet és Fejlődés Világkonferencia dokumentumai. (1993) (Környezetvédelmi és Területfejlesztési Minisztérium, Budapest).

FODOR, I. (1993) The Economic Dilemmas of Ecological Crisis-Management. in: HAJDÚ, Z. (ed.) Hungary: Society, State, Economy and Regional Structure in Transition. (Centre for Regional Studies Hungarian Academy of Sciences, Pécs), pp. 69-78.

FODOR, I. (1991) Changes in the State of the Environment in Hungary and their Impact on Human Health. in: Specimina Geographica Nr.2 Pécs, pp.116–126.

GERKEN, G. (1990) Die Trends für das Jahr 2000. Die Zukunft des Business in der Informations Gesellschaft. 2. Aufl. ECON Verlag, (Düsseldorf–Wien–New York).

Hungary's National Report to United Nations Conference on Environment and Development. (1992) The Government of the Hungarian Republic. Budapest.

KORNAI, J. (1993) Transzformációs visszaesés. in: Közgazdasági Szemle 7–8. pp. 569–599.

Our Common Future (1987).

GLOBAL MACRO-REGIONAL AND HUNGARIAN ENVIRONMENTAL STRATEGIES

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Introduction

After the cessation of the bipolar world, which was to a large extent – although not exclusively – based on military confrontation, the possibility of environmental catastrophe comes into the limelight. Global environmental problems can be ranked as follows:

a) The change of the consumption ratio of net primary energy quantity between the animal world and mankind.
b) Climatic change and the depletion of the ozone-layer as a consequence of the greenhouse effect.
c) The wasteful over-consumption of the developed regions and the demographic explosion.
d) Other factors such as: massive volcano activities, biological catastrophes over large regions, collisions with other planets.

According to the estimates by Peter Vitousek, a Stanford University biologist and his research team, every year we use 40% of the net primary product of the Earth in order to meet directly or indirectly human needs, or such a ratio is destroyed during human activities. The remaining 60% is utilized by other species. If population and consumption growth goes on at the previously recorded pace, this ratio can reach 80% by 2030. A stronger growth in consumption can considerably shorten this duplication period, while the ecosystem will inevitably collapse. It is impossible to predict when this process will become irreversible (World Watch Institute, 1991).

These calculations make it possible to deal with the Gaya-hypothesis in the future as well.

In addition to their global consequences the greenhouse effect and the depletion and the damage of the ozone-layer also have important regional effects. These can contribute to changes in desertification and increases in the sea-level. All these phenomena can bring about new international population movements to new

locations. Furthermore it can generate a re-consideration of the futures of certain regions such as: the Amazon area, the Northern part of Canada, or Siberia, and can also stimulate the delineation of development programs with international cooperation. In Central and Eastern-Central Europe, to which region Hungary belongs, we should take into account two further consequences: On the one hand, we must consider, that in the case of a climatic change Hungary and her surroundings will turn into a transitional area. This increases the instability in this region.

The strengthening of the greenhouse effect can also intensify the problem of the distribution of the water-resources in the region. From the Hungarian point of view this is a question of special importance, because 95–97% of the Hungarian surface water reserves originates in foreign countries.

A special problem exists in relation to the above mentioned dangers: while the scientific community stresses that there is a great degree of uncertainty, the decision-makers, referring to the uncertainty of scientists, delay important decisions. When the processes can be detected unambiguously, the drift into catastrophe may have become irreversible.

It is quite clear that from a broader perspective, the present situation, in which the population of the developed world (namely 20-30% of the world's population), consumes or wastes 70-80% of the used raw materials and energy, can not be sustained. The problem of wasteful over-consumption of the developed regions, and solving the demographic explosion cannot be treated as alternatives. Both should be solved. To this end not only a change in value-systems but also strong-minded decisions are required. The conditions for both are missing. It can be observed for example, that the emerging middle class and the affluent strata of the developing countries adopt the value-system of the manipulative consumer society in forming their way of life. It is probable, that the stratum of the "new rich" in the Hungarian society also follows a similar mode. The interest and enforcement ability of the international organisations in stopping these negative developments is also missing. The inability of the UN forces to handle regional wars imply the danger, that if radical changes in the functioning of international organisations do not take place, they will not be able to answer these further challenges of the future. The lessons of the Conference in Rio held in 1992 demonstrate these concerns.

Staying with our region of Europe, the developed capitalist countries face a double challenge. They should curb and later eliminate over-consumption, which does not mean a return to poverty. To this end, from a basis of modernization, they should link the further decrease of specific raw material and energy use with the creation of a more environmentally-friendly production and activity structure. They should curb the level of material production to a considerable degree as well. From the above, it follows, that the East and Central East European region of the ex-socialist countries can not consider as a strategic aim, copying the model of the 'consumption society' of the sixties and seventies. This point of view has led me to elaborate a 'double future image' for Hungary, a vision of an 'ideal' saving-oriented society, which takes into account ecological requirements. This future image looks to a time horizon of 2020. I have drawn a future image until the years 2000-2005, during which a 'transitional society' must develop crisis management tools,

because it is confronted with present tensions and social problems. I have outlined the 'ideal' future image as a vision, that to a greater extent takes into account the requirements of sustainable development. I have assumed that it is also possible to meet material and post-material basic needs at a GDP level, which is lower than that of the developed capitalist countries. The ideal society is able to ensure human development at a lower level, assuming that human beings are bio-psycho-social creatures, and should live harmoniously. The future image for the 'transitional' period takes into account, that during its time span a further fall in the living standards of the greater strata of the Hungarian population can be stopped. Drawing also from the positive traditions of the past 40 years, we can increase the satisfaction of human needs to a level which is compatible with a modernisation-based transition to a more developed stage.

International Drinking Water Supply

The question of the international handling of great regional macro-systems is very important. I should like above all to emphasize the networked system of international drinking water supply. Such concepts were already elaborated in the sixties and seventies. At this time some experts outlined future images of pumping a part of the water resources of the lake Baikal, the polar ice caps, and the sea, from which the salt is distilled, into an international water supply system. We should re-consider these ideas, from the aspect of common planning activities based on the concept of a coordinated use of fresh water resources, considering the need to mitigate the greenhouse effect.

The water catchment areas connected with artificial systems constitute the other group of regional macro-systems. These systems can be characterized above all by the fact that they are used in a complex manner. Dams have substantial impacts on the whole area in which they are constructed, and transform the natural environment. They are often built on border rivers, and strongly influence the relationships between neighbouring countries. Different interests are seen from perspectives of transportation, energy production, environment protection, and preserving the values of the given country. The Hungarian experiences show well, that these requirements can be enforced together, primarily on the grounds of harmonious coexistence of the neighbours, and based on the cooperation of experts from each country. In Hungary the problems concerning these systems, not to mention the questions of environment protection, should be regarded as important as ethnic concerns, because of their strategic character.

Looking at the mistakes already made, and in the interest of further harmonious cooperative activities, the responsibility of governments, parliaments, designing engineers, operators and not least environmental activists should be better specified.

Transport Networks

Transportation networks on an international scale belong to the further group of regional macro-systems. Above all it is useful to re-consider, on which scale and to

which directions the volume of international material and product flows change. The development towards a multipolar world, the endeavour to use local resources more locally, the curbing of consumption in the developed countries, increases in the level of consumption of the developing countries are all concerns to be considered. So we could imagine different proportions of road, rail, and water transportation. Combined with modern transshipment systems new dimensions can emerge. It was proposed in the 60s and 70s, and even before the second world war, that a transportation network connecting Lisbon, Madrid, Paris, Berlin, Warsaw, Minsk, Moscow, Omsk, Irkutsk, Vladivostok should be built, in the form of a large capacity railway system, then later on as a super highway road system. Recently president Jelcin suggested that a highway be constructed between Moscow and Berlin. The envisaged Southern highway in Hungary, or its various versions, would also link Lisbon, Madrid, Southern France, Northern Italy, Austria, Hungary – where a Balkan connection could be established – with the Carpathian Ukraine, Kiev and Moscow. This network could also join up with Poland and even the Baltic states.

From an environmental aspect and on the basis of their other consequences, these strategies can be considered both as alternatives and as parallel solutions. The linkage of the West and the East European networks also needs to be developed for international electric energy systems and oil and gas pipelines. In Hungary interestingly, there are no serious debates over these questions.

Other Regional Issues

The possible consequences of the operation of nuclear power plants and deciding on their sites over great macro-regions are, on the other hand, extensively debated. Although nuclear power plants are individual establishments, their common presence and the specific problems of the storage of used heating elements, affect the development of large regions as well, because of the special dangers following from their operation. Relying on the lessons of the nuclear catastrophe in Chernobyl, we could draw up an interesting map, depicting the danger zones resulting from the operation of power plants in Europe.

Finally, not aiming to be complete, I should like to draw the attention to the dangers lying in local wars, as special regional environmental problems. There are local wars in many areas of the world, including in the neighbourhood of Hungary as well. These local wars cause unmeasurable human suffering and decay, and destroy the natural, regional and artificial environment. We do not consider sufficiently, that local wars can be fought with unconventional arms and in ways that are not connected to traditional frontier lines. Local wars can take the form of a 'silent' ecological warfare. We should deal with the security policy consequences of these possibilities more comprehensively.

References

The State of the World. W.I.: Northman and Company, New-York, 1991. by the Worldwatch Institute

ENVIRONMENT AND ECONOMY: THESES ON THE HARMONIZATION OF GOVERNMENTAL ENVIRONMENTAL AND ECONOMIC POLICY

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An unfortunate fact: the priority of economy over environment

However slowly it is realized, we have more and more experience in Hungary that the market – and the market economy – is unable to integrate environmental aspects (you can still hear far more people speaking about the obvious fact that the bureaucratic economy had an adverse effect on the environment). Not only do market players pass environmental costs to others and omit to implement expensive environmental steps voluntarily, which is an obvious implication of their financial interests, but it is also more important that legislation in a market economy, in keeping with basic constitutional principles of human rights, enforces the right to free enterprise as a main rule, implying – in our case – the chance to harm the environment at the same time.

The Hungarian Constitution naturally supports the peoples right to live in a sound environment. The Constitutional Court has made a decision recently setting a precedent that it was counter to the Constitution that private owners be allowed to acquire protected forests previously owned by the state, and that the state ownership of those forests be retrospectively established. Nevertheless, what is absent is consistent legislation (mainly the detailed decrees of various environmental fields and less the new environmental law itself) as well as a strong, enforcing institutional background and an economic policy which together assist environmental protection.

The economy has an advantageous position when legislation and economic policy is formulated. That means that the whether or not further pollution is to be allowed at all never comes up. On the contrary, it is always the task of those who want to control pollution to come up with a sufficiently persuasive argument. Whereupon economic lobbies dynamically put their questions: why is just that specific activity to be controlled? Has it been proved whether that specific activity is the most polluting one? Has a detailed environmental and economic analysis of the impacts been carried out? What are the results of life-cycle analyses? etc.

Who – or what – can help environmental protection in Hungary today?

Environmental groups have a limited ability to realise their objectives, they are divided, and they have made relatively futile efforts apart from a few local successes. Their political performance in the 1994 parliamentary elections was even weaker than four years ago (genuine environmentalists were even stricken by 'outrageous fortune', i.e., a small fascist-like party emerging as a 'green' party, as they called themselves). There was no substantial social discontent of an environmental kind, as has occurred in past years. This experience might have contributed to the neglect of environmental issues by the parties during the campaign, even at the level of making promises.

According to the combined results of polls,. the majority of people think environmental pollution is an important problem. Most people expect governmental and municipal measures to be taken in this field. The results show a passive attitude by the public because of their scepticism about influencing decisions. The government should take into account that the majority of people have a somewhat paternalistic expectation.

The full extent of environmental damage already entails a considerable financial burden. More importantly – and our government should notice this – environmental problems have a direct adverse effect on the economy on many occasions: accumulated hazardous waste in the case of bankruptcies and liquidations of companies, insufficient drainage or wastewater treatment in the case of investments, ever more polluted water resources, soil degradation, declining forests, less attractive areas for tourism etc. To be optimistic, we might as well declare: the present situation is so wrong – in many aspects – therefore change will be inevitable. Or, similarly, the quality of the environment is below internationally accepted standards, therefore change will be inevitable.

The responsibilities of government policy

As a consequence of the abovementioned, those who formulate government policy have particularly important responsibility for environmental aspects, since

- they are in the position to facilitate environmental interests;
- facilitating those interests gives them considerable advantage in terms of social judgement on government activity – an advantage in economic (and partly foreign policy) respects as well.

One can directly proceed to some elementary requirements in government policy:

– environmental protection and nature conservation must be represented at the ministerial level in the future, and this ministry should not be controlled by any other governmental organization (e.g. a top-level economic ministry);

– the environmental portfolio should not be passed to a weak or incompetent politician (e.g. with malice aforethought that environmental policy should not interfere with economic policy);

– the minister for environment must belong to the close economic decision making body within the government (as was the situation in the 'Economic Cabinet' during the past year).

Furthermore it is highly important to harmonize environmental and economic policy. It is necessary to focus on economic policy because

– environmental problems have mostly derived from economic activity; and
– government activity is supposed to address mainly economic issues during the next couple of years.

Therefore, I would like to give a possible picture of how to link environmental and economic policy.

Harmonizing economic and environmental policy

It is general expected that economic policy will adequately address environmental issues, instead of the indifference which has in the past been the case more often than not. On the other hand, environmental policy could also be charged with insensitivity. The requirements set in environmental policy are frequently ad-hoc. When environmental requirements appear in a strategic framework it is usually nothing more than the overall range of potential measures that representatives of specific environmental fields think necessary, or it is practically a straightforward transposition of some foreign regulation. In other cases environmental policy strives to introduce specific incentives without weighing the consequences of alternative measures. You can also see this insensitivity in the costs of compliance with environmental requirements.

However, it is necessary to emphasize that the resistance to environmental endeavours is not because of their ad-hoc character or because of their insensitivity to costs. Speaking about insensitivity, this is not only a domestic feature: one is reminded about the critical comments on the U.S. Clean Air Act, or the EC-directive that declares the reuse of waste as a priority over incineration, irrespective of economic efficiency. Last but not least, insensitivity to external costs is a common and inherent feature of polluters. Therefore, one should accept those sorts of critical remarks from economic lobbies with some reservation.

Environmental legislation should comply with the requirements of a constitutional state, and it should be cost-effective. That means:

- transparency and prior disclosure;
- determining objective requirements, without the possibility for subjective arbitration by the authorities;
- that a case can (legally or financially) be punished only once;
- that more serious requirements can only be introduced gradually and/or after a period of grace;
- neutrality to market competition, without creating monopolies;
- that subsidies can only be granted through a public and fair procedure and – as far as possible – on a normative basis with a view to cost-effectiveness.

The evident consequence is that economic and environmental policies should take each others concerns into account. In terms of game-theory: it is not a zero-sum game; coordination can yield considerable benefits at moderate costs. However, coordination is not so simple.

Consequently, the Ministry for Environment should elaborate economic tools (incentives, etc.) or propose measures that satisfy the abovementioned requirements, respectively, which entail acceptable costs. The economic side of the government should scrutinize whether these requirements can be satisfied. If not, the scrutiny may result in dropping the proposal. In the opposite case, the proposal should be treated with benevolence. Obviously, it is necessary for the next 4 years – a government cycle – to agree on the approximate scale of the environmental regulation to be applied.

In practice, harmonization affects a wider range of issues: determining specific extents, scheduling proposed measures etc., which give various opportunities to find mutually acceptable solutions for both economic and environmental components.

The lynchpin for this mutually advantageous coordination is the approach of the economic side of the government: a selectively constructive approach is necessary. Lacking that approach, the Ministry for Environment would be forced to push ad-hoc proposals through the government. In any case, those proposals would be the kind that seem most evident and fundamental for the field experts in the ministry, irrespective of costs.

In order to find appropriate solutions for both economic and environmental aspects, it is useful for the environmental ministry to consider the opinion of the various economic constituencies. The approach of the economic interests within government, as well as the power of the Ministry for Environment to enforce its interests, can play an indirect role in influencing the attitude of lobbies: in the case of a strong enforcement capability, it is also in the interest of the economic constituencies to agree on an objective basis. If not, they could act as filibusters.

Harmonizing economic and environmental policy in Hungary today

The Hungarian economy is now facing a deep structural crisis. Gradual recovery can only be expected in 1.5–2 years, at least. This situation limits the potential of environmental policy. On the other hand, this is a unique opportunity to turn the economy into a less polluting one and achieve steep improvements in resource-efficiency, as well. Consistently formulated environmental legislation until 1995–96 could drive increasing investments in an environmentally sound direction, without the unnecessary costs of too early termination of existing technologies. The growing economy could bear compliance costs, what is more, environmental requirements might play a role in mitigating any possible economic overheating.

Stricter environmental requirements should naturally be introduced gradually, leaving enough time for the adjustment to modified standards, or with a steadily increasing level of environmental charges during a transition period. The pre-

determined timing of the gradual introduction does not lessen the impact of incentives, but saves the economy excessive costs.

It is well known that environmental protection has a favourable effect on employment. More serious environmental requirements enforced during the upward phase of the economic cycle (or in growth industries) not only decreases pollution in the affected sectors, but helps to maintain growth by increasing demand for environmental services.

This process exerts its favourable effect not only by influencing the economic cycle. But, environmental protection in many cases raises demand for services that are labour-intensive and improves the employment of less qualified workers – an ordinarily underemployed social layer. This can be true especially in waste treatment and in certain construction works.

As unsettled ownership is unfavourable to both the economy and the environment, getting it right is a shared interest of both.

The interests of economic and environmental policy overlap to a great extent in those cases of ownership change when environmental liability issues (accumulated waste, polluted soil etc.) arise. Privatization, or the liquidation of companies, may frequently raise the problem of who should take on those liabilities; a problem, which can give rise to serious litigation.

It is important for both sides again, to decrease the relatively high economic demand for resources. That can be achieved if the sectors using natural resources are encouraged to integrate in environmental aspects. Similarly, there are mutual interests between the environmental policy and a municipality's duties in the case of drainage and wastewater treatment, or municipal solid waste treatment.

To facilitate the mutual interests mentioned above, coordination is necessary between the Ministry for Environment and the ministries that are in charge of formulating the policy framework for the developments of various economic sectors or those of the municipalities.

That task requires the Ministry for Environment to formulate its goals and objectives in a new way. When formulating field priorities or legislation, incentives, etc. the likely impact on sectoral or municipal planning should be taken into consideration. Thus, you can assess the costs expected in the future, and possible measures can be ranked according to the various sectoral aspects. In the subsequent coordination, the sectoral ministry is expected to show openness and the Ministry for Environment is expected to abide by the agreements when finalizing the proposed measures.

This procedure requires a shift in the working methods of the Ministry for Environment (and in the approach of the other ministries as well). Unfortunately I have no opportunity to give a detailed picture of this interesting issue, though it can serve as a guideline in formulating the goals and objectives of the Ministry for Environment.

THE ENVIRONMENTAL PROTECTION STRATEGY OF NEW EUROPE (AFTER 1989) – A GLOBAL VIEW

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Introduction

Industrialization in the last century, and especially since World War I has increased pollution of the environment by inadequately regulated waste deposits and by creation of gigantic backfills from these. Pollution of environment and wastes has existed since the dawn of civilization, but disposal of it was not a problem until the middle of the XX century. After World War II, Europe has been divided into a market oriented economic system in the West and a state authority oriented "socialistic" economic system in the East. Both dealt at first with the war devastated countries of Europe by cleaning up the debris. After this by further industrialization, both systems created tremendous amount of wastes but in a different way.

The market oriented economy increased its production and improved the quality of products on a profit basis. The quantity of used raw material augmented the byproduct waste, and the pollution of environment forced the industry to reduce pollution systematically by diminishing the amount of unnecessary raw material in its procedure using more economic manufacturing processes and methods. A regulated waste disposal policy helped to achieve this goal. At the same time, modern technology (for example in the chemical industry) generated additional products using unfinished chemical processes which created further complex pollution problems and large quantity of toxic wastes endangering profit oriented productivity and human habitat. These circumstances only accentuated the increased need for regulated environmental protection and contributed to the organization of regulatory environmental protection agencies.

In Eastern Europe, the state governed economy was productivity orientated where, in accordance with political interests, the quantity was the primary goal and quality of products including the need to protect human environment was disregarded and little attention was given to waste disposal and environmental protection. Furthermore for political reasons, the concentrated production created big industrial complexes with unsolved environmental problems and often with

distant raw material basis causing additional transportation and pollution problems. (for example: Donbas in East-Ukraina was mining iron ore and delivering it to the steel combinate in East-Czechoslovakia.)

Environmental data collection

The 1986 Chernobyl disaster, which ruined primarily Belo-Russia and caused 500 billion dollars damage according to Soviet scientists estimate of April 1990, contributed greatly to the collapse of the "socialist" economy and disintegration of the Soviet Union in 1989.

The nuclear reactor No.4 of Chernobyl power plant melted down, killed immediately over 100 persons and because of radioactive radiation around 400 000 people have been evacuated from the sparsely populated area even after four years of the accident and 30% of the population of Belo-Russia (over 3 million people) was affected by the explosion and radioactivity. The catastrophe has affected not only the Soviet Union, especially Belo-Russia, and several European and Asian countries but the contaminated air from the explosion was detectable even in Maine and Washington states of the United States in 1986. As a temporary precaution, an entombment (isolation) of the destroyed power plant was needed and the cost of this operation amounted to over one billion dollars – and still further safety measures are needed. After four years, leukemia and various other carcinogenic diseases of unusual high proportions appeared among the evacuated population. The children of this region developed thyroid problems on a mass scale and 64 farm animals were born with various deformities in 1987. The soil, including vegetation, has been contaminated, maybe, for many thousand years. Belo-Russia's economy collapsed and it requested economic and financial assistance from Russia to salvage its ruined region.

The collapse of the "socialist" economy called for a strategy to secure a transition to a market oriented economy. The disastrous environmental conditions and the lack of any protective regulation for the environment requires immediate action. Therefore, it is imperative to start a regional or state wide data collection from an environmental protection viewpoint. At present, many state agencies are collecting information about the environment. However, these data are gathered independently from each other and they serve only the purpose of the individual collecting agency. The data lack any state wide regulation, direction, or uniformity in the various regions such as size, accuracy, depth, quantity, territorial unit etc. Planned environmental protection must be based on systematic data gathering on natural resources and their pollution. Therefore, data gathering and environmental protection should consist of hydrogeological, biochemical, engineer-planning, health condition and administrative-legal components. Only a systematic and organized survey can be the base of any effective environmental protection.

Since man's need is the center of any evaluation and strategy, not only the natural resources data such as geologic information, geographic location, primary resources of water in accordance with quality, quantity and location, point and surface area contamination with sources of pollution indicating plants and

industrial enterprises need to be analyzed. In addition, water demand and treatment together with demographic data (density, distribution) and main transportation networks are also essential data including a detailed survey of health conditions and hazardous or contaminating diseases and their preventive facilities.

Environmental policy strategy and the education of the public

Based on information from the state wide environmental data bank threefolded action is necessary to attack and solve the problems, to educate the public and have efficient waste management:

a) Control of pollution sources by confining it to a restricted area. Furthermore, regulation to decrease the quantity of polluted material and unnecessary byproducts is essential.
b) Separating the contaminated material into harmful toxic waste and non-toxic solid or liquid waste to handle it individually.
c) Education of the public and its participation in the process to avoid any panic or negative reaction to waste management actions. Finally, efficient disposal of waste is needed.

Education must start with the problem of industrial waste sites. The biggest polluter is industry stockpiling raw material for its production at the processing facilities without ensuring the proper procedures in manufacturing its products and by generating tremendous amounts of waste. The later would indicate that the facilities are either stockpiling unnecessary material for their production or their process does not include utilizing the byproducts. Therefore, the huge quantity of wastes and byproducts including unstable compounds with the potential for generating hazardous materials, is an indication of operations that have not been properly planned, where even the costeffectiveness is doubtful. It should be realized that this unused or semiprocessed raw material still can be a precious resource for industry, but it is senseless, useless, and maybe, even hazardous waste for everybody else. Generating enormous quantities of waste is not only burdensome and counter-productive for the producer, but knowing the procedures to be followed, he is the only one who can handle it efficiently because he knows best what kind of procedures, in what sequence, and quantity, have been applied. Therefore, the industry should handle all the waste at its premises as far as possible without putting any burden on the community or on the environment. If the scope of operation requires additional handling of the waste, it is the responsibility of the producer because he should have not only the best expertise for it, but also, the most cost-effective handling. Waste sites and residential or commercial development must be allowed only where the potential for contamination is kept to a minimum. This not only prevents human health dangers, but is cost effective in the long term.

One of the most significant problems especially with hazardous waste management is public reaction, identifying and opposing any waste site. The term hazardous waste immediately implies a threat to the public. If this is publicized, the

public of that area. will undoubtedly be opposed to the project without realizing that such waste may have been disposed of in much more hazardous way in the past. Since the public was not aware of these disposals in unsuitable landfill, they were never particularly concerned.

To emphasize the problem, the disposal of hazardous or solid wastes is not so much a difficult disposal problem as it is a difficult problem to handle to educate the public for constructive participation, to identify and size up past waste sites for elimination, to plan any development of the community in a rational way without any health hazard, and to specify suitable areas for future landfills.

The public education about waste sites would not be complete without discussing the syndrome "NIMBY" ("Not In My Back Yard"). People are sensitive concerning their closest environment and any pollution hazards. They are receptive and suspicious toward any changes in their immediate vicinity. The public supports any innovation, especially environment protection, until these suggestions start to have adverse effect on "my house, my castle." This attitude and a lack of sufficient data generates a movement of "not in my back yard", but somewhere else. A little information creates a panic; a well-planned information campaign and public education may help avert one.

Hazardous waste sites in the United States and organization of state wide environmental protection

To demonstrate the magnitude of the waste, and especially the hazardous waste problem of the developed countries in general, the USA and Canada can be considered; in particular the State of New Jersey's statistics will be given: (Data refer to 1990 onwards)

USA (9 363 381 km² with 252 000 000 inhabitants) recorded 92 371 "major" generators of hazardous waste, and recorded 119 264 "small" generators of hazardous waste.

Canada (9 220 016 km² with 27 000 000 inhabitants) estimated 5 000 "major" generators of hazardous waste.

More dramatic are the data of the State of New Jersey.

New Jersey (21 299 km² with 8 000 000 inhabitants) recorded 10 575 "major" generators of hazardous waste, and recorded 2 942 "small" generators of hazardous waste.

To clean up New Jersey hazardous waste sites only in 1989, 1 326 million dollars have been budgeted. For handling this operation, the governmental agency (organized on a ministerial level) consisted of the following divisions:

1. Division of Hazardous Site Mitigation (350 staff) which is responsible for the publicly funded cleanup program, provides technical assistance for both publicly and privately funded cleanups, and conducts community relations activities including quality assurance, risk assessment and health safety monitoring.

2. Division of Hazardous Waste Management (600 staff) handles site investigations, negotiations with Responsible Parties, oversees Responsible Parties – lead cleanups, and administers the Environmental Cleanup Responsibility Act (ECRA) and Resource Conservation and Recovery Act (RCRA) and Spill Response Program including planning, assessment in its operation; regulation, enforcement of existing waste sites and handling illegal dumping; and finally closing operation and cleanup property before transfer of ownership.
3. Office of Regulatory Affairs provides legal support to cleanup program and reviews all administrative consent orders. The Attorney General's Office of New Jersey conducts legal support for New Jersey Department of Environmental Protection Agency with 20 attorneys from the Environmental Protection Section of the Division of Law. The Dept. of Env. Prot.'s Environmental Claims Administration handles claims made against the Spill Compensation Fund and all hazardous waste liability and retroactive liability cases or settlements.
4. Division of Solid Waste Management (240 staff) handles all non-hazardous wastes, inspects, investigates the solid waste facilities including registration, permit, administration, enforcement, resources recovery, closure and recycling.
5. Division of Environmental Quality controls (140 staff) the radiation, pesticides and air pollution problems.
6. Division of Water Resources (340 staff) handles surface and ground water problems including water supply, sewage, sewage treatment plants and underground tank installation control.
7. New Jersey Geological Survey and Topography cooperates (100 staff) in any environmental protection investigation and keeps over 120 000 well records of the States.
8. New Jersey Geographic Information System (30 staff) is the record keeping agency for the computerized environmental data bank.

Since 1980 international cooperation in hazardous waste management has developed. As a result in New Jersey from 1981–1989, they exported in 892 cases the concentrated waste of heavy metals, corrosive, ignitable and other toxic materials totalling 18,610 tons for further processing in Belgium, Brazil, Canada, England, Italy, Japan, South African Union, Spain and West Germany.

References

CLAUS, G. AND HALASI-KUN, G. J., (1972) "Environmental Pollution" in the Encyclopedia of Geochemistry and Environmental Sciences, pp. 309–337, ed. Fairbridge, R. W., (New York, Van Nostrand Reinhold).

HALASI-KUN, G. J. AND PLUMMER, J. R., (1986) "Waste Site Assessment in Land Use" in Columbia University Seminars on Pollution and Water Resources, Vol. XVII-XIX, pp. 27–48, (New York, CUS)

MASSACHUSETTS INSTITUTE OF TECHNOLOGY, (1970). Man's Impact on the Global Environment, (Cambridge, Mass and London, England, MIT)

NJDEP-DIVISION OF HAZARDOUS WASTE MANAGEMENT, (1989) Hazardous Waste Relations, N.J.A.C. 7:26-1, 4, 7-13A, 16, 16A, 17. Trenton, June, 1989.

THE INTERACTION OF SOCIAL-ECONOMIC DEVELOPMENT AND ENVIRONMENTAL ECONOMY

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Abstract

In concordance with the development of forces of production, society relies more and more on the sphere of nature, nevertheless it demands an environment which is cleaner, more comfortable and more attractive. This brief study concentrates on the analysis of this transparently contradictory situation, aiming at finding possibilities for its resolution. The study extends to cover the developmental particularities of preindustrial, industrial and post-industrial phases, the dilemmas in environmental economy of the developed countries, and devotes special interest to Eastern and Central European countries.

The existence of mankind has always been dependant on natural environment, since, in the process of satisfying needs, people have had no other choice than to rely on their natural surroundings and use what it offers. In the course of history, while societies developed, the relation between people and natural environment gradually turned into a relation between society and nature. The more advanced the forces of production are – including both their objective and subjective sides –, the more intensely society is able to utilize resources provided by the natural environment.

Thus, it is obvious that according to this approach, as forces of production develop, society takes possession of greater and greater proportion of its natural environment, in a sense that it is in permanent interaction with nature and also using it. This process can be interpreted in two ways:

(i) the proportion of natural environment, being possessed as described above, becomes larger and larger,
(ii) the interaction gradually becomes deeper.

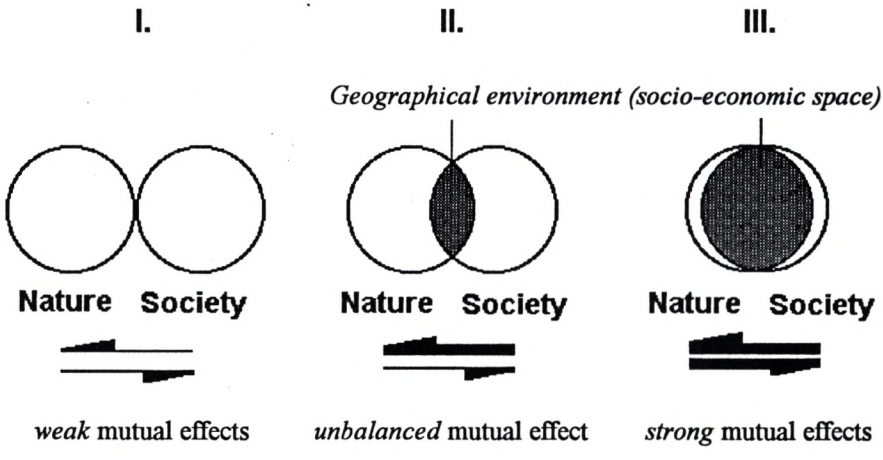
Certainly, these two aspects act together and lead to the situation when the society takes possession of practically all its natural environment, and interacts with all

of its natural surrounding. The sphere of interactions, which earlier has only been an overlapping 'slice' of society and nature, will eventually, become in this phase, general and complete: natural surroundings turn into a geographic environment.

According to this kind of interpretation, the geographic environment (from a different approach: social-economic space) is such a part of the world, in which both social and natural rules are felt, although their prevalence is special, since the effects interact with each other.

However, it is a fact that the interaction between nature and society is weak and balanced during the preindustrial stage of development. This balanced state gets tilted by rapid industrialization, with an effect that direct distortions will occur in the geographic environment, also influencing remote and external spaces, which have not been, or have only partly been occupied. In the postindustrial stage of development, the balance will be regained besides an intense interaction (Fig. 1.).

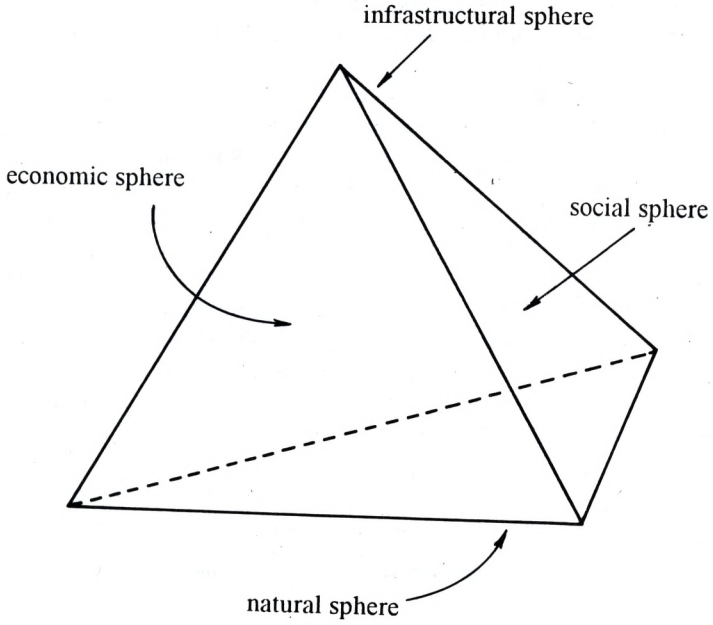
Figure 1: Stages in the formation process of geographical environment (socio-economic space)



However, differences in time and space are enormous. While there might be preindustrial conditions in one corner of the world, turbulent industrialization, regardless of nature, may go on in another region, and in a third place (in the most advanced central areas) postindustrial conditions with balanced environmental relations prevail. Closing up is not a matter of consideration; it is a complex issue.

Interaction with the environment concerns all productive spheres of the region, including social, economic and infrastructural spheres. A balanced state of environmental conditions exists only if all spheres display harmonic development, as clearly illustrated by the tetrahedron-model (Fig. 2.).

Figure 2: The tetrahedron-model



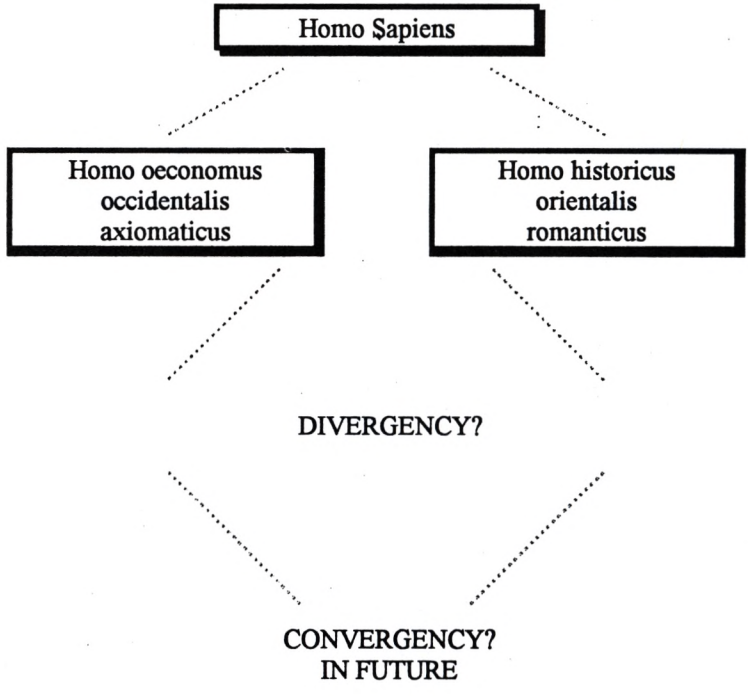
The natural desire of medium-developed regions to make rapid economic progress is problematic primarily because of the fact that while in well-developed regions, relying on good productivity, costs of environmental economy can be incorporated into the prices of different products in a way that prices still remain competitive, this tends not to be a feasible one for medium-developed countries. For them, the dilemma is quite sharp: either chase industrial development during the decade of closing up and sacrifice the environment by destroying it, or protect the environment and preserve a subordinated state by remaining left behind.

For Eastern-Central European countries this dilemma is especially pointed. On the one hand they have gone through the process of system change with the environment in a lamentable condition as a result of the centralized model, forced industrialization and quantitative improvement of production, while on the other,

with these countries being a continental periphery, several contradictory interests in relation to the European central region are raised. The latter, however hesitates to 'hug' Eastern-Central Europe, since its interest are quite contradictory (the 'placing out' of polluting by-products, protected importation, the exportation of environmental techniques and technologies, construction of highways, the question of hydroelectric power plants, Chernobyl syndrome etc.)

It is evident, that a significant increase in productivity should be achieved in the countries of Eastern-Central Europe for the sake of sufficient and sustainable development providing a certain level of catching up with Western Europe. Besides its numerous technical conditions like specialization, licenses, know-how, it is important to be able to act together (either country by country as 'Visegradians' or within an international-regional cooperation like Alps-Adriatic, Carpathians Euroregion etc.). Hence, here we are facing the basic difficulties: inherited problems of the region, historic suspicion, characteristic regional mentality (Fig. 3.). It is unquestionable that until we are able to recognize our regional interests, and have them accepted by nations and governments of the region as common interests, our position stays problematic in multiple ways. We have hardly any chance of reaching economic success, our environment suffers, our living standards keep declining. In addition to that, the whole region is unstable, thus less promising if looked at from the point of view of the long-waited foreign capital.

Figure 3: Two types of Homo Sapiens in Europe



Our future is uncertain – not only as far as the environmental aspect is concerned. Our hopes are fragile and it is often ourselves that are smashing them.

References

FODOR, I. (1993): The Economic Dilemmas of Econlogical Crisis-Management. (In: HAJDÚ, Z. (ed.): Hungary: Society, State, Economy and Regional Structure in Transition. Pécs. pp. 69-78.

GALAMBOS, J. (1992): Environmental Management and Landspace Ecology. (In: KERTÉSZ, Á. – KOVÁCS, Z. (EDS.): New Perspectives in Hungarian Geography. Budapest. pp. 31-41.

MAROSI, S. (1980): Tájkutatási irányzatok, tájértékelés, tájtipológiai eredmények különböző nagyságú és adottságú hazai típusterületeken. – Akadémiai doktori értekezés tézisei. Kézirat. p. 25. (=Trends in Landspace Research, Landspace Evaluation, Landspace Typological Results from Typies) Hungarian Regions Different in Size and Conditions. Doctoral Theses for the Hungarian Academy of Sciences. A manuscript.)

PÉCSI, M. (1972): A (természeti) környezetkutatás földrajzi problémái. – MTA X. Osztályának közleményei 5/3-4. pp. 257–266. (= Geographic Problems in the Study of (Natural) Environment. Proceedings of Department #10 at the Hungarian Academy of Sciences.)

TÓTH, J. (1981): A településhálózat és a környezet kölcsönhatásának néhány elméleti és gyakorlati kérdése. – Földrajzi Értesítő XXX. (2-3. pp 267–291. (=Some Theoretical and Practical Issues in the Field of Interrelation Between Settlement Network and Environment.)

TÓTH, J. – RAKONCZAI, J. (1978): The Necessity and Duty of the Coordinated Utilization of Environmental Resources in the Region of Békéscsaba-Gyula-Békés. – Acta Geographica Szegediensis XVII. Szeged. pp. 37-46.

EUROPEAN CHALLENGES RELATED TO THE LEGAL REGULATION AND INSTITUTIONAL SYSTEM OF ENVIRONMENTAL PROTECTION IN HUNGARY

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Introduction

A global development crisis is appearing whose symptoms affect similarly countries both in the North and the South: chronic and increasing poverty, marginalized groups; irreversible destruction of natural resources; and ongoing social conflicts. A new approach to development is needed which is simultaneously people-centred (that is genuinely able to meet basic human requirements), sustainable (that is as just and reasonable socially as it is appropriate ecologically), and self-reliant (that is it maximally utilizes the potential of a given country) (Bora, et al, 1993).

The signs of environmental crisis in Eastern Europe are alarming, especially in the areas of air, water and soil pollution, hazardous waste and their effects on the health and lifestyle of the population (Liroff, 1991).

The World Bank Action Programme for Eastern and Central European Environmental Protection was put on the agenda by the conference of European ministers of environmental protection held in Lucerne. The main concern of this programme is to reduce the effects detrimental to health in the area. It is astonishing that life-expectancy at birth is a decade lower than the Western European average (Pomazi, 1993). The tasks of the stepped-up aid programme are to identify those regions where the health of the population is especially endangered (according to the investigations of the World Bank, eg. the "Borsod" basin in Hungary), to identify the emission sources of detrimental materials, and to prescribe concrete measures to reduce these emissions.

As far as the alleviation of environmental problems in the area is concerned, there is already wide international cooperation involving several states, international organizations and financial institutes as well as the European Community. According to Thierry Lavouw, director of the European institute of environmental policy, environmental protectional cooperation between East and West is "not a luxury any more but the only chance to survive" (Udvaros, 1990).

The unifying Europe and the coordination of the levels and requirements of environmental protection may mean the only way out of the present situation.

The elimination of problems is far from being easy since Central and Eastern European countries must develop a market-orientated economic system simultaneously with the working out of an environmental policy which assumes the operation of a market economy.

The reasons for the environmental protection problems in the region are many: forced industrialization, late realization of the significance of environmental protection, a foot-dragging change of attitude, a bigoted belief in the power and role of experts and certain phenomena stemming from the totalitarian political system, e.g. the complete lack of a feed-back mechanism, inexecutable legal norms, the oppression of and attack on civil initiatives, and the weakness of environmental protection administration on local and regional levels, etc.

In addition to the assertion of environmental protection perspectives in economic reconstruction, the political, legal and administrational conditions of execution must be established and be operated within the framework of democracy and a legal state.

Hungarian Environmental Policy

Hungarian environmental protection policy and its respective legal regulations should be moulded and improved by the adaptation of the principles and tasks of international trends, treaties and declarations.

The following list contains some of the directions to be followed, especially those which are closely related to the legal regulation and the institutional system:

– it is the sovereign right of states to utilize their own resources in accordance with their environmental and development policies, and to ensure that the activities under their own authority or control do not damage the environment of other states;

– the right to development must be asserted as the needs of both the present and the future generations must be fulfilled;

– in order to ensure sustainable development, the issue of environmental protection must be considered an organic part of the development process and it cannot be treated separately;

– states must reduce or eliminate their non-sustainable modes of production and consumption;

– on a national level, every person must be provided with the right to appropriate access to data of environmental concern in public offices and authorities, including information on dangerous materials and activities affecting certain communities; furthermore, individual participation in decision-making must be ensured. The consciousness and participation of populations must be helped and encouraged by their states;

– as processes carried out in national frameworks, environmental effect-studies must be made regarding those proposed activities which are likely to have detri-

mental effects on the environment (from the "Rio Declaration on Environment and Development"); (Bora, 1993).

– by the end of the century, every country must accept the principles that polluters and users should pay, and similarly, the fundamental principle of prevention;

– by the year 2000, each country must have a national strategy of environmental protection, including an ecological approach to settlement planning. More effective local governments are needed which better assert local interests and are committed to the protection of their environment;

– the entitlement of communities to the right of looking after their own environment which requires three types of actions (Földünkért, 1991, 1992): they should have real control over their own affairs, the disposal of resources and their treatment based on their interests, and also participation in decision-making; they should be able to fulfil their basic needs in a sustainable way and in accordance with the preservation of their environment; local governments must be entitled and enabled to protect their environment effectively;

– the pan-European coordination of environmental protection must be ensured by legislative means, with special emphasis on the cooperation between local authorities and regional representatives, national and regional legislative bodies, and joint action in borderland areas;

– regional administration and decentralization instead of bureaucracy and centralized administration; the acceptance of regional autonomy and the transfer of environmental protection to the competence of regional authorities with legislative competence (Locatelli, 1992).

Regional policy appears in the Maastricht Agreement, too. In order to reduce the development differences of regions, a Cohesion Fund has been set up to strengthen the economic and social cohesion of less developed member states, including, amongst other things, to help the improvement of their environmental protection.

Last but not least, since it is of great significance for the topic under discussion, I would like to mention the European Convention on establishing a partnership between the Republic of Hungary and the European Community and their member states which was signed on 16 December, 1991. Paragraph 70 of this document says the following:

"When defining the policies to help the economic and social development of Hungary, the starting point must be the principle of sustainable development. Environmental protectional considerations must be taken into account in these policies from the very beginning as well as the requirement of harmonic and sustainable social development." This convention is an outstanding landmark in the process of our joining to Europe and it contains the establishment of legal harmonization with the legal regulations of the EC, that is the Rome Convention. The realm of the adjustment of legal norms to those accepted by the EC is primarily economic, although it must influence our entire legal system. The issue of legal concordance is included in Paragraph 67 and 68 of the Convention; "The Contracting Parties acknowledge that one of the fundamental conditions of the economic integration of Hungary into the Community is the adjustment of the present and future legal regulations of the country to those of the Community.

Hungary ensures that, if it is possible, its potential future provisions of law will be concordant with those of the Community. The legal adjustment covers especially ...the health protection of people, animals and plants, ...environmental protection."

The National Environmental Protection Concept

Two issues will be discussed in this section: the National Environmental Protection Concept and the draft of the new environmental protection law. Initially it must be stated that, despite the several programs and legal provisions of environmental protection which have been passed and come into force since the social-economic change, we cannot be satisfied with the situation. Even though a parliamentary decree was passed which ordered the development of the concept in November 1993, the draft in question has not so far been put before the parliament. This delay does not help the environmental state of the country; and privatization of the economy, in spite of its being built into the environmental legislation, does not ensure inevitably the protection of the environment. The amendment of the environmental protection corpus of law is related basically to organizational and legal issues; it has meant the restructuring of tasks and competence with ambiguous results: on a central level, the integrated management of the issue has not been solved since sectoral ministries are entitled to see to the tasks of environmental protection as well; the system of environmental protection administration is disparate; only municipal governments have been given the tasks and competence of environmental protection, without considering the conditions of executability, whilst counties have not obtained any significant competencies. Sectoral laws have been passed without unambiguous legal requirements paying attention to either the aims of environmental protection, the responsibilities and tasks of the state, or the interrelation of the environmental elements under legal protection; and without clear regulation of the division of tasks and competence between the state, the local governments, the economic sector and the population. The result: a 'jungle' of legal provisions, the coexistence of old and new norms, the parallel operation of certain scopes of authority, unregulated tasks, and legal frameworks which do not help local governments to take part in environmental protection but hinder the legal practice of authorities, and so on.

As to the future, both the concept and the law of environmental protection are promising. Since they take into consideration European expectations as far as possible, their coming into force – and particularly their practical implementation – could contribute to our integration into Europe.

The necessity of working out the National Environmental Protection Concept is justified as follows:

1. The pressure of everyday management of conflicts accompanying the pulling down of the centralized planned economy and the first steps in the transition to the market economy (e.g. privatization), the distinct change of direction in foreign trade, and the crisis phenomena stemming from the transformation (e.g.: increasing poverty, unemployment etc.) do not always favour long-term strategic considera-

tions which is the fundamental principle in environmental policy. A new type of economic and social structure should be established which avoids the consumption-centred and wasteful model so characteristic of the existing market economies and, simultaneously, sets up the aim of sustainable development in the long run.

2. The fact that there is a connection between the state of health of the population and the quality of the environment is inevitable (infantile mortality, for example, is double the European average).

3. We must break with the "principle of living on the remains of the budget" since the order of magnitude of the costs of subsequent intervention might restrict economic development and the consequent improvement of the standard of living and social welfare in the long run.

Furthermore, modern fundamental principles have been laid down. These are: sustainable development as the central idea of environmental policy; the prevention of detrimental environmental effects; precaution; the internal and external integration of environmental considerations; the regionalization of environmental policy (local and regional governments can set up stricter limits, environmental protectional requirements and environmental pollution fines; the working out of regional programs); subsidiarity – that is responsibility and decision-making on the lowest possible level of political and administrational hierarchy, and partnership; the assertion of environmental rights and responsibilities in legislation (comprehensive fundamental law on environmental protection and the respective subsidiary laws, environmental considerations in legislation, the permanence, consistency and strict application of laws); the principle that the environment is our common property and its protection is the task of the nation (social consensus in the implementation of fundamental aims of environmental protection, that is environmental protection party policies must be forced to represent global and national interests; the participation of individuals, civic groups and non-governmental organizations in the legislative preparation and particular decision-making and implementation); the incorporation of environmental considerations in economic processes (the principle of "users and polluters pay").

The fundamental aim of Hungarian environmental policy is to ensure healthy human existence and the stable conditions of economic-social development, and to preserve biological heterogeneity. The means of realizing this policy are based on the combination of encouragement, agreement and "giving orders and supervising". These are: strategic planning; legal, public administrational and economic means; measuring-observing and information systems; research and development; education, training and the society's active participation in environmental protection.

"Within Hungarian society, there are strong voices which deem the environmental problem as insignificant; an extremely low level of ecological consciousness, interest and activity is shown by many groups. Thinking about the environment is characterized by a sort of duality: although the majority is 'worrying' about the state of the environment (which they consider extremely bad), they do not undertake any role in the protection and improvement of the environment but entirely refuse to accept their responsibility. There are some tendencies, however, especially

among the younger and more educated, which show the engendering of a more sensitive attitude." (Környezet és Fejlődés, 1993).

Considering these statements, the issue of social participation is of great significance. With regard to the fundamental values and principles of environmental policy, the concept assumes common consent. Its starting point is that every individual has the right to an environment which can ensure his health and welfare but he is personally obliged to do his best to protect the environment. The requirements of social participation are that:

– environmental protection must be carried out publically, under the supervision of the community;
– the community can exercise control through the parliament, the local governments, the environmental protectional movements and organizations;
– every single individual, group or organization must have the right to represent environmental rights.

Social participation can be realized as follows: interviews, consultations, submissions of proposals and complaints, and initiating official procedures. It assumes the right to free access to information, and also the provision of the public with the necessary information concerning, for example, the detrimental effects of an activity to be started.

The draft of the new environmental protection law is in accordance with the principles, directions, aims and means of the environmental protection concept. It arranges the fundamental principles of bearing environmental burdens between the users of the environment, the state and local governments whilst taking the guiding principles of the European Community into consideration. As a new institution, it introduces the surveillance of the state of the environment (those whose activities affect the environment can be compelled to carry out this surveillance which can lead to different results: permission, suspension or prohibition), and the so-called preliminary investigation to determine and evaluate the effect of certain measures on the environment. It sanctions through law the regulation of environmental effect surveillance. These measures can lay the foundation for prevention and future complex authoritative measures.

Conclusion

As a conclusion it can be said that, on paper, we have already had the environmental protection concepts and legislation which on, the one hand, delineates the aims and means which make concrete both the gradual elimination of environmental problems and the requirements of sustainable development, and, on the other, determine the directions demanded by social-economic change and integration into Europe. Hopefully, the new parliament and government will show an appropriate concern in handling the question of environmental protection and will make those steps which are essential to pursue a more effective environmental protectional activity than the present practice in any field and on any level (including citizens, social organizations, local governments, entrepreneurs etc.).

References

BODA, ZS., GULYÁS, Á., & MATOLAY, R.: A fenntartható gazdasági jólét mutatója (Index of sustainable economic welfare) (ISEW), in OKO, 1993/2-3, pp. 2-7.

BORA, GY. (ed.), A riói konferencia és a teendők utána (The Rio Conference and the Tasks to be Done), in Magyar ENSZ Társaság, Budapest, 1993, p.59.

FÖLDÜNKÉRT. Az élet fenntartásának stratégiája (For our Earth: A Strategy for Sustaining Life) in Búvár, 1991/6, and 1992/1 and 2.

KÖRNYEZETVÉDELEM A KÖZVÉLEMÉNYBEN. A Gallup Nemzetközi Intézetének jelentése alapján (Environmental Protection in Public Opinion on the basis of the Report of the International Gallup Institute). in Környezet és fejlődés, 1993/5.6, pp.35-51.

LIROFF, Richard A.: Helyre kell állítani Kelet-Európában a környezetet – alapelvek az Egyesült Államok stratégiájához (The environment in Eastern Europe must be restored – fundamental principles for the strategy of the United States), in Környezet és fejlődés, 1991/1., pp. 34–39.

LOCATELLI R.: Az Európai Tanács Helyi és Regionális Közhatóságok Állandó Konferenciája (CPLRE) és a régiók (The Permanent Conference of the European Committee Local and Regional Public Authorities and Regions) in Magyar Közigazgatás 1992/11. pp 653-658.

POMÁZI, I.: A zöld tervek és a szürke valóság (Green Plans and Grey Reality) in Figyelő 1993/27. p 29.

UDVAROS M.: Darkness at Noon. Time 9. IV. 1990. In Hungarian: trans. Környezetszennyezés Kelet-Európában (Environmental Pollution in Eastern Europe) in Jogi Tudósító 1990/13-14. pp 51–52.

STRATEGIC ENVIRONMENTAL ISSUES IN CENTRAL AND EASTERN EUROPE

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Abstract

An integrated environmental policy is one of the greatest needs and challenges for countries of the Central and Eastern European region. Such a policy should be economically effective, socially acceptable, and technically enforceable on the national or regional level. Our survey conducted in ten countries confirmed that the skills necessary for producing and implementing an integrated environmental policy are almost non-existent in the Region. This capacity must be created through pilot programs, education, and training. The need for a progressive environmental policy must also be understood and supported by 'non-environmental' ministries in the governments. The attempt to catch-up with Western economies will not be successful without properly addressing strategic environmental issues. This reality requires that a demand for environmental protection be stimulated within all social sectors, with citizen pressure groups and the business community playing special roles.

Introduction

The Central and East European (CEE) countries are called 'the countries in transition' because of their challenging and pressing task to reorganize their political, social, and economic systems. These countries must transform centrally planned and managed societies into democratic, market-oriented ones. The term 'social market economy' has been used to describe the ultimate goal of the transition process, the details of which, however, have not yet been fully elaborated. The notion of a social market economy serves as the basic concept from which an implementation strategy for truly sustainable development can evolve. The maintenance of a healthy environment belongs to such a development strategy and should therefore figure prominently on the relevant agendas of the transition period.

The environment was a high civil priority in the CEE countries on the eve of the political breakthrough. There had been long-lasting concern over the health effects caused by environmental pollution, especially in industrial areas. However, current

strategic environmental issues in the CEE region are the result of both the past, centrally planned economic system and the new political, social, and economic realities these countries are facing. The environmental heritage has left a long list of environmental hot spots, but also vast areas of pristine natural environment. New development policies based on private ownership and the use of market forces are attempting to achieve economic and social goals, and are creating incentives for more efficient use of the environment, as well as for avoiding environmentally related expenses. Huge economic problems (i.e. unemployment, decreases in real wages, reductions in investments) are characteristic of all the CEE countries in transition, and are receiving priority attention, often to the detriment of the environment. With old environmental problems persisting and new challenges appearing, environmental issues are becoming critical for the CEE countries due to the threats they pose to human health, the countries' natural capital, and sound future economic development.

Methods of the Survey

This paper is based entirely on Volume 1. (Regional Report) of the two-volume study entitled *Strategic Environmental Issues in Central and Eastern Europe*. The study was conducted by the Initiatives Team of the Regional Environmental Center for Central and Eastern Europe (REC) between October 1993 and April 1994 in Albania, Bulgaria, Croatia, the Czech Republic, Hungary, the Former Yugoslav Republic of Macedonia, Poland, Romania, Slovakia and Slovenia. There are two important features of the Report: its regional environmental perspective of the countries in transition, taking full account of the dynamic political, economic and social changes occurring in the CEE region, and the fact that the concept of the survey as well as the opinions and interpretations were taken directly from original CEE sources.

Questionnaire-based, 60-90 minute interviews were conducted with about 150 senior government (national and local), non-governmental organization (NGO), academic and business experts from the Region. The problem setting can best be seen from the questionnaire:

1. Which political, economic and social changes in the past five years have been crucial in influencing the state of the environment in your country?
2. Can you give concrete examples where it is currently a priority to protect environmental assets and natural capital in your country?
   What are the foremost environmental threats endangering economic development, human health and living conditions (respectively)?
3. Based on your personal expertise and experience what would you list as the priority environmental problems facing your country ?
4. What are the most important areas to be strengthened in order to solve the priority environmental problems mentioned above (i.e. environmental policy, management, law and enforcement, training, education, technology, services, others)?

5. What currently are the driving forces for change in the state of the environment in your country?
6. What are the main obstacles to integrating environmental protection and economic development?
   Are measures planned to make improvements in these areas?
7. Can you give a short overview of existing and proposed financial mechanisms for environmental protection in your country?
8. Have there been environmental successes in your country where CEE cooperation was instrumental?
   Could you list issues where CEE cooperation would be very helpful?
9. Have there been successes in environmental protection in your country where foreign assistance was instrumental?
   Do you know of negative experiences with western technical and financial assistance in the environmental field in your country?
   What form should western assistance take?
10. Which of the following: national (regional) local governments, legislative bodies, businesses, scientists, NGOs, the media, or others, is having the largest impact on environmental decision-making in your country?

The basic assumption initiating this project was that environmental problems in the CEE countries cannot be solved in isolation from political, economic and social issues. New mechanisms and driving forces which are contributing to the ongoing transformation of the CEE countries must be considered. Therefore, seeking a balanced set of views, the list of interviewed experts did not only contain "environmentalists", but all sectors having considerable impact – for better or worse – on the environment. The fact that most (but not all) of the interviewees were English speaking experts based in capital cities might have biased the survey.

Based on the full survey, this paper aims to highlight some of the main prerequisites to the progress towards the sustainability of the Region.

Assets and damages: the environmental legacy of the Region

Certain features of the previous political and economic system, such as strict centralized authority and forced movements of some local populations, have left large areas of the CEE region untouched by industrial activity and sparsely inhabited. Traditional, low input and labor intensive agriculture (private or collective) allowed for the largely undisturbed development of natural ecosystems. Pristine nature is still estimated to cover about 30 percent of the area in the CEE countries. This region contains the greatest biodiversity in Europe.

Preservation of European biodiversity located in the CEE region is a task of international importance. It can't be accomplished solely by the efforts of countries in the CEE region. A subsidiary principle should apply to the preservation of environmental heritage because of its common importance. Those who benefit from the preservation of biological richness in the CEE countries should contribute to the opportunity costs which are incurred due to restrictions imposed on economic

activities in the region. Nature restoration and conservation is a labor intensive activity. Therefore, it can be an important source of employment, new opportunities for which are urgently being sought throughout the CEE countries. In addition, steps toward the responsible use of the environment (a precautionary principle) by industry can prevent the creation of environmental refugees. This issue is extremely important in the CEE region as several hot spots exist posing severe environmental threats to local residents (i.e. mining areas, chemical and metalworking facilities, and power plants including obsolete nuclear installations).

More attention is being given to environmental hot spots than to environmental assets. As a result, the picture of environmental catastrophe in the CEE countries is widespread. Environmental hot spots also gained more attention and financial assistance because of being located in highly populated industrial areas. However, this approach should not compromise the importance of preserving pristine natural areas. Protection of pristine nature should especially be considered a high priority at this time because of the trend to locate new industries in these areas.

Apart from environmental assets that include pristine areas, the past economic system left environmental damages which create the region's liabilities to nature. The evidence of environmental degradation harmful to human health was used as a political argument against the previous political system. The previous system's emphasis on heavy industry and lack of advanced technologies, along with the substantial absence of a conservation ethic in society and government restrictions on pro-environment movements which did exist, resulted in some areas experiencing severe air, water and soil pollution of varied and numerous types. The assessments of material losses caused by excessive pollution discharges were the first evidence of costs incurred from this degradation. While the legacy of these old problems remains to a large extent, new damages resulting from changes associated with the transition period, such as those related to growing amounts of communal waste, the rapid increase in automobile use, and largely unregulated new commercial development, pose emerging challenges to be overcome.

Priority environmental problems

Concentrating on the physical environment while searching for priority problems is characteristic of current attempts to develop environmental policy in the CEE countries. The lists of these perceived priorities tend also to be similar.

Decisions regarding priority actions are mainly reduced to choosing from an inventory of the most acute environmental problems. Actions are targeted toward achieving measurable environmental improvements through regulations and/or investments. Integrating environmental problems in order to identify their interrelation and the various options for coping with them is often a missing element in environmental programs. The impact of a proposed solution on other environmental and economic issues is not usually fully assessed. The environmental decision-making process needs to be strengthened before priorities are set for the physical environment and programs implemented. A procedural rather than target-oriented

approach is an important, but missing prerequisite in identifying priorities and realizing successful environmental programs.

Exclusively focusing on the physical environment while identifying priority environmental issues leads to unbalanced and unrealistic environmental programs. A clean-up proposal can look good on paper but be technically not feasible or financially unrealistic. A proposed activity may also be unrealistic because of a lack of experience and skills, or improper planning and management. A very ambitious environmental program often represents wishful thinking and a negligence of the problems impeding the efficiency of the program.

Driving forces of environmental improvement and degradation

The CEE countries are undergoing fundamental changes. In reshaping the structure of their economies, there are social and political consequences. The transition is proceeding under pressures created by social and economic needs. This provides a unique climate for introducing environmental improvements, but may also lead to further environmental degradation.

Environmental protection has never been a real factor influencing economic and financial decisions in this region. On the contrary, economic development has led to environmental damages, while currently the scope of environmental investments is still being discussed. Market-oriented reforms activate different, sometimes conflicting, forces. Democratization of these societies is a visible achievement. Privatization of state-owned enterprises is providing a basis for more efficient production. Western consumption patterns are altering the traditional social values and behavior of consumers. In addition, international competition is stimulating the introduction of new products and new trading practices. All these forces contribute to driving the transition to new economic and social systems. The same forces could be used to support environmental protection needs.

Democratization

Democratization and its resulting effects on social, economic, and political life are driving the replacement of standard methods and procedures of the previous system. Democracy means, among other things, easier access to information and the freedom of opinions and expression. Democratization of society also has an educational dimension. The active and focused involvement of citizens may improve their ability to make judgements when facing conflicting goals. Greater access to information is having positive environmental impacts. It motivates the public to demand environmental improvements. A critical step in this direction would be to realize a transition from the making of emotional judgements to a participatory process of sound environmental decision-making that involves an educated and informed public.

Democratization of the CEE countries has resulted in new contacts and relationships with nations outside the region. The CEE countries are becoming open, which means that more frequent contact with foreigners and a valuable

exchange of experiences are taking place. This influences opinions formulated by CEE environmental activists on both successes and failures of the Western environmental protection programs. There is a growing consensus that the passive copying of environmental protection strategies, instruments and procedures developed in Western countries is not an appropriate solution for the existing environmental problems in the CEE countries. The understanding and application of some Western environmental protection practices, however, should help in establishing a pragmatic approach to environmental problems in this region.

A product of the new democratic systems which is developing quickly in the CEE countries is the citizens' environmental movement. Thousands of formal and informal, non-governmental pressure groups have been established in recent years to lobby and act for environmental goals. This is a major achievement of the CEE societies and a valuable asset for the future.

Democratization of the political arena has altered the way power is exercised. The CEE countries are in the process of reforming their government structures. Independent self-government systems are being created on the local and regional levels. This development has potentially huge impacts on environmental protection activities. Experts do not agree when attempting to determine the environmental consequences of administrative reforms aimed at restoring democratic procedures at the local level. There is evidence of poor environmental performance by local government authorities and elected officials in counties and towns. The self-government system has, however, the potential to address environmental issues in a more responsible and practical way because of its ability to directly assess the relative importance of different needs expressed by local populations.

Privatization and economic restructuring

Forces that have been activated by market reforms are the most important for achieving environmental improvements. The mechanism for distributing financial, material, and human resources within the economy has been significantly altered. Incentives for the development and expansion of the free market may contribute to the acceleration of environmental pollution. They may also work towards environmental improvements, if harnessed and modified.

Some key economic processes taking place in the CEE countries are not driven solely by market forces. Privatization of state property along with administrative measures aimed at structural changes in industry and agriculture are inspired and implemented by governmental entities. The government decides to what extent environmental considerations are introduced into the wider set of goals that must be realized through these processes. The tendency of excluding environmental goals from the benefits which should be accomplished through privatization of properties and restructuring of the economy is a real threat in some of the CEE countries.

The free market is an indirect regulatory system which operates through financial incentives and disincentives. It may promote more efficient use of natural resources (e.g., liberal energy pricing, fuel taxes), or it could allow for the poor environmental performance of producers (e.g., low level of environmental charges

liberal import tariffs for raw materials and fuel). The CEE countries must still decide on the role of market incentives in their environmental protection strategies.

The extensive ownership changes occurring throughout the CEE countries pose especially serious threats to the preservation of natural areas. Small businesses emerging from the privatization process are aggressive in their exploitation of environmental resources. Big businesses tend to prefer being located in relatively clean areas. There is a potential threat that new enterprises will avoid engaging in clean-up activities of the polluted industrial centers. At the same time, by moving into new areas they may put natural ecosystems at risk, and such areas should be protected as the countries' natural capital.

Western consumption patterns

The current desire to attain Western consumption standards is providing the general motivation for production and growth. Material consumption influences the system of values, as well as the behavior of individuals. Wasteful consumption is beginning to be a symptom of success in the CEE countries, which cannot be counterbalanced, even by a well-developed and organized environmental protection system. Modest and environmentally responsible behavior is gradually being replaced, especially in rural areas, by more aggressive and exploitative activities. A 'free rider' type of mentality is socially tolerated as a typical market-driven product. The environment is being abused by both the region's endemic consumption practices and by new patterns imported from the West.

Advertising is playing a rapidly growing role in creating demand and establishing new consumer consumption models. Environmental concerns are rarely included in commercial advertisements used in the CEE countries. This is reflected in the low environmental awareness of consumers and the priorities that drive their decisions. There are no independent activities introducing environmental advertisements into the market. The government is reluctant to use paid advertisements to promote the sustainable behavior of consumers due to its lack of experience and because it does not want to interfere with business activities.

International competition

A successful market economy in today's world economic system must have a major international component. While accepting market forces as a decisive development factor, the international character of economic activities must be accepted as well. The CEE countries are under pressure from foreign competitors, and compete among themselves as well. This may drive environmental protection in a positive direction (e.g., clean technologies, sound management practices). Outside pressure may also result in environmental degradation (e.g., waste imports, development of 'dirty' industries, wasteful consumption patterns).

Steering economic and social development toward achieving environmentally positive impacts in the face of international competition is a difficult, but essential task. The CEE countries are receiving assistance to build up their competitiveness on the international market. Protectionist solutions proposed as environmental

remedies are equally inappropriate as liberal ones that neglect a country's specific environmental requirements. An environmental ideology must be formulated and put into practice which will allow a proper balance between international pressures and domestic needs.

Opportunities ahead

The forces currently driving social, political, and economic changes in the region should be consciously utilized to push forward environmental protection efforts. A sustainable development model assumes that environmental improvements should be driven by the same forces that stimulate economic growth, social welfare, and political stability. The biggest opportunity for the CEE countries in the transition period is to properly use these forces and make them a vehicle for persistent improvement in the state of the environment.

Many experts see the dynamic changes observed in the CEE countries as providing a unique opportunity to achieve immediate environmental improvements and longer term environmental maintenance. There is great potential to progress in terms of social and economic development, but also in terms of environmental improvement, while building new political, economic and social systems. None of these dimensions should be compromised, as they constitute the interrelated elements of a successful system as a whole.

Challenges ahead: the need for a strategy

The countries of the CEE region have not dramatically improved their economic situation over the past decades. Their development has been characterized by slowly increasing incomes per capita and for the foreseeable future they will still belong to the medium level income per capita group of countries. As financial resources expand, the use of modern technology in production activities will become more common and will result in less destruction to the environment. On the other hand, however, a more sophisticated production capacity allows for greater, albeit more efficient, exploitation of even more environmental resources. The predominant trend in the past has been to exploit the environment for development purposes. Thus, development has so far been progressing at the expense of the environment.

The trade-off between per capita income and the quality of the environment can be observed in the history of industrialized Western economies. The transition from low to high income per capita was made at the expense of the environment. Huge environmental investments were made afterwards to reverse the process of environmental deterioration. A drastic reduction in pollution discharge was accomplished due to a strict command and control policy and the implementation of the polluter pays principle. However, some damages to forests, soils, animal and plant species, landscape, etc., remain irreversible.

The CEE countries must determine their future development strategy. Although limited, there are certain options which may be considered, tested and evaluated while the development path is being set. The CEE countries may:

- replicate the history of Western economic development, which resulted in environmental degradation, while increasing per capita incomes;
- accept the economic priority during the transition period and delay attempts to clean up the environment; or
- immediately adopt a sustainable development strategy.

Each of the above options has its consequences on the economy, the environment and the citizens of the CEE countries.

Adopting sustainable development

A sustainable development model is the approach, in which economic development must be combined with environmental protection. This means that progress in environmental protection is achieved along with improvements in economic performance. Resources for realizing both goals may be generated from savings in investment funds that become available due to more efficient use of energy and materials as well as the less intensive use of waste treatment and waste disposal services.

The CEE countries need not copy the mistakes which have already been recognized in the West. They can instead learn from these mistakes, as well as western successes, and develop policies and programs which benefit from these experiences, make use of comparative advantages existing in the CEE countries and are appropriate for contemporary social, economic and political conditions. They should introduce and enforce environmental regulations to be observed by producers. The environmental investments required from producers will force them to acquire modern, environmentally friendly technologies, which will also help to avoid possible trade barriers in the future.

Implementation of sustainable development models in the CEE countries is also mandated by the crucial need to protect the vast environmental assets existing in the region and supported by the trend observed in Western economies to improve conservation of their own natural resources. Future market prices of natural resources will multiply. Environmental investments today will create the foundation for the economic development of tomorrow. The rich environment of CEE countries is and will increasingly be an important factor for future economic progress.

The costs of development options

Regardless of the choice of development strategy, the costs of its implementation must be paid by the current and future societies of the CEE countries. The various options have different financial and environmental implications. These implications must be considered in the selection of a particular option.

The historical model of Western industrialization would only result in 'end-of-pipe' solutions. A rapid build-up of industrial capacity in environmentally intensive enterprises would likely cause widespread environmental devastation. Sooner or later the environment will require a clean-up. This will imply huge costs. The historical model of Western industrialization could be attractive in the short run as there are no initial costs required for environmentally friendly technologies. The

damages caused by pollution and the costs of clean-up will be paid in the form of huge environmental investments in the future.

The idea of separating economic and environmental goals during the transition period and suspending environmental improvements until the necessary funds are generated by the expanding economy also has a short-term perspective and displays a lack of regard for the future and its inhabitants. The argument is that a delay of environmental improvements would help to allocate more resources for economic purposes, and that this may generate funding for restoration of the environment in the future. In such an approach there are distinct phases during which economic and environmental goals are to be addressed. The priority is to achieve economic successes, while environmental requirements are to be addressed later.[4] In this case environmental improvements are highly dependent on the performance of the economy, which will start to pay its 'environmental debt' after reaching an internal investment surplus. This strategy does not reject environmental goals, but delays support for them. The consequence is a build-up and magnification of environmental damages and costs.

For a sustainable development model to be adopted its advantages, and the costs of less desirable alternatives, need to be clearly illustrated, and incentives for desired behavior well designed and effective. Such a development model needs to balance economic and environmental goals and to weigh them against available financial resources, technical solutions, and managerial skills. This approach can in fact be less expensive in the long-term because introducing more 'at source' solutions and channelling small initiatives towards environmental improvements in the economy can result in major savings. The integration of environmental requirements and economic policy requires a new type of thinking, which is not directly supported by Western experiences. The cost of the sustainable development option is high when considering outlays in the near-term. However, these investments should pay for themselves in the longer run when economic benefits can be achieved as an outcome of environmental improvements (energy efficiency, recycling, ecotourism, organic farming etc.). More funds must be made available for education and training, as well as for employing experts, in order to begin practical implementation of, and to achieve benefits from the sustainable development concept.

Integration of environmental protection and economic development: an historical window of opportunity

Environmental impacts of economic transformation

The ongoing economic transformation is reported to be the most powerful and influential driving force effecting the creation of new economic, political, and social systems. It is carefully observed and evaluated by different interest groups. The impact on the environment of particular economic tools or programs is also debated. Less attention is being given to the assessment of the integrity of the overall transformation process.

The majority of economic decisions has a real impact on the environment. Privatization programs, pricing policies, taxation, and tariffs all influence environmental protection. Supply and demand mechanisms incorporate economic incentives into environmentally related activities. These economic activities are not dictated by environmental principles,

There is a mutual dependence between the environment and the economy. Economic unless full integration of environmental and economic goals is achieved development may contribute to environmental improvement (or degradation), but the environment also is an important factor of economic development. As an example, there are proposals to use environmental protection as a vehicle for reducing unemployment. Labor intensive activities may be offered by environmental sectors (e.g., agriculture, forestry, manufacturing of environmental protection technologies).

Obstacles to integration

The understanding that a healthy environment and a sustainably strong economy are mutually dependent and interrelated is not widely held in the region. The benefits to be gained from integrating economic and environmental concerns need to be clearly illustrated and emphasized, rather than the conflicts involved in such integration. The 'win-win' opportunities are substantial in a wide range of areas including energy conservation, waste recycling, and materials savings. Issues generating conflict have thus far been more publicized than the benefits to be gained, and some environmental damages have been presented in a defeatist light as irreparable (e.g., land reclamation, discharge of gases, and waste water).

There are impediments to turning 'win-win' options into reality. First of all, there is simply very little precedent in the region for successful integration of environmental protection and economic development as priorities on an equal plane. It is reported that most decision-makers simply do not understand the true importance of environmental integrity and thus do not give them adequate consideration. The agendas of government officials and politicians are dominated by economic issues and to this point the pro-environment lobby has been unable to convincingly demonstrate the fundamental link between the state of the natural environment and a nation's economic well-being. This link has also not been made clear to the general public and thus public demand for the inclusion of environmental concerns in economic development programs remains weak. Other obstacles include the lack of legislative and policy mandates for such integration as well as the lack of experience and expertise in planning and designing these needed laws and policies. There are also few examples of successful environmental businesses in the region. Another reason could be the difficulty in agreeing on a 'common language' for presenting economic and environmental arguments. Environmentalists are often not able (or willing) to understand the positions of businesses or government economists, while businesses and economists seldom place great value on the non-commercial use of environmental resources. A vision for a society with both prosperous citizens and a healthy environment needs to be conceptualized and gradually implemented through integrated economic and environmental policies.

Positive trends

Combined environmental and economic planning is reported as taking place on the local level in some CEE countries, though concrete examples of existing sustainable development were described as sorely lacking. Citizen groups are initiating informal processes for promoting local 'green' businesses. Alternative local and regional development programs have been created to integrate the environment and the economy. The majority of these programs promote environmental agriculture or ecotourism, but some also support industrial production based on clean technology. These programs serve as testing grounds for developing clean production strategies and could become powerful education models.

Evidence of attempts to integrate the environment and the economy are also visible within the governments. Intergovernmental bodies (committees) are being created to establish programs that can simultaneously provide economic and environmental benefits. Initiatives such as a 'green' taxes, eco-labeling, environmental impact assessments, environmental auditing, etc., are supported by governments in some CEE countries. This reveals a growing interest in integrating environmental and economic goals and activities.

There is also the potential for building environmental considerations into business-oriented programs initiated with the support of Western financial assistance. International treaties also impose environmental conditions on certain business projects. Environmental targets that are in line with Western standards have been established for CEE countries in order to facilitate harmonization of their environmental policies. The rapid development of Western businesses in the CEE countries should also be used to stimulate progress in integrating economic and environmental policies.

Financing environmental improvements

The State Funds for Environmental Protection

Some of the CEE countries have developed fairly extensive systems for financing environmental improvements, while others are still in the early stages of devising such mechanisms. State Funds for Environmental Protection have been organized in some CEE countries to provide grants and soft loans for environmental investments (see Francis 1994). The financial resources for these Funds are usually collected through discharge fees and non-compliance fines imposed on polluters. Governmental subsidies, various environmental taxes, interest from the loans, etc., add additional money to the State Funds. There is widespread support to organize State Funds for Environmental Protection in the CEE countries that have not yet established them.

The special arrangements made to establish State Funds for Environmental Protection illustrate the urgent need for a stable flow of funds for environmental protection measures. However, it also demonstrates a lack of integrity in the overall economic and environmental programs. Funds earmarked for environmental

protection are excluded from any use except direct environmental improvements. Thus, direct environmental investments are considered a higher priority than sustainable investments which satisfy and integrate vital economic and environmental needs simultaneously.

The separate financial system which provides funds for environmental improvements is a consequence of the segregated approach to economic and environmental considerations. As the idea of sustainable development is still in its initial phase, a special system for funding priority environmental projects is justified, and will continue to play an important role in the CEE countries during the transition period.

Procedures for disbursing and replenishing environmental funds need to be improved. Priorities should be based on an established environmental policy, but realistic and balanced environmental policies remain pending in most of the CEE countries. The management of State Environmental Funds also requires improvement. Professional, financial management backed by an in-depth understanding of environmental problems are the most frequently mentioned needs in this regard. A stable staff and transparent procedures for the operation of the State Funds are highly recommended by experts, as well.

Economic instruments

Environmental protection is supported not only by subsidies provided by the State Fund, but also by incentives created by economic instruments (see Klarer 1995). These instruments can generate payments which redirect funds to environmental protection. The potential fund-raising role of economic instruments is, however, hindered in some CEE countries due to high inflation and the bankruptcy of the largest polluters.

Economic instruments are also seen as a tool for motivating companies to reduce pollution. In the CEE, however, environmental charges and non-compliance fees are often ineffective as incentives to reduce pollution because it is usually cheaper for polluters to simply pay the fines than to implement abatement measures. The bigger the savings from not treating waste, the lower the incentive role economic instruments play. Experts assess that charges imposed for pollution discharges in the CEE countries are many times lower than the waste purification costs. Thus, there is little incentive to reduce pollution from a company's financial point of view.

A prospective environmental financing system

The role of public spending for environmental protection will remain decisive in the transition period. While market forces are playing a growing role in encouraging environmental investments in the private sector, governments will continue to provide the majority of funds for necessary environmental improvements for some time to come. There is still a large state-owned sector of the economy that requires environmental subsidies. The state must also provide funds for local and regional governments to meet their environmental requirements.

The general concept of funding environmental protection needs to be changed in the CEE countries. Environmental protection measures should be paid for by

those who benefit from using the environment for their business purposes. Users of the environment must be more involved in and responsible for solving local environmental problems. Communities should also be prepared to provide funds for environmental protection activities.

The 'polluter pays' principle must be fully adopted and enforced in the CEE countries. Income generated at the expense of the environment should be reverted to restore the damage. The polluter pays principle should improve the impact of economic instruments on investors' decisions. It should also allow for profitable production, while eliminating negative environmental consequences of that production.

Evaluation of environmental aid

Projects to be supported by foreign aid are selected by each country's environmental authority and by donors. Initially, it took some time for the donors and recipients to agree on expectations. Nevertheless, a considerable amount of foreign environmental aid has flowed into the region in recent years. Numerous examples of successful environmental protection activities which were supported by foreign donors were cited: training has been provided to government officials, business managers and NGO activists; environmental policies and institutional structures have been strengthened; environmental assessments, inventories and feasibility studies have been conducted; monitoring systems have been designed and established; major investments in technological capital have been made; and the list could go on. Early assistance was usually in the form of technology transfers and advice for solving the most acute problems. As a side benefit, business opportunities have also been created through the availability of the assistance funds. As a result, many Western and Eastern businesses have contacted each other and joint-ventures have been started based on jointly implemented projects. While environmental aid has been very helpful in many ways, many experts pointed out that it has not been equally distributed within the region and that it still amounts to a very small portion of overall environmental investments in the region.

In the course of implementing projects supported by foreign assistance it became clear that the engagement of the CEE countries' own staff to manage projects was critical for achieving positive results, despite their mistakes and delays. Through the process of participating in foreign aid supported activities, project management skills have been acquired by many CEE government and business managers.

Environmental assistance also helped to encourage public participation in environmental protection projects. In some cases there was a formal request from donors to use a participatory procedure, while arranging the implementation of a project financed by an assistance fund. Western experts held meetings and made field visits to discuss environmental issues with the local people. Steering committees were also used as a tool for bringing local people into the project. This type of development will have a tremendous impact on establishing democratic procedures in different decision-making bodies and economic sectors.

Some negative experiences with foreign assistance were also reported by the experts. A large amount of money has been invested in assessments and feasibility studies, often without practical improvements in the environment resulting. Moreover, these numerous studies and reports have usually been prepared by very costly western consultants making short-term visits to the region and have often failed to meaningfully involve local and national experts who have direct knowledge of the issues. Other experts explained that the priorities of the donor organizations are not always compatible with the priorities of the recipient CEE country. In some cases, assistance advances the interests of the donor to the long-term detriment of the environment in the region. Most of the experts understood that aid is usually intended to provide benefits for the donor as well as receiver, but they suggested that there should be better ways of maximizing the positive practical environmental effects of such assistance. The experts admitted that CEE countries need also to develop proper frameworks to coordinate, absorb, and manage Western environmental assistance.

Priorities for assistance

There is a consensus among CEE environmental experts that foreign aid should play the role of catalyst in environmental improvements. Hence, these funds should be used to improve procedures, technology, and the country's own capacity to analyze and address environmental problems. Western assistance is instrumental where specific expertise and knowledge is missing (management, environmental legislation and enforcement, auditing, and assessing environmental impacts, etc.) Foreign financial assistance is limited and should focus on achieving long-term benefits. This should ultimately lead to greater efficiency in a country's own spending for environmental purposes. Initially, financial assistance focused on establishing the infrastructure and expertise necessary for efficient, effective improvements. Now the countries are more prepared to channel foreign assistance into practical environmental improvements. Given the limited assistance available it is important to utilize this potential in the optimal manner.

Proper environmental management and decision-making require correct information. Foreign aid has been largely used to develop environmental monitoring and information processing systems in the CEE countries. Quality control and monitoring are important conditions for successfully enforcing environmental standards and introducing compliance schedules. Although costly, environmental monitoring should pay for itself in better and more accurate environmental decisions.

Foreign aid for environmental protection has mostly been spent on environmental hot spots. The outputs from these expenditures have often been feasibility studies, which only serve as preparation for an investment phase. This activity is criticized by CEE experts as 'paper work', or an information collection exercise. In the role of catalyst, foreign aid should be allocated to pilot environmental investment projects and only then on follow-up investment stages which should be arranged primarily with the investor's own financial means. Demonstration projects provide the best educational opportunity, while serving environmental protection goals.

Harmonizing policy

An additional role of foreign aid is to stimulate the process of harmonizing the environmental regulations of the CEE countries with those of the European Union. This process has immediate, as well as long term, importance. Revisions to the legal requirements imposed on investors in the CEE countries are being made in order that they be compatible with the regulations of the European Union. This should help eliminate barriers for developing businesses. A common methodology should be adopted while establishing environmental regulations to avoid major discrepancies. Harmonization of economic instruments should help investors interested in CEE countries through the establishment within the region of conditions similar to those in the European Union.

An assessment of the disparities between regulations in the CEE countries and the European Union is currently being conducted. A time schedule for adjustment will result from this study. Considerable time will be required to unify environmental protection regulations of the European Union and the CEE countries.

The issue of harmonization is not equally assessed by experts. Some of them stressed the educational aspect of this exercise and the mutual benefit from studying existing environmental regulation systems. Others want to see a more focused harmonization of programs for both legal and economic instruments, supplemented by small-scale demonstration projects. All agree that the full-scale benefit from harmonization will only be available in the distant future.

Interest groups in environmental Protection

The notion of environmental protection is perceived differently by the various interest groups in the CEE countries. Their energies may be jointly harnessed on behalf of environmental improvements despite conflicting motivations. Their common interests are sometimes strong enough to allow for the creation of coalitions. Interests represented by coalitions are often better defined and more powerfully presented than those of individuals. This definition of interests also enables potential conflict areas to be identified and addressed.

The following environmental coalitions were identified by experts as playing key roles in environmental protection in the CEE countries:

- national and local governments and politicians
- businesses and trade unions
- NGOs (including scientists and the media)
- consumers (the general public)

The above-mentioned groups are not mutually exclusive. People can play concurrent roles in more than one of these sectors. However, dominant interests tend to lead individuals to support one sector to a greater degree than the others.

A politician's or civil servant's perspective regarding environmental problems is strongly affected by his or her own role and function. Devising policies, implementing projects and enforcing the law is the role of the environmental administration.

Within this body a formal and sometimes bureaucratic approach to emerging problems is typical. In contrast, re-election concerns may make politicians overact in pushing towards visible and quick results in environmental protection, while other issues such as economic priorities may push environmental problems off their agendas.

The common interest of business and trade union coalitions is to maintain employment opportunities and to improve work-place environments, rather than to protect the external natural environment. Jobs may be created by more efficient use and stricter protection of existing natural resources. The implementation of environmentally-oriented public works is a promising tool for the reduction of unemployment, but remains an under-utilized option to this time. In addition, businesses are increasingly sensitive to their public image and are beginning to want to appear environmentally friendly to their customers.

NGOs, scientists and the media are emotionally and intellectually involved in protecting the natural environment. Their environmental coalition advocates the rights of future human generations and wildlife, stresses the physical limits of the natural environment and disseminates environmental information to the general public. This coalition is also interested in counterbalancing the negative impacts of the other coalitions' activities.

The interest of consumers is to maintain access to healthy food and to secure environmental quality in their living areas. They are not as well organized as other coalitions, but consist of a large number of people. If this group was to organize and mobilize its resources it could be a major force impacting the environment.

The coalitions of environmental interest groups described above are not equally strong or developed in the CEE countries. There is also a trend for these groups to polarize and dispute conflicting issues. For meaningful progress to occur in environmental improvements it is important to encourage a willingness to cooperate among the different environmental coalitions.

Prospective motives in an environmental lobby

Value-based group

The intrinsic value of the natural environment serves as a motive for its protection and improvement. The environment should not be compromised by economic goals because of its other immense values. It is not only the commercial value of environmental resources that make them valuable, but also the intrinsic value associated with their role as components of nature. This justifies prudent environmental protection.

The value-based lobby, in its orthodox form, is sometimes unlikely to work towards integration of the environment and the economy. Within this ideology, the value of untouched nature is placed higher than the benefit obtained from its economic use. Traditional agriculture is proposed as a sustainable way of living in close contact with nature. However, some value-driven interest groups also embrace

more moderate approaches that allow for the coexistence of nature and industrial production, provided that damages are not permanent and held to a minimum.

Value-driven environmental coalitions are most often represented by environmental NGOs and scientists. Such a coalition having well developed skills and expertise has an important role to play in influencing the selection of the country's future development strategy. Two vital elements of this role are environmental education and awareness raising. Short-sighted economic policies may also be counterbalanced by value-based environmental arguments and practices.

Image-driven groups

Environmental arguments are often used to achieve non-environmental goals. A green image is slowly becoming important for politicians and businesses. They want to demonstrate the same environmental sensitivities as their electorate or customers. This process is beginning in the majority of the CEE countries. Attempts by politicians or businesses to build 'green' images may have positive environmental impacts, especially if supported by concrete actions. The hidden goals (re-election and profit) may bring about environmental protection activities which integrate environmental and political/economic objectives. A 'green' image requires considerable improvements in technology and economic programs. The 'green' image-driven lobby may help to establish working standards that could also indirectly guide environmental protection efforts of other politicians and businesses.

Civil servants and politicians create a modest core of the 'green' image-driven environmental coalition. Businesses are still only a promising future member of this group in the CEE countries. However, there is already evidence of a growing business interest in being labeled as 'green' by NGOs or media.

Welfare-driven groups

A clean environment is an essential requisite for welfare. The environment may become a value for those whose living conditions are strongly affected by environmental degradation. Degradation of a nearby environment often mobilizes citizen groups to protest about that specific issue while more general environmental concerns are not fully recognized. The need for a clean and healthy living environment may unify diverse interests.

Consumers and trade union members, as a welfare-driven pressure group, sometimes act in favor of environmental protection. The development of this coalition has been slow and difficult because of many conflicting goals (e.g., cheap products and more working places). The usual objective is to keep the environmental protection standard above a certain level while fighting for other goals. Trade unions are also sensitive about the indoor environment of working places. Although nature protection is not a goal of many CEE trade unions, environmental arguments sometimes appear on lists of demands to governments or businesses. The strength of the welfare-driven lobby is in its potential number of supporters. This environmental coalition is just now beginning to form in the CEE countries.

The catalytic role of the media

Probably the most crucial question for the development and impact of the whole environmental cause is whether the media will be willing to amplify the messages of the value-driven group to the public. It is only the public who, using their vote and buying power, can force the image-driven group to introduce the measures to bring about changes.

In order to achieve a breakthrough in environmental protection in the CEE countries, an integration of different interests and approaches supporting environmental improvements must take place. The various groups should not focus on their different motives, but rather should search for measures that yield mutually agreeable results. The motives for taking environmental protection measures should be seen as less important than the real impacts of these different behaviors or actions. The readiness to negotiate and to search for environmentally beneficial compromises should become widespread among the different environmental interest groups. Achieving sustainable development in the CEE countries will heavily depend on solving this problem of cooperation among different environmental lobbies.

Environmental cooperation among CEE countries

Although the development paths followed by the CEE countries have been more or less similar so far, regional cooperation has never been fully exercised in the field of the environment and remains extremely limited. New development strategies should be built using existing, yet unutilized potential for regional cooperation.

The CEE countries have a common environmental heritage due to the logic of the shared former system. This heritage contains both positive and negative elements, each of which need to be addressed by any new development strategies. In this way, their future development paths will also share much in common and may even be interrelated. It depends on the quality of their future cooperation as to whether they will make parallel efforts or will join forces and benefit from the sharing of experiences. It remains to be seen whether these countries will reinforce, or mutually inhibit, each other's progress.

As the environmental problems of the CEE countries are similar, there is also a need for coordination of their environmental policies in order to tackle priority problems in a coherent and comprehensive way. The western solutions offered to the CEE countries are not always adaptable or the most appropriate. In some cases CEE countries can provide more effective support to each other through transferring positive experiences or solutions which have been developed and tested in the region. CEE cooperation is absolutely essential to solve certain environmental problems which effect multiple countries in the region. Major international waterways such as the Danube, Vistula and Elbe Rivers and the Black and Baltic Seas are impacted by many of the region's countries and their improvement and protection will require cooperative efforts. Transboundary air pollution is another issue of major concern to some of the countries and also requires multilateral solutions. Some of the experts also noted that the CEE countries contain areas of the richest

biodiversity in Europe and that joint programs among neighboring States are required to ensure their safeguarding.

There are several factors, however, hindering environmental cooperation among the CEE countries. A lack of political will for regional cooperation is evident. Some of the motivations behind this stem from rivalry and competition to be the first country in the region to be integrated into the European Union. These countries must realize that the West is not supporting this competition and is reluctant to import these conflicts. The chances for integration would increase if the CEE countries could demonstrate their capability of handling their own problems. So far, cooperation in the CEE region has been limited by, among other things, the countries' disinterest in dealing with other countries who cannot financially assist them. Financial assistance is still a criterion for looking for a partner. Competition for Western environmental financial assistance also reduces the incentive for cooperation within the CEE region. The basis of environmental cooperation needs to be redefined and the benefits of non-financial cooperation should be recognized (e.g., transfer of knowledge, joint activities, trade potential).

There is no strong tradition upon which to build regional environmental cooperation. On the contrary, many historical problems still impede cooperation and thus, the simple transfer of experience and the development of economic ties has been very limited. Indeed, better economic cooperation within the region would go a long way towards solving national and regional environmental problems. Environmental protection activities can provide a starting point for this cooperation, aiming towards a common goal. Greater cooperation could also tremendously improve the position of CEE countries during international environmental debates.

Foreign assistance: future prospects

The financial resources available for funding environmental improvements are not only limited, but also show a diminishing trend. After a short period when foreign assistance was relatively easily available, the interest of the West seems to be waning. There is an increasing need for maintaining the interest of the West in providing assistance to the CEE region.

. There is a strong preference among donors to develop bilateral relations with the governments of the CEE countries. This can be an obstacle to undertaking regional environmental programs and to encouraging regional environmental cooperation. A common position for the CEE countries, while requesting assistance or discussing its implementation conditions, is lacking, thus making bilateral agreements even more dominant. Western interest is also shifting from the CEE region towards other regions, for example, the Newly Independent States (NIS). Considered a more important, more strategic future political partner with more potential, the NIS may receive assistance at the expense of the CEE region. The CEE countries should work together to present more convincing options to keep the interest of Western donors.

The share of funding devoted to support environmental and economic priorities is also being changed in the overall assistance package. Environmental assistance is

decreasing relative to support for economic and social programs. It is of the utmost importance to present a comprehensive approach when requesting foreign assistance, incorporating environmental priorities in an overall economic and social development strategy.

Withdrawal of western financial assistance from the CEE countries would reduce incentives and an important portion of financial means which support environmental improvements in the region. The process of modernizing environmental laws, protection mechanisms, and policies would also be adversely effected. For many countries of the region western assistance is the only available channel for acquiring new skills and technology. Maintenance of future foreign assistance for environmental improvements is also important to encourage and assist cooperation within the CEE countries and to aid serious consideration of sustainable development strategies. The challenge is to maximize the benefits of the provided environmental assistance to both donor and recipient countries and the whole CEE region.

Conclusions

As the countries of Central and East Europe progress through fundamental political, economic and social changes, their citizens face an unprecedented period of transformation and uncertainty. It is clear, however, that the prospects for successfully adapting to these changes and for achieving economic prosperity and social welfare rest squarely on the shoulders of these same citizens. Similarly, the task of creating and maintaining a natural environment that can sustain such prosperity and welfare must be undertaken by those people who actively use and are directly effected by the environmental conditions of the region. This Strategic Environmental Issues Report brings together and illuminates the perspectives, experiences and outlooks of many of those individuals from the region who have made strong personal and professional commitments to shaping its development.

The future development of CEE countries is also addressed by the Environmental Action Program for Central and Eastern Europe (EAP), which was adopted by the Ministerial Conference in Lucerne in April 1993 (see Environment for Europe 1994). The EAP proposes a methodology for addressing environmental problems and implementing solutions. An integrated and financially balanced program focused on local, national and regional environmental protection problems is recommended. The use of market incentives to prevent new pollution and to reduce existing waste is suggested. The stress is placed on assuring strict enforcement of laws and regulations. Cooperation among the CEE countries in exchanging experiences and developing joint undertakings is proposed among key recommendations. Training of environmental specialists and capacity building in environmental administration are listed as supplementary activities. Foreign assistance is seen as support to mitigate the CEE countries' contribution to creating global environmental challenges.

To a large extent the conclusions drawn from the comments provided by experts of the CEE countries mirror those conclusions presented in the EAP. However, it may be useful to repeat some of them with additional comments.

– Development of environmental/economic 'win-win' measures. The transition period presents unique opportunities to integrate economic development and environmental protection so that both benefit. To address environmental liabilities from the past and ensure the potential for sustainable economic well-being in the future environmental and economic concerns must be seen as equally important and mutually dependent.

– Maximizing the cost efficiency of environmental investments. Funds available for environmental protection purposes are, and will continue to be, extremely limited in the region. To achieve the maximum benefit from these funds priorities should be clearly set and effective implementation measures established.

– Harnessing market forces for environmental improvements. Free market reforms are now the major driving forces in the region. These forces allow possibilities for improved environmental protection but they must be recognized, fully understood and incorporated into environmental strategies. New economic instruments for environmental protection can and should be used to take advantage of these market forces.

– Immediate reductions of severe environmental threats to human health. There are some localized 'hot spots' in the region which pose serious risks for human health and the environment. These areas need immediate attention and short-term actions may be warranted while longer-term solutions are devised.

– Realistic, enforceable environmental policy and law. The state of environmental policy and law varies considerably in the region. While some countries have fairly advanced systems others are still relying on regulations established in the past. Enforcement is almost unanimously considered the weakest point of existing environmental programs. Modern policies and laws which fully reflect existing economic, political and technical realities are required.

– Substantial improvements in expertise, management and methodological capacity. Training and exchange of experience and information are needed to improve policies, management and project implementation skills for government authorities, businesses and NGOs.

– Modern production and environmental protection technologies. Many of the existing problems in the region result from a lack of proper technologies. Proven modern production technology which uses less raw materials and minimizes waste by-products, as well as advanced environmental protection equipment, are greatly needed.

– International and intergovernmental cooperation. The need for more effective cooperation between Western and Eastern governments, and especially between governments of the CEE region, as well as better working relations amongst the different government ministries and institutions within countries, are absolutely essential to maximize the positive effects of limited funds and to solve shared regional problems.

While this Report and the EAP discuss many of the same issues, certain themes and topics presented here received special attention from the CEE experts involved. These themes and topics represent a collective perception of environmental problems displayed from within the region.

– The significance of existing political, economic and social realities. The countries of the region are undergoing truly profound changes, the implications of which are not fully comprehended within the region itself, let alone elsewhere. The transition process is going to be long and difficult and environmental protection is but one, albeit important, element of this process. Current political, economic and social driving forces must be fully considered and accounted for in the development of environmental protection strategies.

– Existing environmental assets of the CEE region. The environmental damages of the region are well-documented. The natural capital of the region, however, goes under-appreciated. Europe's greatest biodiversity and large areas of pristine nature are currently being threatened by rapidly emerging, largely unregulated economic initiatives as aggressive business ventures seek to exploit new resources in the spirit of capitalism.

– Western development patterns. Consumer behavior is changing as new products become available and as marketing becomes pervasive. Consequently, new environmental problems are emerging. Environmentally harmful products such as automobiles and disposable plastic packaging are becoming widespread.

– Comprehensive environmental education. While much attention has been given to the need for professional training, not nearly enough has been done to initiate broad based environmental education campaigns. There is a strong need to introduce environmental education into the school systems and to devise programs which will effectively reach adult members of the general public. Education is a relatively low cost option having important long-term benefits.

– Respect for the rule of law. It is almost pointless to discuss improvements in environmental laws when the rule of law generally is not accepted as a social norm. Public understanding and acceptance of the general concept of the rule of law is essential for the development of civil society and the proper functioning of any government administration.

– Obstacles to integrating economic development and environmental protection. There is no precedent in the region for such integration and no experience for how to accomplish it. In this regard western experience can be very helpful. The pro-environment lobby has not yet been able to convincingly demonstrate to decision-makers how such integration can occur, and what the consequences of not following a sustainable development path will be. Economics are guiding the transformation yet most environmentalists are unable or unwilling to use language which economists can understand and vice-versa.

– Continued foreign assistance. It remains crucial but should not create false expectations. To this point much energy and resources have gone into assessments, studies, skill-building and methodological and institutional strengthening. While it has been and remains necessary, new focus should go on practical measures yielding concrete environmental improvements. The CEE region should also realize that foreign assistance may soon be focused on other regions, namely the NIS, and that it will remain a small portion of overall environmental expenditures. Therefore, the CEE countries should improve internal cooperation and take a more unified approach in approaching western donors.

– Cooperation between the different interest groups. Mechanisms and efforts to bring together governments, businesses, scientists, NGOs and the media must be devised and employed. The different motivations and perspectives of these groups must be understood and taken into consideration as public participation becomes more of the rule instead of the exception. These groups should focus on shared interests rather than positional conflicts, and combine their energies and comparative strengths to achieve common goals of environmental protection and sustainable development.

The conclusions of this survey provide building blocks for designing local, regional or national environmental protection activities. However, successful use of the outlined findings will surely be influenced, and perhaps limited by current values, attitudes, behavior and practices existing in the CEE countries. Such limitations illustrate the difficulties of societies passing through a transformation to market-based democracy with mentalities and perceptions formed under a system of economic and social paternalism. The transition to a market-based economy will not succeed without a professional, methodological approach to solving important problems such as the region's environmental challenges but, the transition will also fail if the unrealistic egalitarian social values and passive attitude cultivated by the past remain dominant in the CEE societies of today. Methodological advice presumes a certain perceptual background or frame of reference on the part of the advice recipient. The experience and skills needed to effectively assess, and respond to evolving market forces are not fully developed in the CEE countries. Such skills and experience are absolutely necessary, however, to devise and implement an environmental protection strategy based on those forces.

For findings and recommendations such as those presented in this Report and the EAP to realize their potential worth they must contribute to practical outcomes in the real environment. In order to make practical use of the findings presented here, the acknowledged dilemmas resulting from the transformation must be overcome. In considering solutions to these dilemmas the following messages stand out:

– The public must play a responsible and proactive role in environmental protection. The value of high public awareness and sophisticated government policies will not be fully benefited from if there is persistent resistance to environmental protection efforts. Active and informed citizens participating in decision-making bring new strength to protection activities and give environmental administrations the backing they need to fulfil their mandates. As consumers, citizens can also motivate businesses towards improved environmental practices.

– Decision-makers must have the necessary knowledge and capacity to implement market-based solutions. Leaders in government, business, NGOs and academia must acquire expertise in the full range of market-based environmental protection strategies and mechanisms and they must develop the capacity to implement them under the current realities existing in the region. Foreign assistance is critical in this area as such expertise is very limited in the CEE countries. While activists must be prepared to use economic arguments in environmental debates, businesses and governments must be open to considering alternative solutions.

– A deeper appreciation of the importance of environmental protection must be cultivated in the society. The evolving values and attitudes in the CEE countries must be addressed, with real resources going to support concrete efforts aimed at reducing harmful behavior patterns. An atmosphere needs to be created in which businesses and industry can contribute to solving environmental problems. Conditions conducive to voluntary changes in practice should be created whenever possible, with market incentives and public attitude playing influential roles. Positive examples of environmental business practices should be identified, supported and replicated.

The ultimate factor which determines the prospect for environmental improvements in the CEE countries is rooted in people's reactions, attitudes and practices formed in the past political system. The hidden areas of the transformation, consisting of human values, perceptions and expectations, are decisive for absorbing and effectively using the new tools available in a market economy for environmental protection. Experts of the CEE countries often discussed the problem of current environmental decisions being made based on outdated perceptions of social values and development forces. Progress in better understanding market forces, and the values and behavior that they engender, by environmental activists and decision-makers is crucial to achieve environmental improvements. As experience, knowledge and skills are acquired in the CEE countries perception of strategic environmental issues and their solutions is likely to evolve towards adopting the professional methodological approach proposed in the Environmental Action Program. However, how this perception evolves should itself be considered a strategic issue.

References

FRANCIS, P. (ed.) (1994) National Environmental Protection Funds in Central and Eastern Europe; a study from the regional Environmental Center, pp. 78.; ISBN 963 8454 16 4; publ. REC Budapest 1994.

KLARER, J. (ed.) (1995; in press) Use of Economic Instruments in Environmental Protection in Central and Eastern Europe; a study from the regional Environmental Center, pp. 174.; publ. REC Budapest 1995.

Strategic Environmental Issues in Central and Eastern Europe (Vol. 1.: Regional Report), a study from the Regional Environmental Center, pp. 1-32; ISBN 963044304X; publ. REC Budapest 1994.

Environmental Action Programme for Central and Eastern Europe (Abridged version); R. Ackerman, ed., pp. 83, published by the World Bank, March 1994.

LABELLING SCHEME TO ENCOURAGE TROPICAL FOREST SUSTAINABILITY

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Abstract

The problem of excessive environmental degradation is of increasing concern to us all. In response to this the concept of Eco-labelling was introduced some seven years ago, the purpose of which was to enable consumers to make informed decisions about which products are environmentally sensitive. A tropical-timber eco-label is discussed in this paper.

Excessive deforestation in tropical countries: a background

The exploitation of developing countries by the developed West can be seen as the primary factor for opening-up virgin forests for timber-exportation, and later destruction due to natives building new settlements. This exploitation began with the Industrial Revolution, during which there was a huge demand for timber. Countries such as Great Britain and America were the fastest growing nations, and originally their demand for timber was satisfied by their own resources. However, during the nineteenth century these nations realised that enormous damage was being inflicted upon their habitats, and urgent controls were needed. With local resources restricted, industry chose to exploit nations which were more abundant in resources and less rigorously controlled, with their new found wealth, to satisfy it's insatiable demand. Increasingly, Europe, Japan and the United States turned to capital-hungry developing nations in Africa, Asia and South America for their timber supplies (because these countries were home to the most diverse, attractive, durable and strongest timbers on earth), whilst maintaining a strict forestry protection policy at home. The situation in these nations continued to digress as a result of this exploitation, until reaching their present depleted condition.

Previous attempts to reduce or even reverse the *overall* excessive rates of deforestation have, unfortunately, been wholly unsuccessful (Friends of the Earth 1990a, 1991), notably the International Tropical Timber Organisation (ITTO) and

The Tropical Forestry Action Plan (TFAP). This scheme and it's recommendations for implementation have therefore been developed in an attempt to overcome these past shortfalls.

A precautionary strategy

Unfortunately many forests world-wide are extensively damaged every day. This destruction has far-reaching environmental consequences, both locally and globally.

On a *local* scale, indigenous people are upheaved and it has been alleged that, where local people resist deforestation, they are on occasion murdered (Secrett et al 1993). In addition their very habitats are destroyed. The fact that proper selective logging is not yet in place contributes to the problem, because for a logger to obtain the required valuable timber species, huge volumes of trees are destroyed by the machinery to gain access to them. Friends of the Earth have cited the following example in which this destruction of local eco-systems as a result of deforestation has a profound effect upon global biodiversity: "A four mile by four mile patch of rainforest could contain up to 1500 species of flowering plants, 750 species of trees, 400 species of birds, 150 species of butterflies, 152 species of mammals, 100 species of reptiles and 50 species of amphibians" (Friends of the Earth 1990b). In continuing with this destruction, timber exporters are implying that they know, better than the environmental scientists, what is acceptable for *our* planet. Irrespective of what knowledge comes available in the future (i.e., it is already believed that the cures for many diseases lie within some of the plants to be found in rainforests, even cancer: "The US National Cancer Institute has stated that 70% of the 3000 plants identified as having anti-cancer properties come from tropical countries" (ibid)), the present employment of these resources is the most beneficial. Intergovernmental policy is needed to restrict this destruction.

The *global* consequences of tropical-forest deforestation are, in the authors opinion, of greater significance. By reducing the volume of forest available for the sequestation of CO_2, we are effectively adding to the net amount of CO_2 present in the atmosphere. Figure 1 illustrates the carbon cycle which, in the absence of human influences (humans are now burning fossil fuels at a rate which adds ~5GT p.a. of carbon to the atmosphere (Legget 1990) would be in a steady state. However, we are currently experiencing a nett addition of 3GT p.a. of carbon to the atmosphere, of which deforestation comprises two-sevenths, i.e. ~29%. According to IEA statistics ~420 million hectares of additional forest would need to be planted to absorb this net carbon flux to the atmosphere (approx. half the land area of Australia). Methane emission, as a result of deforestation, also contributes significantly to the levels of atmospheric greenhouse gases. For example biomass burning represents the third largest source of CH4 emissions and is rising at a rate of ~5% p.a. (CH4, over a 20 year time horizon, is 35 times more potent than CO2 as a greenhouse gas (Harvey 1993)).

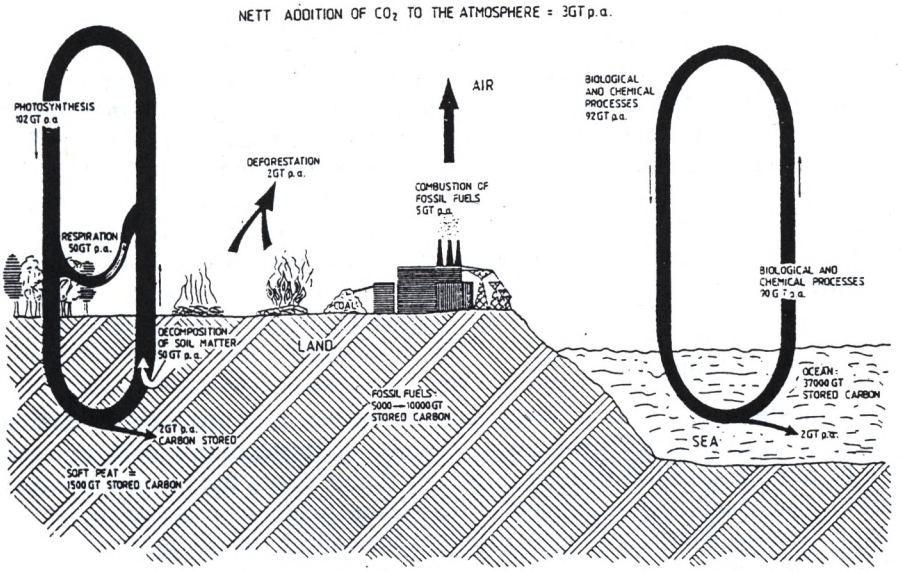


Fig. 1. The world's present carbon cycle. Annual carbon fluxes from the major sources are shown.

As a contribution, therefore, to achieving a *sustainable* future for rainforests (indeed any forest), it is considered desirable that timber-labelling be introduced, especially for the more rare species. This would be a method of indicating, to consumers (British in this example), which timbers and from which countries it is desirable not to buy. This is necessary to try to ensure that only timber from sustainably-managed forests is used and that the least damage is done to these tropical forests.

Proposed labelling-scheme for indicating the most vulnerable species of trees

The schema proposed in the following text takes into account (i) deforestation (and the burning of timber, whether in-situ in the forest or removed for later combustion elsewhere); (ii) the negative effects of population growth; and (iii) haulage distances from the country of the timber's origin to the UK, the latter resulting in the consumption of fossil fuels, which are themselves becoming increasingly scarce resources. The devised multi criteria assessment procedure, though only a rude first step, indicates which timber imports, from which countries, to the UK should be reduced or prohibited. This assessment should be updated *annually*. Implementation of analogous procedures by all the timber-importing countries would ensure the necessary reafforestation and encourage the sustainable management of forests worldwide.

Rate of deforestation

Before ranking one species of timber against another, it is necessary to identify from where the various different species of timber originate, so that an attempt can then be made to establish whether or not the timber comes from a well-managed source. The quantitative assessment of the various timber sources (which, for the present exercise, include only those countries from which the UK imports tropical timber in large-enough quantities to warrant their inclusion in the scheme) is used to assess which of the species are most at risk from extinction.

For each species, if the rate of deforestation exceeds the rate of reafforestation, then the forest is not being managed sensibly. Unfortunately, the adopted criterion, in the present exercise, merely accounts for rates of deforestation and reafforestation in terms of land area. It fails to assess both the range and type of wood species present, and the number of the trees per hectare. Unfortunately, for the present exercise, detailed comprehensive data were not available and so the present labelling scheme may appear somewhat oversimplified. Data *were* however gathered concerning the amount of forest cover for each of the countries considered: this led to a crude value for the deforestation label.

Deforestation for use as Fuelwood

An attempt has been made in this investigation to distinguish between that timber which is either burnt in-situ or removed for subsequent combustion, and that which

is felled and not used as a fuel (or is simply allowed to degrade naturally) because the latter does not add a significant percentage to the harmful greenhouse gases to the atmosphere; i.e., burning vegetation and trees has the effect of increasing the *nett* rate of CO_2 emissions corresponding to approximately 70% of the total carbon content, as opposed to 45% when the wood degrades naturally in the soil.

An analogous procedure to that used for providing the first component of the deforestation label was implemented in order to quantify the deforestation which arises from forest burning. The only difference here is that the amount of wood used as fuelwood had to then be expressed as a percentage of the forest cover (as a method of quantifying it), so that comparisons may be drawn between each exporting country.

Total Area of Forest cover for Each Country

Highly-forested countries tend to have significant influences upon the climate and ecosystems. Using data obtained from the Real Wood Guide (Timber Trades Federation 1990), therefore the area of forest cover for each country was calculated.

Population

Population growth has resulted in the irreversible destruction of tropical species and landlessness in developing countries. But logging need not invariably lead to nett deforestation: this phenomenon only ensues if followed by agricultural settlement on that land or inadequate forest management (Plumptre 1991). Thus, it would be wise to:

- *Restrict human-population growth* as in the Indonesian forest community. The Indonesian government's action has reduced the annual birth rate from 33 births per 1000 people in 1970 to 22 births per 1000 people in 1985. This was accomplished by the implementation of an internationally-recognised family-planning programme.
- *Encourage settlements in non-forested rather than forested areas.* The Indonesian forests are at such a high level of risk from the encroachment of settlements that the Indonesian government is offering incentives for people from these endangered regions to resettle on some of the small islands surrounding the mainland.

As a result, Indonesia now appears eleventh in the list of countries having the greatest impact upon the forests because of population pressure: the country appearing fifteenth being the least offensive of those considered.

Haulage Distance From the Country of Origin to the UK

At current levels of consumption, the world's *proven recoverable reserves* of fossil-fuel oil will probably be prohibitively expensive to recover by AD 2050. This is a particularly important trend when considering the international timber trade,

because tropical timber has to be conveyed long distances before it finally arrives in the UK. Thus, to accomplish this, a large amount of fossil-fuel is used. This is of particular importance when considering the depletion of oil, because the most common form of energy used to power a ship is oil (however, for alternative forms of transport, such as road haulage, this need not be so; for instance in Brazil many cars are powered either completely or supplementarily by alcohol which is distilled from sugar cane – i.e. a renewable resource). It is therefore important, in any labelling scheme, to penalise shipping relatively heavily because this form of transport is likely to continue to consume predominantly fossil-fuels.

Because the efficiencies of ships are likely to increase only marginally, it is reasonable to base the transportation energy use criterion solely on the distance of each exporting country from the UK.

Combined label scheme for each source of timber relative to the UK

To produce an assessed procedure, two possibilities were considered.

- Simply quote, with the name of each country, its corresponding 5 characteristic labels concerning exported timber. However, this would be open to ambiguity, if each label was given equal weighting.
- Form a single comprehensive label, taking into account the relative contributions that each of the component labels make to current adverse environmental problems.

The result is an advantageous combination of the two above possibilities; this provides a useful picture of the each component label, whilst avoiding interpretative confusion, by including the single resultant label.

Explanation of the Comprehensive Labelling Scheme

The magnitude of the ultimate label is influenced by three main inputs. The first represents the effect of deforestation, another the pressure upon deforestation of population growth, and the final parameter indicates the energy cost of transporting the timber. The deforestation input, in itself comprises three variables, because deforestation takes place for several reasons.

The first step was to assess each exporting country's implemented policy in terms of the rate of deforestation (as a percentage of the total forest cover) each year. A similar procedure was adopted to put a figure to the amount of deforestation for the provision of fuel. The final step was to provide a means of quantifying the loss of forest cover per annum.

It was necessary to consider both the nett rate of deforestation and to express this as a proportion of the total area of forest cover for each country for the following reason. A small country may lose 109 m^2 of its forest cover during a 10-year period, and this would have a significant impact upon that particular country. However, if it was a large country, the impact of such an area loss would be much less. Despite

this, the percentage reduction of forest cover is an adequate method of visualising the efforts made by individual countries to conserve their forests.

It was decided that the effects of burning, which leads directly to the emissions of higher rates of CO_2 than simple deforestation, into the atmosphere (namely ~70% as opposed to ~45% of the carbon content) should be penalised more heavily. The corresponding proposed *weightings* of 55% (±5%) and 45% (±5%) due to their associated environmental impacts, were thus adopted as reasonable. The resultant comprehensive label reflects management policy, contribution to the greenhouse effect and the amount of forest lost each year (and thus damage to ecosystems, in crude terms).

Table 1. The Assestment Labels

Country of or origin of timber	Timber labels					Population label	Haulage label	Overall single characteristic label
	Deforestation label	Burning label	ΣReduction = 45% I + 53% II	ΣArea of forest loss label	Final forest label = (III+IV)/2			= 45% V+ 20% VI + 35% VII
	I	II	III	IV	V	VI	VII	VIII
Philippines	53	69	62	41	52	46	84	62
Indonesia	20	65	45	62	53	23	85	58
Zaire	22	80	54	65	60	73	33	53
Malaysia	40	32	36	46	41	22	81	51
Brasil	26	63	46	75	61	25	51	50
Cote	82	77	79	37	58	92	17	50
D'Ivoire								
Thailand	63	60	61	43	52	19	66	50
Burma	20	66	45	50	48	29	56	47
Congo	23	62	44	47	46	77	29	46
Liberia	65	86	77	26	52	75	19	45
Nigeria	50	87	70	43	57	64	17	44
Gabon	20	67	46	46	46	63	28	43
Cameroon	29	69	51	48	50	54	20	40
Ghana	34	82	60	39	50	61	15	40
Guyana	30	23	26	44	35	14	41	33

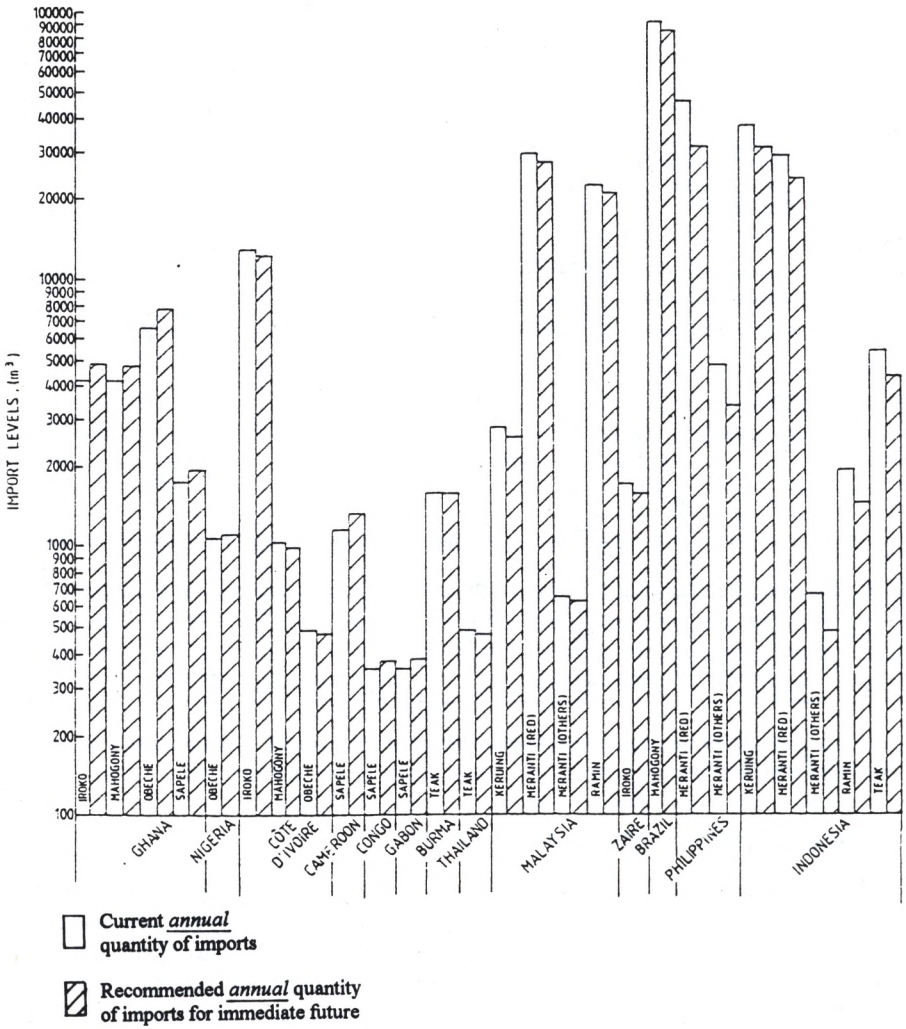
Note: For a more detailed account of the development of each component of the labelling scheme, see Robinson & Probert (1994).

Implementation of the Labelling Scheme

For those countries with the largest international debts, e.g. Brazil, there are net flows of funds to the lending countries. For instance, in 1988, the indebted countries of the Southern Hemisphere paid $54 billion more to their Northern Hemisphere creditors, than they received in aid, state loans and private investment (Leggett 1990). Therefore, large-scale deforestation occurs, as loggers exploit these

indebted countries further with the knowledge that, in many cases, this is their only source of immediate income with which to service their debts. Continuation in this way is a recipe for catastrophe! These indebted tropical countries should therefore be allowed to suspend their loan repayments until they are capable of exporting timber and its products (processed in the country of origin) on a fully-sustainable basis. A mechanism should be set up such that defaulting on loan repayments would lead to a (temporary) loss of national territory (e.g. of rainforest) to the jurisdiction of an international agency (e.g. UNO).

Figure 2: The recommended necessary short-term restructuring of annual tropical-timber imports to Britain in order to move towards achieving sustainability



The proposed upper limits to imports of timber into the UK are given in fig 2. It is possible simply to import certain timbers, without the need to be specific about their country of origin. For example, Obeche, Sapele and Iroko (with the exception of that from Zaire) could be ordered in larger quantities but Keruing, Mahogony, Meranti (all varieties), Ramin (with the exception of that originating from Gabon) and Teak should be ordered in smaller quantities.

Implementation Regarding Levels of Imports (in the short term)

It is proposed that the data required to produce fig. 2 be re-evaluated annually. This would for example ensure that the affected countries do not revert back to stripping the land for cash crops in order to make up for the reduced income due to the decrease in demand for timber exports. Incentives should be provided for these countries to resuscitate their forests rapidly so that they may once again become economically stable or independent (however a different mechanism would be required from that which has previously been employed by the World Bank).

Implementation regarding finance (in the long term)

The Timber Trade Federation has already proposed a surcharge on tropical-timber imports for this purpose. This is a sensible solution and has been welcomed by environmental pressure groups, but it has yet to receive official political support. Financial incentives would offer several benefits:

- *More processing of the timber in the country of origin.* This would lead to higher employment levels there (resulting in reduced deforestation pressures from farmers)
- *Reduction in foreign debts.* This will relieve the pressure on tropical countries to export timber in order to achieve debt repayments, and thus will indirectly lead to a reduction in rates of deforestation.
- *Improved quality control.* Better timber-harnessing machinery and improved supervision will result in less wastage and will subsequently lead to less deforestation.

For this scheme to be successful, care must be taken to ensure that a system of continuous, impartial monitoring of deforestation rates is implemented. Such a scheme, involving financial incentives, was implemented in Ghana some years ago, but failed, because there was no monitoring and controlling mechanism in place. As a result, the forests were vastly over-exploited!

Deciding where funds should be invested

Initially funds should be directed to those countries experiencing financial hardship (because there is a proven correlation between high overseas debts and high rates of deforestation, as in Brazil). Their progress with respect to achieving sustainability should be carefully monitored and sanctions imposed for failing to attain set

targets. In order to implement this measure, countries would be invited to compete for "pump priming" funds, this would involve the allocation of finance upon the production of detailed plans and commitments that the money would be used wisely and in the prescribed manner (i.e. with the goal of creating sustainable forests). A legal contract would be drawn up, including agreed sanctions for failure to comply, which would, as mentioned previously, involve the loss (hopefully temporarily) of national territory to the UNO.

Recommendations for Future Action

Unfortunately past efforts to achieve the sustainability of tropical forests have not involved an adequate degree of independent unbiased advice, assessment, monitoring, and where necessary criticism and sanction. Co-ordinating organisations, such as the ITTO, have relied far too heavily for pertinent evidence of inadequate forest management upon the governments of the exporting countries, who would clearly experience immediate financial hardship if they had their levels of exports reduced. Consequently logging has increased under previous systems, which have evolved into mechanisms which disguise reality, so that environmental pressure-groups may be kept at bay, being too often dismissed as Luddites.

The recommendation of this investigation therefore, is that with funding from developed countries, an international body should be created with the aim of achieving sustainability of the forests. It would be important, however, to maintain close links with governments in both importing and exporting nations to ensure that all proposed policies are reasonable and implementable. This organisation should have the appropriate powers to impose levies on the developed countries in proportion to their imports of endangered tropical species, and to channel the resultant funds for investment into those countries where efforts are being made to curb deforestation. To be successful, it is therefore recommended that this organisation should be included within the remit of the Sustainable-Development Commission, which itself is answerable directly to the United Nations' Organisations National Assembly.

Conclusions

All developments should be based on a sustainable balance between economic objectives, the rational management of the environment, and the enhancement of natural and human resources.

Deforestation is one major example of world mis-management: it leads to a few people becoming very enriched financially in the short term, and many becoming impoverished in the long term. It is typical of the conflicts which arise between (i) the documents for economic growth and higher standards of living for the indigenous populations in the less-developed countries, and (ii) the need to achieve a sustainable environment. Thus, in the case of deforestation, we in the more developed world must simultaneously (i) help the local population in the timber-exporting countries to satisfy their needs without damaging the environment and

(ii) impose embargoes on the importation of those timber species threatened by extinction.

The continuing failure of the majority of those controlling the tropical-timber trade to adhere to sustainable practices is contributing significantly to the world's accelerating environmental degradation. Thus the presently-proposed labelling scheme should help in devising a reasonable and implementable strategy for the UK's timber imports. It should identify where effort is needed in order to conserve and manage wisely the world's at present diminishing tropical forests. It could eventually be extended to ensure that neither secondary forests and plantations become monocultures nor that polluting agro chemicals are used. In fact it could also be applied to the world's temperate forests.

The depletion of our reserves of timber in all forms is extremely undesirable: it can have devastating consequences, with the possibility of destabilising our climate and increasing the likelihood of excessive global-warming. Deforestation also has serious implications for local ecosystems and the people living within the forests, whose habitats are being progressively destroyed.

The proposed labelling scheme has identified three timbers namely Obeche, Iroko and Sapele (except if it originates from Zaire), which may continue to be imported into the UK even in slightly larger quantities in the short term as a replacement for the reduced consumption of the other exotic timbers. However the sources of Keruing, Mahogony, Meranti, Ramin and Teak are being eroded at an unacceptable rate, and as such these timbers should only be allowed to be imported into the UK in much smaller quantities. These are recommendations for the *immediate* future.

Britain, together with all other timber-importing countries, should now move towards implementing policies which will lead to the sustainability of all the tropical rain forests of the world.

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References

FRIENDS OF THE EARTH (1990a), "The Tropical Forestry Action Plan – Special briefing". (FoE, London).

FRIENDS OF THE EARTH (1990b), Tropical Rainforests, (FoE, London).

FRIENDS OF THE EARTH (1991), "The International Tropical Timber Organisation – a call for further reform". (FoE, London).

HARVEY, L. D. D. (1993), Guide to Global Warming potentials, Energy policy, Vol 21, No 1, pp. 24–34.

LEGGETT, J. (1990), Global Warming: The Greenpeace Report. (Oxford University Press, Oxford).

PLUMPTRE, R. A. (1991), Incentives in producer and consumer countries to promote the sustainable development of tropical forests, ITTO & Oxford Forestry Institute (OFI). Department of Plant Sciences, University of Oxford.

ROBINSON, D., & PROBERT, S. D. (1994), "Timber-Labelling Scheme to Encourage the Achievement of Tropical-Forest Sustainability". Applied Energy, Vol 44. No 1., 1994., pp. 29.

SECRETT, C., COLCHESTER, M., CORRY, S., MEDLEY, G., MELCHETT, P., MONBIOT, G., PORRITT, J. AND WORCESTER, J. (1993) "Call for ban on mahogany trade". The Times, No 64683, page 19.

TIMBER TRADES FEDERATION (1990), "Forests Forever Campaign – a real wood guide", Forests Forever Campaign, 4th floor, Clareville house, 20/27 Oxendon Street, London SW1X 4GL.

II Environmental Planning and Sustainability

THE TREATMENT OF ENVIRONMENT IN DEVELOPMENT PLANS: A CONTRIBUTION TO SUSTAINABLE DEVELOPMENT?

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Summary

This paper considers key environmental questions which should influence the preparation of Development Plans in the UK. It emphasises problems associated with establishing sustainability issues as essential parts of the Development Plan System. Finally, suggestions are made about a way forward.

Introduction

British government considers land use planning to be one of the main arenas within which its Sustainable Development Strategy is to be achieved (DoE 1993). The system provides both a mechanism for articulating local approaches to environmental issues, and a regulatory regime through which environmental concerns may be pursued. The planning system has traditionally been concerned with issues of environmental protection and quality. There is a tendency to assume that the system (Healey et al 1988, Brindley et al 1989), can be adjusted to take on board the new environmental agenda.

However, on closer examination, the environmental credentials of the planning system, without alterations to the system, provide an uncertain basis upon which to evolve the local response to environmental issues. Further, the concept of sustainable development, and the UK government's interpretation of it, is itself contested. Questions need to be asked about how to operationalise environmental considerations in the planning system.

These relate to three broad but interlinked areas of debate. The first concerns the meaning of environment and environmental sustainability. There are conflicts over

ways of identifying the environmental agenda. Behind these lie deeper epistemological and moral questions about the nature of knowledge, about the relations between people and nature and about moral responsibilities, to each other and to the natural world. Thus while some seek to contain debate within the vocabulary of contemporary economics and natural science, others press for debate to escape into wider "postpositivist" directions (Goodin 1992). The second area of debate concerns changes in economic and social life. The task of constructing local planning strategies has had to confront the fragmentation of long established relations between firms and places, new forms of economic activity, changing lifestyles and new modes of communication. Thirdly, approaches to urban and regional governance are rapidly evolving, linked to economic, social and ideological changes, which both force environmental considerations into the limelight and seek to address them through regulatory regimes which emphasise new ways of combining economic instruments with administrative procedures. This is viable at both UK and European levels and impacts upon the practice of planning and regional development (Roberts and Tilley 1993).

The planning system, plans and environment

The planning system in Britain consists of a set of procedures for formulating plans and determining applications for development. The objectives and scope of the system are determined by government policy and local interpretation, underpinned by legal review. Little is specified in law as to the scope and content of planning policy, other than that its regulatory focus is on the use and development of land. Exactly what this means has always been a matter or controversy. But at a minimum interpretation, the system is centrally concerned with the location of development and with its characteristics.

The fundamental role of the development plan is to provide the framework within which the criteria for making regulatory decisions can be established. Its formal role is to provide a strategic context to decision-making with respect to local environmental change, linking land use allocation and the terms of development to economic, social and environmental considerations, and providing a means to coordinate and regulate the flow of development projects. In practice, the emphasis on this strategic and coordinative role for plans has fluctuated. The 1980s, in particular, was characterised by a diminished status for plans and strategic planning policies (Thornley 1991). During this period, however, major changes were underway both in forms of development and ideas about the environment.

Both plan-making and environmental issues have recently been given a new salience by government in Britain, this reflects problems resulting from the backlash of the property boom, and the government's own greening strategy (Secretaries of State 1990). This "return to plans" of the early 1990s has provided an opportunity for these new pressures and concepts to be translated into planning strategies and policies, encouraged by government statements, legislation supporting plans and the new legislative position of the plan in the 1991 Planning and Compensation Act. Recent advice on development plans (DoE 1992), welcomes

the current environmental agenda. Professionals are also rapidly absorbing the concepts and terms of the new agenda (CPOS 1993; Blowers ed 1993).

These developments in the planning field are closely linked to the growth of environmental policy statements and auditing in local government (Raemakers and Wilson 1992), and the recent emphasis on the neglected link between transport policy and land use planning. However, the planning system has a weak relation to many other areas of sectoral policy. The tendency has been to create special procedures alongside or within the system for dealing with pollution control, agriculture, mineral extraction and industrial development. Combined with other moves to constrain the remit of the planning system, such as in Enterprise Zones, the planning system's ability to take a holistic view of local environmental change and its management is limited. Yet, as government now stresses (DoE 1993), it provides a significant regulatory tool through which to pursue environmental policies.

Environmental sustainability and planning debate

There is currently an explosion of discussion in the planning field seeking to identify the implications of incorporating the new environmentalism in land use planning. The EC Report on the Urban Environment captures the debate in many European countries with its mixture of concerns for the quality of the built environment and the new biospheric agenda (CEC 1990). While several European countries have used the environmental agenda to re-emphasise traditional concerns for conservation, others have been substantially ahead of Britain in operationalizing biospheric environmental policies in spatial planning (Nijkamp et al 1992). In Britain, discussion was slow to move from a traditional agenda, but rapidly shifted in the early 1990s. An indication of the speed of development of ideas can be seen by contrasting the planning section in This Common Inheritance, which barely touches on the new agenda, and Planning Policy Guidance 12 (DoE 1992), which has a broader and much more informed approach. The pace of innovation has speeded up in planning practice. Rydin (1992) identifies tentative steps in incorporating new policy criteria. But by 1993, the County Planning Officers were using the language of carrying capacity (CPOS 1993) and Government Ministers were firmly asserting the need to limit CO^2 emissions.

In planning debate in Britain, discussion focused in the early 1990s on two issues: the relation between energy conservation and pollution reduction through acting on the relation between land use and transport, (OECD 1993; DoE/DTp 1993), and the relation between urban form and environmental sustainability (Breheny 1992). This reflects the significance of energy use in consuming non-renewable resources and in local and global pollution.

However, the environmental agenda implied in Jacobs' approach to the environment's biospheric functions suggests a broader perspective on identifying the way the planning system intersects with environmental issues (Owens 1992). How far particular policies will achieve environmentally sustainable objectives depends on local natural ecosystems and on the social and institutional relations through which land use planning actions are taken. It is often argued that land use planning action

can have a significant impact on achieving environmental objectives, but usually only if combined with strategies for other sectors at national, regional and local level (Nijkamp et al 1992).

Recent reports which seek to define the range of environmental issues within the planning arena tend to focus on substantive topics such as waste recycling and environmental quality. An alternative approach is to focus on types of action which should be pursued through the planning system. Figure 1 seeks to do this, drawing on Jacobs' (1991) list of biospheric functions outlined above.

Several of these areas of action are long-established activities for the British planning system, notably the first, second, fourth and fifth. Further, it is these tasks which the system has been in the past most effective in achieving (Pearce 1992). This might suggest that regulatory action through the planning system is a particularly effective mechanism for achieving the objectives of sustainable development.

Figure 1: The areas of action for land use planning systems in environmentally sustainable strategies

1. Conservation of sites, environmental qualities and of building qualities,
2. Location of development to conserve energy, reduce pollution, promote pollution reduction, provide amenities, promote biodveristy and limit development within capacity thresholds,
3. Define capacity 'areas' within which standards/targets shall be met,
4. Identify sites for environmentally desirable development
5. Promote environment-enhancing qualities in all development,
6. Mitigate the adverse distributional effects of environmentally beneficial strategies.

There is now considerable discussion of the need to link "environmental permitting" and Integrated Pollution Control machinery more closely with the planning system (Wood 1989). Meanwhile, there is a strengthening tendency to consider all development proposals in terms of their economic, social and environmental impacts, and to negotiate measures to alleviate or compensate for those impacts where a project is otherwise in line with established planning policy (Lichfield 1992). The development of impact identification in effect reconstitutes the approach to 'balancing' in the planning system, in line with the less radical version of sustainable development outlined above (see CPOS 1993). The influence of EC legislation has been a major factor in promoting these ideas.

The past record of the planning system in achieving environmental objectives provides only limited reassurance about its capacity to meet the demands of sustainable development. The system's powers have regularly been constrained to protect the interests of particular business sectors. The very flexibility of the system's form allows the distortion of broad objectives through implementation (Healey et al 1988).

Environment, economy and planning

Three approaches to the treatment of environment in development plans run through the post-war period and prefigure the current debate over the meaning of sustainable development. The first emphasises the environment as functional resource, a reserve of resources and amenities for human enjoyment. The environmental concern is with their conservation. During the 1980s, the conception of a 'reserve' was increasingly transformed into a notion of tradable assets or commodities, to be priced through environmental economics (Whatmore and Boucher 1993). This provides a strong foundation for the interpretation of sustainable development in terms of a stock of assets.

The second strand emphasises the moral and aesthetic notion of the environment as a backcloth. The moral dimension of this conception was clear in the thinking of the pioneer planners, but was soon sidelined into a narrow view of conservation. What evolved instead during the 1960s and into the 1970s was a renewed interest in active stewardship of the natural environment. This provides support for the asset stock conception of sustainable development, in the sense that the stock needs to be improved and its deterioration actively prevented. But it also provides support for the more radical interpretation of sustainable development, by focusing attention on stewardship.

The third strand is less clearly articulated in early environmental debates in the planning system. It is most clearly seen in the discussions in the North West plans on how to accommodate expanding agriculture, industrial development and mineral extraction, while also improving the quality of life. Constraints on economic and social development were deemed necessary to conserve agricultural life and landscape, and to bring air and water pollution within new quality thresholds. Sieve map techniques identified where development should and should not go echoing a conception of environmental constraint. What is new is the understanding of the ecological dimensions of such constraints, their variable spatial impacts, and the recognition that attention needs to be given not merely to stocks and qualities, but to environmental and social relations, the destruction of which leads to degradation. The radical vocabulary of environmental thresholds and demand management has precursors in planning debate.

Yet despite the continuity in these strands of environmental debate, there is little doubt that the post-war history of the planning system has seen the dominance of economic over environmental considerations. In addition, environmental conservationism allied with economic emphases allowed the sidelining of social distribution concerns (Ambrose 1986). The economic dominance has been achieved in various ways. Within planning debate, conceptions of the moral value of nature and of inter-generational inheritance have been steadily pushed to the margins. Even the 'traditional' view of environmental conservation as the management of landed estates has given way to financially driven conceptions of economic priorities, with the associated emphasis on assets and asset trading. Within the planning system, the tradition of administrative discretion rather than legal rule, and the cultivation of flexibility in administrative guidance, has allowed economic interests to be subtly

prioritised, in administrative interpretation as well as in more public disputes over plan content and development control.

'Entrenching' environmental sustainability conceptions within the planning system

The challenge for the new environmental agenda is therefore not simply one of developing appropriate conceptions and policy instruments: it is a political challenge to give due weight to environmental considerations by policy and practice. Only if this happens will the sustainability objective of a beneficent relation between economic development and environmental quality be achieved.

Within environmental debate in the planning system, operational ideas are developing apace (CPOS 1993, Blowers et al 1993). One effect of these debates is to discover the value of 'traditional' planning policies. 'Old friends' are being refurbished and reinterpreted in the context of the sustainability debate, for example the long-standing idea of contained development and the 'compact city' and the value of public transport (Owens 1991). This gives support to those planning officers and civil servants who want to argue that past planning policies turn out to have been quite environmentally friendly.

Traditional planning methodology has typically been judgmental rather than calculative, drawing more on legal forms of argument than economic ones. There are major problems incorporating the language of trade-off and balance in a calculative form. The increasing interest in identifying the impacts of development, requires more systematisation and precision if the notion of an environmental stock is to be operationalised. With the dominance in government policy of instrumental rationality and economistic conceptions of public policy practice, it is not enough to point out that converting environmental considerations to questions of stocks and trade-offs is a narrow and reductivist approach to the issues at stake. It is necessary to illustrate these limitations by attempting to work out what such an approach would involve. Thus the efforts of those developing a calculative approach to balancing environmental and economic considerations should be welcomed, as Jacobs (1991) argues.

But developing the more radical conception of environmentally sustainable strategy requires attention at both the level of technique and the level of value. As regards technique, more work is needed to operationalize conceptions of limits and carrying capacities and of demand management within these capacities. Examples include work on environmental audits, target setting, developing monitoring indicators and on the environmental impacts of plans. Several planning authorities are now working on these issues, which should make it easier to 'tell the difference', between a plan which has real potential for environmental leverage on economic development and one which does not, and between one which moves beyond a balancing conception of sustainable development to one based on a relational approach to environmental capacities.

The debate is not, however, solely a question of technical calculation; it is inextricably bound up with conceptions of value, with respect to relations with nature

and to economic life. Contemporary environmental economics argues that value can be identified in terms of individual preferences for the conservation of particular assets. The limits of such instrumental rationality in dealing with values in public policy is now widely understood (Fischer 1990). It is acknowledged in legal argument, which focuses on the reasoning and reasonableness of a judgement. This allows moral principle and political ideology to enter explicitly into the decision arena.

The innovatory effort required to achieve the entrenchment of the new environmental agenda within the planning system is therefore substantial. It requires attention to both the substance of environmental issues and to the form and processes of planning as a regulatory regime (Francis 1993) for addressing collective concerns about where development should go and how local environmental resources should be managed. The overall effect could be to move the planning system towards a regulatory regime which focuses explicitly on assessing and mitigating the adverse impacts of development projects.

This would enable citizens and firms to sort out ideas about appropriate thresholds and policy criteria acknowledging the need to observe environmental constraints necessary to achieve targets at supra-local as well as local scales (Healey 1992). The making of judgements is an issue for politics not techniques, and planning decisions cannot be left to administrators, lawyers, economists or natural scientists. The reason why the issue of democratic decision-making arises in debates on environmental issues is that the making of difficult, risky decisions needs to be widely shared among the diverse interests of a community if there is to be any chance of 'entrenching' environmental criteria in sustainable stable and legitimate spatial planning strategies.

Thus the impact of the new environmental agenda on the planning system could be to encourage, not a reinforcement of traditional strategies and policies, but a fundamental re-thinking of form and content of the system. As others have argued (Gibson 1992, O'Riordan 1992), this could also lead to significant institutional changes, for example, to allow intersectoral co-ordination and a stronger emphasis on regional strategy (Roberts and Tilley 1993).

However, there is no inevitability about such an evolution; the meaning of environment and the approach to socio-economic-environmental relations have been contested throughout the post-war history of the planning system. The tendency has repeatedly been to contain the planning agenda to a narrow remit focused on land use and development. The 1990s is no exception, with the pressures for opening out and for containing the environmental debate co-existing in contemporary planning debate and practice.

References

AMBROSE, P. (1986) Whatever happened to planning (Methuen, London).

BLOWERS, A. ed (1993) Planning for a Sustainable Environment, Town and Country Planning Association, London.

BREHENY, M. (1992) The Compact City: an introduction Built Environment Vol 18 (4) pp 241-246.

BRINDLEY, T., RYDIN, Y. and STOKER, (1989) Remaking Planning (Unwin Hyman, London).

COMMISSION OF THE EUROPEAN COMMUNITY (1990) Green Paper on the Urban Environment EC, Brussels.

COUNTY PLANNING OFFICERS' SOCIETY (CPOS) (1993) Planning for Sustainability CPOS.

DEPARTMENT OF THE ENVIRONMENT (1992) Planning Policy Guidance 12: Development Plans and Regional Guidance (HMSO, London).

DEPARTMENT OF THE ENVIRONMENT (1993) The UK Strategy for Sustainable Development Consultation Paper, (DoE, London).

DEPARTMENT OF THE ENVIRONMENT/DEPARTMENT OF TRANSPORT (1993) Reducing Transport Emissions through Planning, (HMSO, London).

FISCHER, F. (1990) Technocracy and the Politics of Expertise, (Sage, London).

FRANCIS, J. (1993) The Politics of Regulation, (Blackwell, Oxford).

GIBSON, R. B. (1992) Respecting Ignorance and uncertainty in ed Lykke, E. Achieving Environmental Goals: The Concept and Practice of Environmental Performance Review, (Belhaven, London).

GOODIN, R. (1992) Green Political Theory, (Polity Press, Cambridge).

HEALEY, P., MCNAMARA, P. ELSON, M. and DOAK, J. (1988) Land Use Planning and the Mediation of Urban Change, (Cambridge University Press).

HEALEY, P. (1992) Planning Through Debate Town Planning Review Vol 63(2) pp.143-163.

JACOBS, M. (1991) The Green Economy, (Pluto Press, London).

LICHFIELD, N. (1992) From planning obligations to community impact analysis, Journal of Planning and Environment Law pp.1103-1138.

NIJKAMP, P., LASSCHMIT, P., SOETEMAN, F. (1992) Sustainable Development in a Regional System, in ed Breheny, M. Sustainable development and urban form, (Pion, London), pp.39-66.

O'RIORDAN, T. (1992) Shaping environmental science for effective public participation in ed Lykke, E. Achieving Environmental: the concept and practice of environmental performance review Goals, (Belhaven, London), pp.181–196.

Organization for Economic Co-operation and Development (OECD) (1993) Energy and Land Use Planning, (OECD, Paris).

OWENS, S. (1991) Energy efficiency and sustainable land use patterns Town and Country Planning, Vol 60(2) pp. 44–45.

OWENS, S. (1992) Energy, Environmental Sustainability and Land-Use Planning in ed Breheny, M. Sustainable Development and Urban Form (London, Pion) pp. 79–105.

PEARCE, B. (1992) The effectiveness of the British land use planning system, Town Planning Review Vol 63(1) pp.13-28.

RAEMAKERS, J. and WILSON, E. (1992) Index to Local Authority Green Plans, A practical Guide (2nd edition) (Heriot Watt University, Edinburgh).

ROBERTS P, TILLEY F. (1993) "Environmental Sustainability and Regional Planning" in, Sustainable Regions, Regional Studies Association, London.

RYDIN, Y. (1992) Environmental dimensions of residential development and the implications for local planning practice Journal of Environmental Planning and Management Vol 35(1) pp. 43-62.

SECRETARIES OF STATE (1990) This Common Inheritance (HMSO, London).

THORNLEY, A. (1991) Urban Planning under Thatcherism (Routledge, London).

WHATMORE, S. and BOUCHER, S. (1993) Bargaining with nature: the discourse and practice of 'environmental planning gain'. Transactions of the Institute of British Geographers.

WOOD, C. (1989) Planning Pollution Control (Heinemann, London).

INTEGRATED ENVIRONMENTAL ZONING: CONSUMING THE FRONTIER?

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Introduction

Integrated environmental zoning (IEZ) is a planning technique developed in the Netherlands which "seeks to apply quantitative risk criteria to environmental loads in an area. 'Loads' have initially been addressed in terms of noise, odour and toxic substances in air" (Rees and Eduljee, 1994, p. 111). This may be seen as a relatively new, rapidly evolving and extremely useful form of environmental impact assessment that combines long established aspects of town planning, the basis for its most important contributions to public health and amenity, with a systematic programme to raise environmental standards and ensure that no individual is exposed to unnecessary hazard or discomfort. In short, a planning system to ensure the progressive improvement of quality of life, world-wide.

Despite the ease with which this approach may be presented as a universal panacea, vital for the rapidly, often badly, urbanised cites of Eastern Europe and the Newly Industrialised States, there are awkward questions about its interpretation, application and wider implications. Is this a Trojan horse for further industrialisa-

environmentally sensitive functions, the environmental load in sensitive areas can be reduced to an acceptable level, and possibilities for industrial development can be determined" (Roo, 1993, p. 368). Decision makers can choose between *inward zoning,* where pollution or other environmental damage is reduced at source (e.g., by tightening emission standards or by closing or relocating a factory), and *outward zoning* where the limits are set on the environmentally sensitive area. This is likely to lead to housing being demolished if it is too near to a source of pollution.

None of this is exceptional. Pollution control is usually based on permits and these should (but don't necessarily) take into account the receiving environment's capacity to safely absorb or disperse emissions. *Spatial policy* (Roo, 1993, p. 369), or town planning, seeks to protect public safety by making sure that residential areas, schools etc. do not suffer from bad neighbours. Usually this is ensured at the plan making and development control stage, but it has long been recognised that retrospective action is sometimes necessary. The two types of intervention may be combined in measures which establish minimum separation distances between different land uses. Recent Dutch initiatives add to these ideas by attempting to apply the same criteria for measuring environmental loads on both the sources of pollution and the sensitive activities which these affect. The roots of this comprehensive approach can be seen in measures such a the systematic mapping of noise levels in urban areas, followed by the setting of maximum standards for new development and of targets to be met in existing built up areas, with acceptable noise levels progressively reduced to a planned timetable.

Implementaties of IEZ and related policies

What Gert de Roo describes as shocking is how the twelve Dutch IEZ pilot projects have identified unacceptably high environmental loads over large parts of the sensitive areas. The implications for demolition or factory closure are made difficult by the sheer scale of the problem which has been identified, and by the fact that the factories provide work for many of the people who live in adjacent neighbourhoods (Roo, 1994, p. 18). The sustainability objectives of IEZ also face problems because the separation of land uses which it implies is directly counter to the mixed use zoning which is now being presented as one of the best ways of reducing traffic levels and car dependency (Blowers, 1993).

Amsterdam city authority has addressed the problem of dealing with the 'paradox of the compact city' by developing IEZ into the *Stolp* (or total environmental load) technique (Roo, 1994). This sets an overall target for the city, in a similar way to the 'bubble policy' or regional environmental capacity basis of the US Emissions Trading Program (Tietenberg, 1994). Instead of relying on market forces to distribute emissions between potential users of a pollution sink (and, hopefully, encourage reduction at source), Amsterdam subdivides the city into small areas, each with its own stolp. The idea is that priorities for improvement in one locality, for instance a polluted residential area, may be met by a process of trade offs or compensation so that an increase in the environmental load elsewhere is accepted, within certain minimum standards.

Elsewhere, Japan has a related, but larger scale and more growth orientated *Capacity Approach* to the limits on population and urban facilities (Onishi, 1994, p. 40) . IEZ is related to, but little evident in, the private property serving *zoning ordinances* that dominate US planning (Delafons, 1993, p. 459). However, it has much in common with larger scale initiatives such as the EPA's *Environmental Plan for the Mexican-US Border Area* (United States Environmental Protection Agency, 1992). Literature searches and serendipity indicate no use of the term in UK town and country planning, but the underlying concepts are common to the traditional *survey, analysis, plan approach*, and feature in the massive clearance of substandard housing and *non-conforming industrial* uses from inner urban areas during the 1960s. Other signs of its use in the UK include the demolition of housing estates near Teesside petro-chemical works, and the Health and Safety Executive's unsuccessful attempts during the 1980s to prohibit housing development near the ICI works at Thornton, on the River Wyre in Lancashire, though in this case increasing urbanisation around the plant has put its future in doubt.

Anne Beer's suggestion that *Landscape Structure Zones* form a basis for environmental management is close to the IEZ concept, though less rigorous in its taxonomy and more general in its prescriptions (Beer, 1993, ix). Her work links to many commentators' emphasis on *environmental quality* as a key consideration in the search for sustainable development. How are we to judge the *performance* of planning by identifying environmental requirements (Rispoli, 1993, 43)? At a more general level, IEZ is perhaps most evident in the assumptions behind adoption of an *impact assessment basis* for making decisions about the siting of new projects, and common elements may also be seen in recent attempts to establish procedures for the environmental appraisal of development plans (Great Britain, Dept. of Environment, 1993), and in tentative advances towards *strategic environmental assessment* and *environmental policy assessment* (Wilson, 1993, p. 2).

The UK has been rather tardy in meeting the spirit of the European Community 1985 Directive which requires member states to adopt formal EIA (referred to as *environmental assessment* by a UK Government keen to avoid the negative connotations of the word *impact*) for all potentially damaging development proposals. These procedures have been in place since 1988 in the UK, and are gradually being extended to cover a wider range of types of application, though this legislation does not yet have the scope some envisaged or would like (Clark, 1988). Despite this, the basic principle that schemes must be judged on their *impact* has become well established and has combined with the safeguarding of better quality landscapes and environments to prohibit most locally unwanted land uses (*LULUs*) from these parts of the countryside.

Implications and evaluation

Initially, such protection has tended to accentuate the pressure on 'pariah' areas such as semi-industrialised estuaries, and could be seen as socially regressive as well as environmentally damaging. Wealthy neighbourhoods' ability to exclude unwelcome development may be reinforced Rich people tend to occupy the most

attractive landscapes and live at low enough densities to permit exceptional ecological diversity, at least when compared with the ecological deserts created by concentrated urban development or by over intensive, industrialised farming. Meanwhile polluting activity has remained in unsuitable, often highly populated areas or been relocated to places such as estuaries which are now classified as of great importance for wildlife, but which till recently lacked protection. Where this proved difficult, as in the USA, some investors favoured remote locations to overcome the difficulty of finding suitable development sites near the markets they sought to serve (for example, sites were sought to meet the US NE Seaboard's oil refining deficiency in Canada, the Caribbean, Italy and Scotland).

This might be seen as a planet wide process of excluding unwelcome activities from an increasing proportion of potential development land as this receives protection because of its aesthetic, ecological or archaeological properties, the wealth and status of its inhabitants, or their public health and amenity interests. Unfortunately, the early stages of the process tend to favour *pollution export and industrial inertia* over *elimination at source*, and while an optimistic perspective might see this all as a means of educating society about the true costs of industrial production, short term commercial and political imperatives still tend to stress the emotive or selfish elements of environmental protection and to play down the macro-economic and social benefits of reduced damage and better quality of life.

IEZ, and its less sophisticated derivatives and relations, face the same paradox. Might an attempt to enforce minimal acceptable environmental standards result in *greater* environmental harm, in total, than a situation where unattractive, dangerous and health threatening activities remain in close proximity to the people they serve, and on whom they rely for employees and customers? At its most simple, the identification of conflicts between human needs and economic activity creates pressure for such externalities, or *misfit* situations, to be resolved. Whether this is due to political imperatives, moral persuasion or professional competence, its advantages will be *economic* as well as human. *Internalising externalities* contributes to economic development (and possibly economic growth) by recognising and controlling costs that are otherwise under-represented in, or excluded from, decision making processes. The option of relocating either the affected population or the offending factory achieves the benefit of reducing externalities, but in a trade off which involves sacrificing environmental capital in an area of low sensitivity, which is also quite likely to have a low environmental load, to achieve contributions to economic capital through more efficient production and lower external costs on the population at large.

Society might be better served if it had to make the hard decisions involved in living with the consequences of its activities and consumption. Demand management, waste elimination at source and the systematic elimination of dangerous or damaging materials, through *life cycle analysis*, offer alternative paths to the benefits promised by IEZ and other measures to segregate incompatible land uses. Unfortunately, all can be presented as involving 'costs of sustainable development' (Great Britain, House of Lords, 1994), while spatial separation is more easy to promote as progressive sanitary engineering, and as a direct way of alleviating or

eliminating what are universally accepted as unacceptable risks and intolerable living conditions.

It would be easy, and wrong, to present IEZ and similar types of town planning initiative as initiatives that threaten more comprehensive forms of pollution control and environmental improvement. Political circumstances which are receptive to IEZ will also favour rapid progress towards adoption of less damaging technologies, and will subscribe to environmental policy objectives such as those adopted by the European Community's first Environmental Policy Programme. While these have been relatively easy to agree and adopt as abstract ideals, their application, like that of company and institution based environmental policy objectives, may be less straightforward. In effect, it a matter of learning and of negotiation as the full implications of simple concepts strike home. This can be helped by a simple rewriting of the EC's environmental objectives:

- Prevention is better than cure;
- Consider environmental effects as early as possible;
- Avoid significant damage to ecological balance, its ability to absorb pollution is limited;
- Improve scientific knowledge to enable action to be taken;
- Enforce the Polluter Pays Principle (where feasible);
- Member states should not cause environmental deterioration in others;
- They should promote international and worldwide environmental policy;
- Everyone should be involved in environmental protection. Education matters;
- Action should be at the appropriate level (Subsidiarity principle);
- National environmental policies should be co-ordinated at EC level without hampering progress at national level. (adapted from Haigh, 1988, p10).

Conclusion

To conclude, IEZ will be an important tool for environmental policy goals. It should encourage the proper identification of environmental costs and sensitivities, and as a result help create a political climate in which ameliorative and preventive action is possible. While it entails contradictions, and may be subverted to favour environmentally damaging interpretations of *sustainable development* (of the 'sustained growth' and 'acceptable loss' of environmental capital for economic capital variety), these should be more than offset by its commitment to rigorous, scientific monitoring of actual environmental conditions, and by its requirements for integrated and positive measures to achieve real environmental gains in the short as well as the long term.

References

BEER, A. (1993), "Landscape planning and environmental sustainability", Town Planning Review, 64:4, v – xi.

BLOWERS, A. (1993), Planning for a Sustainable Environment, TCPA/Earthscan, London.

CLARK, M (1988), "EIA and the assessment of British planning", in CLARK, M. and HERRINGTON, J. The role of Environmental Impact Assessment in the Planning Process, Mansell, London.

CORSON, W. H. (1994), "Changing course: an outline of strategies for a sustainable future", Futures, 26;2, 206–223.

DELAFONS, J. (1993), "Is American planning fatally flawed?", Town Planning Review, 64:4, 457-460.

FALUDI, A. and HAMNETT, S. (1975), The study of Comparative Planning, Centre for Environmental Studies, London, Conference Paper 13.

GREAT BRITAIN, DEPARTMENT OF THE ENVIRONMENT (1993), Environmental Appraisal of Development Plans: a good practice guide, HMSO, London.

GREAT BRITAIN, HOUSE OF LORDS SELECT COMMITTEE ON SUSTAINABLE DEVELOPMENT (1994), invitation to submit evidence, mimeo.

HAIGH, N. (1988), EEC Environmental Policy and Britain

HEALEY, P. and SHAW, T. (1993), "Planners, plans and sustainable development", Regional Studies, 27:8, 769–776.

MARSHALL, T. (1993), "Regional environmental planning: progress and possibilities in Western Europe", European Planning Studies, 1:1, 69–90.

ONISHI, T. (1994), "A capacity approach for sustainable urban development: an empirical study", Regional Studies, 28:1, 39–51.

OWENS, S. E. (1993), "The good, the bad and the ugly: dilemmas in planning for sustainability", Town Planning Review, 64:2, iii –vi.

PETTS, J. and EDULJEE, G. (1994), Environmental Impact Assessment for Waste Treatment and Disposal Facilities, John Wiley, Chichester.

RISPOLI, C. C. (1993), Quality of the environment: towards a redefinition, Town Planning Review, 64:1, 37–45.

ROO, Gert de (1993), "Environmental zoning: the Dutch struggle towards integration", European Planning Studies, 1:3, 367–377.

ROO, Gert de (1993a), "The rise and fall of the environmental zone, a discussion about area-oriented environmental planning in urban areas", paper presented at the 33rd European Congress of the Regional Science Association, Moscow, August, mimeo.

ROO, Gert de (1994), "Answers to the polluting city", European Science foundation, RURE, mimeo.

TIETENBERG, T. (1994), Environmental Economics and Policy, Harper Collins, New York.

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY (1992), Summary, Environmental plan for the Mexican-US Border Area, first stage (1992-1994), Washington.

WILSON, E. (1993), "Strategic environmental assessment: evaluating the impacts of European policies, plans and programmes", European Environment, 3:2, 2-6.

PLANNING CONTROLS AND CONSULTATION PROCESSES IN COASTAL ZONE REVITALISATION – THE REDEVELOPMENT OF BP'S ISLE OF GRAIN REFINERY

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This paper examines some of the planning and consultation processes that have occurred during the redevelopment of an old, industrial coastal site in Kent, England. It is specifically concerned with the ability of planning procedures (including Environmental Impact Assessment) to control the adverse environmental implications of large new developments. The degree of consultation which took place during the planning processes is also examined.

Economic restructuring throughout western Europe in the early 1980s led to the decline of much manufacturing industry and subsequent closures of large plants. One industry which suffered particularly was oil refining. Although crude oil refineries at both coastal and inland locations were closed, it may be argued that the closures at the coast were especially significant, not least because the derelict sites created provided special problems and opportunities in terms of redevelopment (Pinder and Husain, 1988).

Coastal refinery closures caused economic and social upheavals in the localities affected, but brought environmental gains. Crude oil refineries produce significant quantities of chronic pollution in both air and water environments. Under certain meteorological conditions, refinery processes may also cause serious air pollution episodes, while transport to and from a plant may lead to spillages into either maritime or terrestrial environments. Additionally an operating oil refinery is likely to put pressure on local road systems, both from employee journeys to work, and from tanker traffic. All of these environmental problems would normally cease on closure. Furthermore, where ecologically important wetlands were consumed to enable refinery construction (eg. see Pinder and Witherick, 1991) the abandonment of a plant may enable a semi-natural environment to re-emerge.

However, these environmental gains may be partially offset, or even reversed if a redundant refinery site is put to new economic uses (Pinder and Harcombe 1994).

The extent to which environmental gains actually are offset in this situation will depend upon:

a) the types of new uses
b) the environmental controls to which these new uses are subject.

This paper will examine the extent to which the UK planning system has been able to exert control over the environmental effects of redevelopment on a particular redundant refinery site, in Kent, England. In doing this, it will also assess the degree to which interested agencies and organisations were consulted during the planning process. The issue of consultation between agencies and between agencies and developers is considered to be especially important for these coastal sites, given the recent debate in the UK regarding the desirability of a more integrated coastal zone management system (Gubbay, 1990).

Methodology

The aims of the investigation were:

1) to examine the planning histories for the new developments on the site,
2) to discover whether or not key actors (such as local authority planners and representatives of environmental protection agencies and conservation organisations felt) that they had been allowed sufficient input into the decision-making mechanisms,
3) to discover how these key actors viewed the final outcomes of the planning processes.

The methods undertaken were essentially of a qualitative nature. They included the use of semi-structured interviews with individuals who would be able to represent different agencies and developers. These interviews were therefore undertaken with:

- a local authority planner,
- a county council transport planner,
- a representative from the port authority,
- a representative from the National Rivers Authority,
- a representative from English Nature,
- a representative of each of the developers.

All of these interviewees were asked to respond to a set of open-ended questions to try to ascertain their perceptions of the effectiveness of the consultation process, and of the strengths and weaknesses of the various developments. Interviews were recorded and subsequently transcribed

Documentary evidence was also collected and analysed. These data included records of planning meetings and approvals from the Local Planning Authority; copies of correspondence between nature conservation bodies, developers and planners and Environmental Impact Statements produced by the developers.

Site Description

a) The old refinery site

The redundant refinery site investigated was that of the old BP (Kent) refinery situated on the Isle of Grain in South East England. The refinery was one of the largest to close in western Europe, and its closure created one of the most extensive derelict sites, approximately 500 hectares (Pinder and Husain, 1988). The ex-refinery land is situated on the southern edge of the peninsula of the Isle of Grain, which is bounded by the River Medway to the south and the River Thames to the north. The entire southern edge of the site adjoins the Medway estuary and sea-wall defences run along its length.

The Isle of Grain is joined to the mainland by a narrow isthmus, either side of which are two large creeks. These creeks, with associated marsh and low tidal mudflats, are designated a Site of Special Scientific Interest (SSSI). They are important areas for wild birds, and are candidates for further designations as Special Protection Area and a Ramsar Site (British Gas, 1988; Nature Conservancy Council (NCC), 1988a).

A single carriage roadway crosses the peninsula to Grain village which is the nearest settlement to the refinery site (1.5 km distant from it's centre). The road bisects the site area and there is also a single-track railway which terminates at the former refinery site (British Gas, 1988).

b) The new developments

Planning permission has so far been given for three developments on the refinery site. All of these are large-scale projects which fall within Schedule One of the Regulations responsible for implementing the EC Environmental Assessment Directive (85/337) in the UK. All have therefore been subject of an Environmental Impact Assessment Process and Environmental Impact Statements have accompanied all three planning applications. Of the three developments, one is now fully operational, one is at the construction stage and one has not yet been started.

The development which is already fully operational is Thamesport. This is a modern, high-tech container and bulk handling port which occupies 87 hectares in the south west corner of the ex-refinery site. (It is in fact built on part of the old tank farm).

The second project on the site is currently in the construction phase. This development is of a 660 MW Combined Cycle Gas Turbine (CCGT) power station. The plant will comprise 3 turbines which will be fired by natural gas with oil as a standby fuel if the gas supply is interrupted (Trevor Crocker and Partners, 1991). The power station is being constructed in a plot of 6 hectares in the centre of the old refinery area.

The project which has received planning permission, but for which no development work has yet been undertaken, is a Liquified Natural Gas terminal, ie. a sea-port terminal for natural gas which has been refrigerated to –160 C. British

Gas, who hold the permission for this plant have bought 387 hectares of ex-refinery land, and they intend that the LNG terminal will occupy a 55 hectare plot bordering the south foreshore of the site (British Gas, 1988). British Gas also envisage that they may eventually build a Substitute Natural Gas manufacturing plant on part of the remainder of the site (ibid) but at present there are no formal plans for this.

Results

Two general points should be made at this stage:

1. All interviewees felt that the consultation processes for the various developments had ultimately been satisfactory, and that they had been able to put their views forward sufficiently. However, this level of satisfaction was not felt during the entire planning process.
2. Satisfaction with the final outcomes of the planning processes was generally high, but some concerns remained, especially with respect to certain types of environmental impact, to be discussed later.

Against this background therefore, the investigation indicated that the issues relating to planning control and consultation should be considered under 3 headings. These relate to:

a) controlling impacts on wildlife,
b) constraining impacts on the human environment,
c) the maintenance of air and water quality.

a) Controlling Impacts on Wildlife

This is important because of the proximity of the site to the SSSI and candidate SPA and Ramsar sites, and the potential for important wetland species to have become re-established following the refinery closure. The environmental statements for both the LNG terminal and Thamesport were initially criticised by nature conservation bodies regarding the inadequacy of their comments on wildlife interest. The Nature Conservancy Council (now English Nature), for example noted that the LNG Environmental Statement did not provide sufficient information for them to make an assessment of the nature conservation implications; that there were no considerations given to the habitats of the development site itself and that impacts of the development on the adjacent SSSI were not considered in sufficient depth (NCC, 1988a).

The Environmental Statement for Thamesport did give some consideration to the wildlife on the site but ignored the effects on the SSSI; "the environmental assessment has been carried out without reference to NCC, and contains only passing references to the SSSI. It concentrates on the habitats of the development site and discounts any significant effects beyond it" (NCC, 1988b).

Following the submission of these statements however, further consultation processes did help to relieve the situation, especially with respect to the LNG

proposal. In this case British Gas commissioned further Environmental Impact Studies and continued to consult with the Nature Conservancy Council. By 1992, when the company had to apply for a renewal of its previous consent, it had dealt with many of the Nature Conservancy Council's objections and agreed to further conditions which included the management of identified conservation areas on the LNG site, and a limitation of noisy construction activities to the summer months.

The investigation has revealed no evidence of such extensive consultation regarding the Thamesport development, although the Royal Society for the Protection of Birds (RSPB) objected to the planning application. The final approval did however, contain a condition to protect the SSSI from the disposal of dredged material from the river – one of the principal concerns of the NCC and the RSPB.

The Environmental Impact Statement for the CCGT power plant was submitted in 1991. This document contained descriptions of the ecology of both the site and the SSSI, as well as a fairly extensive discussion on the water intake and discharge system regarding its effects on the Medway and the SSSI. Following submission of the Environmental Statement, and consultation with nature conservation bodies, AES Medway did produce a comprehensive additional report which specifically addressed the concerns that English Nature and the RSPB had voiced. These included concern over the effect of noisy activities on nesting birds, and the danger of bird strikes on new transmission lines.

Following this consultation process, 48 conditions were placed on the planning consent given to AES Medway from the Department of Energy. These conditions included ones which met most of the environmental agencies' concerns. The new transmission line was the subject of a separate application and Environmental Impact Statement. This too was approved with conditions, which included the fitting of bird diverters to power lines to minimise the number of bird strikes.

b) Controlling of impacts on the human environment

In this context the investigation showed that control over traffic levels has been the principal issue regarding impacts of the developments on the human environment. In particular, concern has focused on the pressures put on the A228 (the road leading to the site) by the Thamesport container terminal.

The problem was brought to the attention of the County Surveyor when Highland Participants (the developers) submitted an Environmental Impact Statement with their planning application. The environmental Statement included a traffic forecast which predicted some 950 HGV and over 1100 LGV movements a day when the port was fully operational. The county surveyor felt that this volume of traffic would require a contribution towards road improvements from the developers of £13.5m, and that if this was not available, consent for the port should be refused (Kent County Council, 1988).

The developers claimed that this amount of contribution was unacceptable and, clearly there were strong economic pressures to allow the development to go ahead. These pressures were especially noticeable within the District Council, and following a joint meeting of district and county councillors in 1988, the development was

given approval on condition that Highland Participants entered a legal Agreement to pay the county council the smaller sum of £2.5m for highway improvements. This was done.

Conflict over this issue is not yet ended, however. No road improvements have been undertaken as yet and the developers are impatient. For example, a manager at the container port stated "We've had to stump up £2.5m for non-existent road improvements. They've been sitting on our money for 4 years."

Moreover, evidence from a separate investigation shows that local people are unhappy about the volume of traffic on the A228. A questionnaire of residents of Grain village found that 93% felt that there were too many lorries on the local roads. Additionally the economic argument for Thamesport had been lost as far as many of these Grain villagers were concerned – only 52% agreed or strongly agreed with the statement: "Thamesport is a useful provider of jobs to local people". This year, discontent with the traffic situation on the peninsula has intensified and there have been protest demonstrations at accident blackspots.

The problems associated with Thamesport seem to have influenced planing policy with respect to the later development of the AES Medway power station. Here, a financial offer toward road improvements was made by the company and was accepted by the County Surveyor. But in this instance a clause was included whereby the contribution would be returned if the highway improvement works were not undertaken within a 5 year time period.

c) Maintenance of Air and Water Quality

Although the planning system is not responsible for setting emission limits, it can exert some influence over issues relating to pollution. During the consultation process for the CCGT power station and the LNG plant, for example, The National Rivers Authority (NRA), English Nature and the RSPB expressed concern over the effect of water discharges Following submission of the AES Medway Environmental Impact Statement, some discussion about the actual impact of the warm water discharge was undertaken between English Nature, the RSPB and the developers. This discussion resulted in a planning condition being imposed on Medway Power to the effect that the heated water discharge had to be sited within the main channel of the Medway. This compares with AES Medway's stated intention in the Environmental Impact Statement merely to site the discharge point just below the lowest annual tide level (Rochester Upon Medway City Council, 1991).

In contrast to the power station development, the LNG plant would produce a cold water discharge into the Medway. This was given relatively little discussion in British Gas' original environmental statement, and no planning conditions relating to it were imposed. As with the nature conservation issue, however, British gas commissioned further studies into the effects of the cold water plume in the estuary, although this study was principally for their own engineering purposes (Sir William Halcrow and Partners, Ltd, 1991).

An important point which has been mentioned by the NRA, the RSPB and English Nature regarding the consultation process, is that applications for develop-

ments involving discharges to water are, typically, dealt with on an individual basis. These organisations note that there is a need to assess the cumulative impact of aqueous effluents in an estuary like the Medway, such as could be undertaken with an integrated estuary management plan.

The need for a more strategic approach to emissions of air pollutants from developments like that of the AES Medway CCGT power station has also been perceived. County council planners in Kent have explained that, in recent years, they have had to comment on several Environmental Impact Statements for developments with potentially significant atmospheric impacts. Planners at Kent County Council were concerned that no information was available to guide them in this process, especially in regard to the cumulative impacts of several individual atmospheric emissions. The council therefore, commissioned consultants to develop a model of air quality in Kent and of the potential impacts that new developments would make on this.

In the case of the AES Medway application, the council were able to use their model to assess the potential impact on the atmosphere, in a way which took account of other proposed developments in the area. The model indicated that the new power station would not increase levels of nitrogen oxides in the atmosphere too greatly. The county council could therefore inform the Department of energy that it approved the application (Kent County Council, 1991).

The Department of Energy itself also appeared quite keen to ensure air quality standards were maintained and it imposed a condition on AES Medway that air monitoring should be continued at locations around the plant for at least a month after operations began there. This monitoring system will help to ensure that the actual emissions are meeting the predictions used in the model.

Conclusions

In the case of the redevelopment of the Isle of Grain refinery site, the planning system has been able to offset some potential environmental problems. In this way a degree of the environmental gain obtained from refinery closure has been maintained. The fairly extensive consultation processes perhaps encouraged by the implementation of the EIA Directive were useful in achieving this.

At the Isle of Grain the principal successes of the planning system have perhaps been related to control over the impacts on wildlife. Here the initial concerns of nature conservation bodies have generally been taken on board either by the planners or by developers themselves, and significant compromises have been reached. At the Isle of Grain, this process may have been aided by the importance that national and international designations gave to the area.

The environmental impact over which the planning system was able to exert least control was that of road traffic pressure. Developers were able to offer a much smaller sum of money than was needed by the County Council to improve roads in the area. This, it seems, was because of the economic importance which was given to the development of a new container port in the area.

Increasingly, environmentally progressive councils like Kent County Council seem to be becoming involved in air and water pollution issues. Kent planners believe, for example, that the EIA Directive actually places a responsibility on them to consider air pollution implications.

The council's awareness of the importance of the cumulative effects of pollution is especially noteworthy. There does appear to be a need to consider many environmental issues in a more strategic light, and there have been calls for emphasis to be placed on Strategic Environmental Assessment (Therivel et al, 1990).

The idea of looking at environmental impacts in a more strategic, and perhaps holistic manner is vital, though if this is to be achieved, consultation processes would have to be yet more extensive. However, this is also necessary if a properly integrated, holistic system of coastal zone management is to be introduced to the UK.

References

BRITISH GAS (1988) Planning Application for a Proposed Liquefied Natural gas Importation Terminal at Isle of Grain, Environmental Statement.

GUBBAY, S. (1990) A Future For the Coast? Proposals for a UK Coastal Zone Management Plan, (Marine Conservation Society).

KENT COUNTY COUNCIL (1991) Report of County Planning Officer, Item B6, 26/11/91.

KENT COUNTY COUNCIL (1988) Report of Highways and public Transport Sub-Committee, Item No D13, 11/10/88.

NATURE CONSERVANCY COUNCIL (NCC) (1988a) Letter to Rochester Upon Medway City Council, 7/12/88.

NATURE CONSERVANCY COUNCIL (NCC) (1988b) Letter to Kent Trust for Nature Conservation, 7/10/88.

SIR WILLIAM HALCROW AND PARTNERS, LTD, (1991) Hydrographic Study of the Medway Estuary, Final Report.

THERIVEL, R. et al (1990) Strategic Environmental Assessment, (Earthscan Publications Ltd, London).

TREVOR CROCKER AND PARTNERS (1991) Environmental Statement for AES Medway Generating.

PLANT, TREVOR CROCKER AND PARTNERS in association with Merz and McLellan.

PINDER, D. AND HARCOMBE, S. J. (1994) Seaport Restructuring and Environmental Gain, (unpublished).

PINDER, D. AND HUSAIN, S. (1988) Deindustrialisation and forgotten fallow: lessons from Western European oil refining, in Hoyle, B. S., Pinder, D. A and Husain, M. S. (eds.) Revitalising the waterfront; international dimensions of dockland redevelopment, (Belhaven, London) pp. 232–260.

PINDER, D. A. AND WITHERICK, M. E. (1991) Port Industrialization, Urbanization and Wetland Loss, in Williams, M (ed) Wetlands: A Threatened Landscape, (Blackwell, Oxford), pp 234–266.

EXPERIENCE OF ENVIRONMENTAL PLANNING: PROBLEMS AND PROSPECTS IN HUNGARY

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Introduction

The implementation of environmental policy in practice is impossible without proper plan and projects. Therefore it is necessary to study the modernisation of both processes of environmental planning and environmental policy making. It is possible to study the connections between environmental planning and policy according from a range of perspectives. But at present the important conceptual issues can be taken as follows:

- The recent changes in the political and social life and economy in Hungary. Obviously, it is very important to follow these changes.
- The role and responsibilities of governments and local authorities have increased and they have formulated new requirements to solve their environmental problems through regional and land use planning.

The United Nations Conference on Environmental and Development, having met at Rio de Janeiro from 3 to 14 June 1992, reaffirmed the Declaration on the Human Environment and Development. This is based on Agenda 21. Chapter 28 of this deals with the tasks of local authorities. Accordingly

- by 1996, local authorities should have undertaken a consultative processes with their citizens, local organizations and enterprises, and adopted "a local Agenda 21";
- by 1994, representatives of associations of local authorities should have increased levels of cooperation and coordination with the goal of enhancing the exchange of information and experience among local authorities.

Above all, a fundamental question is, whether the region or the settlement has a declared environmental policy which can achieve its stated aims. The implementation of environmental policy and the efficiency of the environmental planning depend on many factors. Some of these are shown in *Figure 1.* The improvement of

the quality of life and natural or built-up environment are connected very closely with the practical treatment of the environmental issues through environmental planning.

Practical relations

(1) The origin of environmental problems

Most environmental problems are caused by the improper use of the environment and its elements (land, water, air, etc.). The technological and economic development of regions and cities neglected environmental and ecological aspects and this caused serious ecological and social problems. Nowadays, society and communities demand environment and ecology-conscious human activities and land uses in the cities and regions. Therefore the principles of sustainable development have to appear in regional and urban plans and environmental projects are needed in order to improve the quality of life and to decrease the disadvantageous affects on the natural and built-up environment.

In Hungarian decision-making and planning practice the common problems are :

- The improper treatment of environmental/ecological problems and predominance of the technical and economic aspects in decision-making and planning processes.
- The areas and tasks of environmental protection are regulated by governmental organisations and these are not integrated
- environmental/ecological processes, solutions to problems, and the sensitivity of ecological systems are not well understood. Therefore the efficiency of the planned interventions is very low.

(2) An advanced view of solutions environmental problems

The consequences of the technical-, economic-oriented treatment of environmental and urban problems are well-known. In Hungary, society, environmentalists, scientist and planners require an advanced view to develop environmental policy and to apply new methods of the regional and urban planning processes. Some important aspects of this are:

- Environmental ethics: to emphasize environmental and ecological interests in the development of human activities and to implement a long-term and responsible way of thinking in decision-making and planning.
- System-oriented planning: environmental, technical, economic and social problems are connected with each other. Therefore, solving one problem can

become the beginning of other environmental problems. For this reason, the investigation of system-sensivity is very important in planning processes.

- Application of up-to-date tools in decision-making and planning processes and establishing responsibilities for the implementation of plans.

For twenty years environmental planning has been an organic part of the Hungarian regional and urban planning system. Nowadays the modernization of the whole planning process became an urgent task. It is connected with the requirements of democratization, privatization, the market economy and international co-operation. Agenda 21 is a suitable basis to develop these new planning and decision-making processes.

Renewal of environmental planning

The preparation of environmental plans requires a huge quantity of data and information, and the evaluation of environmental/ecological processes, impacts and interactions. The main elements and interconnections of environmental planning are shown in Figure 2. This demonstrates the complexity of the framework of environmental planning processes within the regional and urban planning system.

It is well-known that planning is a multi-stage decision-making process and that a prepared plan is no aim in itself but is simply a tool for solving given problems. Environmental planning has to focus on the principles of sustainable development, the improvement, restoration and protection of environmental elements. Some important aspects here are:

- Integrated approach: evaluating data, information and environmental impacts and emphasizing environmental/ecological interests.

- Preparation of alternatives: demonstrating and clarifying relationships between alternatives to aid decision-making and showing the advantages/disadvantages of these alternatives.

- Clear principles and conclusions: to show the starting points and the requirements of plans, the responsibilities for action and the results and consequences.

- Public orientation: the basis of the social and public control of the plan. Previously planners made plans for planners and experts of local councils, and a wider understanding of plans was not required. In the future a well-prepared plan needs to be clear for all.

International co-operation, related to technical, economic and environmental topics is needed to apply the regulations, rules, norms and limit values of the European Union. Taking account of these, the renewal of the national environmental planning system needs to solve the following:

- To establish and to keep up to date a comprehensive and complete environmental data base. Access to this has to be guaranteed to end the monopolization of data bases.
- To promote the functioning of independent planning and expert organizations. To organize facilities for information dissemination, training and education (planning methods, environmental impact studies, computer aided planning, etc.).
- To manage the adaptation of regulations, rules, norms and limit values of the European Union to the Hungarian context (publications, advice, demonstrations, etc.).

Figure 1. Some specific aspects of environmental policy and planning

ENVIRONMENTAL POLICY	ENVIRONMENTAL POLICY
Principles/Strategy – aims – periods (short and long time) – tools (legal, economic, institutional)	**Experience/implementation** – regulation, rules – professional, practical
Methods – lows, regulations – technical, economic – social	**Processes** – regional plans – urban plans – environmental impact studies – studies for decision-making
Claims – suitability for implementation – real goals – wishes	**Claims** – suitability for realization (ecological, technical) – economic/financial – terms (long and short time)
Milestones for the decision-making – assignment directions – options	**Actual decisions** – – adequate plans – – studies to establish the decisions

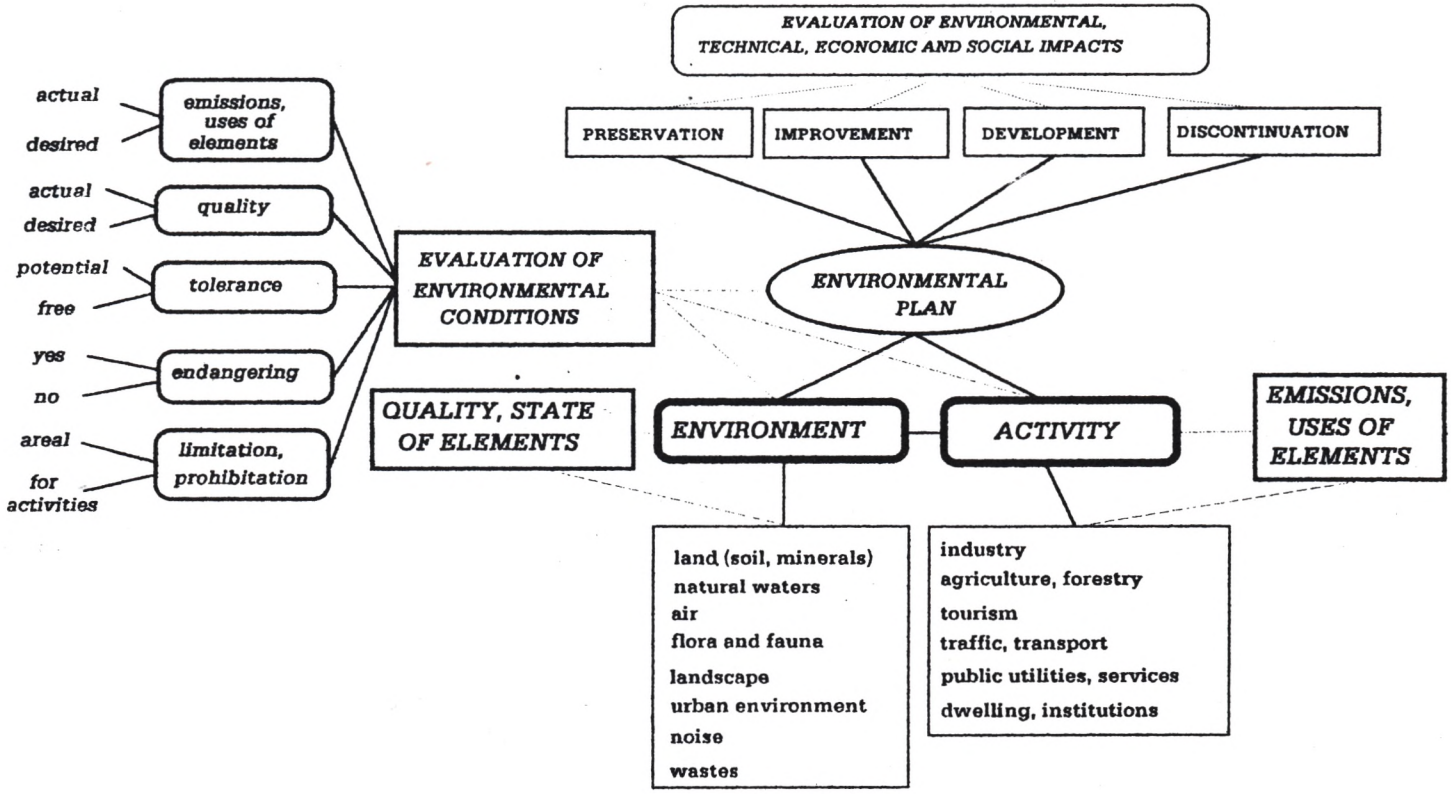

Figure 2. The elements and connections of environmental planning

REGIONAL PLANNING AND INFRASTRUCTURE PLANNING IN CATALONIA: INSTRUMENTS FOR ENVIRONMENTAL GAIN

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Summary

In Catalonia (Spain) there is increasing awareness of some aspects of environmental issues. In the Catalan government this is revealed by the creation of a Department of Environment in 1991. Whilst environmental goals are being pursued in part by a range of investment, charging and educational instruments, planning instruments are also (or could be) relevant. Two strongly differing types of instruments are examined here, to see how they have taken environmental issues into account, and what sorts of alternative approaches might be taken. The first is the Territorial Plan for Catalonia, in preparation since 1980 and published in draft in 1993. The second is an exercise in 'concerted infrastructure planning' in the Llobregat Delta, where the central, Catalan and local governments have agreed a common strategy for this heavily exploited area next to Barcelona. It is concluded that regional planning could be a useful instrument, with others, in future environmental strategies. However it is suggested that in future this would benefit from a more fundamental consideration of alternative 'socio-ecological projects' for Catalonia.

Introduction

This paper explores two intersecting issues. One is the *scale*, or level, at which actions can be taken on environmental challenges. The other is the *type* of instrument which can be useful for the same purpose. Both have been matters of intense debate, especially during the last 5 years, and especially in Europe (eg.

Jacobs 1991, Pearce 1994). The particular emphasis is on the role of planning instruments, and the scales examined are the local/metropolitan, and the regional.

The case studies are of Catalonia, a land which may be of special interest in some Central European contexts, given *some* similarities of political and economic conditions. In any case the issues of scale and types of instruments are matters which, in one form or another, are being confronted throughout Europe. Before the two planning cases are examined, the political, economic and environmental context of Catalonia will be presented.

The Context of Catalonia

Politics

Since 1977 Catalonia has been one of Spain's 17 'autonomous communities', with an increasing degree of self government. Since 1980 the Catalan government (the Generalitat) has been controlled by a centre-right Catalan nationalist party, Convergencia i Unió (CiU), led by Jordi Pujol. This party has consistently pressed for greater transfer of powers from the Spanish state, and in terms of expenditure it has had considerable success, with a now dominant position in education, health, planning and in some infrastructural and environmental matters. In taxation it is still largely dependent on Madrid, but this will be partly changed by the recent negotiations on the cession of part of one major tax; this has been made possible by the central government's dependence on CiU votes since the June 1993 elections.

The Generalitat's room for manoeuvre has been reduced especially by its being caught between two levels of government controlled by the Socialist party (the PSOE). Since 1982 the PSOE has ruled in Madrid. This means that it controls (as well as macroeconomic policy, taxes and most relations with the EC), significant elements of infrastructure programmes, particularly for rail, major roads, posts, airports and supra-regional water investment. In addition most cities and towns in Catalonia have been controlled since 1979 by the PSOE, or in some cases by (ex-) Communists. This has been particularly important in Barcelona city, which has formed a kind of 'alternative government' in certain respects, and in the Barcelona region. Thus the majority of Catalonia's six million population live in Socialist run municipalities, even though the great (rural) majority of the 943 municipalities are CiU controlled – most municipalities are very small.

Economy

Catalonia has long been the power house of the Spanish economy, producing about 20% of its output, and much more in some especially important sectors – chemicals, metal engineering, vehicles. This position was formed, or reinforced, in the boom years of the 1960s and early 1970s. Then, and again in the late 1980s, Catalonia became the most attractive region for foreign investment, especially in manufacturing and in tourism. Its economy is thus now highly dependent on

multinational companies, especially from Western Europe, but with some US and Japanese presence.

Catalonia is a prosperous region in Spanish terms (with the fourth highest income per head in 1990) but this is complemented by an unemployment rate recorded at 18% at the end of 1993. Its per capita GDP level is a little below the EC average, estimated at 91.7% of the average in 1990, about the same level as the English West Midlands or Scotland (Eurostat 1993). It was hit very hard by the crisis of Spanish industry from 1973 to 1985, and looks to be suffering seriously again in the crisis which has been developing since 1991–92. It is therefore in Spanish terms a rather special area, likely to shoot ahead on a mixture of foreign and domestic investment during booms, but liable to then suffer agonisingly during crises.

This has implications for the economic policies pursued by various governmental levels. Catalonia is seen by all as a 'strong player', but this strength is seen, especially within the Generalitat, as only secured by 'eternal vigilance', and as dependent on a continuous assertion of Catalonia's international openness to investment. The same attitude prevails, though with a more urban/metropolitan emphasis, in the place promotion of Barcelona city and its associates, expressed first via the Olympics project and then through its 'Barcelona 2000' strategic planning exercises (for the latter, Marshall 1990, for the Olympics, Marshall 1992).

Environment

Catalonia's rapid economic growth since 1960, on the basis of an intense and lengthy industrialisation (since the mid 1700s), created major environmental impacts. Some of these may be judged as generally beneficial for the increasing human populations of the country – the creation of cities, the formation of transport, energy and water systems, the accessibility of areas of recreation (coast and mountains); all of these are, after all, impacts on the environment, even though they are often not counted as such, in their positive aspect.

The negative impacts have been assessed more consciously, especially since the 1970s (eg. Folch 1976). Catalonia has (or had) many fragile and vulnerable ecosystems throughout its extraordinarily varied territory. Many of these have been damaged extensively – soils, vegetation, fauna, watercourses and aquifers. In addition the Mediterranean, locally and more widely, has suffered from Catalonia's contribution to its waters. The same could be said of its share in wider atmospheric problems, although here the absolute quantities cannot be regarded as large.

This environmental damage, spread over most of the territory, has been especially significant in the areas of intensive urbanisation, industrialisation and of modernised agriculture – above all in the Barcelona conurbation, on the tourist coasts and in the Tarragona petrochemical complex. Consciousness of the damage has been particularly intense in some celebrated cases, generating long term campaigns – to protect the wetlands of the Empordà and the Ebro and Llobregat deltas, to improve the 'open sewer' watercourses of the Besòs and other rivers, to preserve parts of the Pyrenees and other mountain systems from quarrying and

waste dumping and to prevent forest damage from one especially unhealthy Pyreneean coal fired power station (Cercs).

These campaigns through the 1970s and 1980s were led by a number of environmentalist groups (more recently by a coalition grouped in DEPANA), who could call on a broad public support at moments of crisis, but which do not have a continuing base as large as that in northern European countries. Nevertheless their pressure, and the fiasco of a failed plan to deal with Catalonia's industrial wastes, led to the creation of a Department of Environment in the Generalitat in 1991 – ahead of Madrid and any other Spanish autonomous community. Awareness of global, regional and local environmental issues is no doubt higher in Catalonia than most other parts of Spain, even though this awareness is highly selective and variable, in time, space and by topic.

Goals and Instruments

Goals

All of the levels of government are, in broad terms, primarily concerned with 'developmentalist' objectives. That is to say, their main worries are about securing increased economic growth, via private investment, and they see this as dependent on large scale infrastructural spending, above all on transport systems.

In central government these concerns are expressed mainly in the Plan Director de Infraestructures – PDI –, produced at the start of 1993 but not yet passed as a law (Ministerio de Obras Publicas y Transportes – MOPT – 1993A). This plan provides a sophisticated analysis of infrastructure's importance in Spain's economic policies, and details a range of investment programmes, in most detail for roads and for water supply infrastructure.

There are some environmentalist goals within central government, albeit in a subordinate position. Thus the PDI has assessments from an environmental perspective of each of its sectoral programmes. The Madrid ministry added 'Environment' to its title in summer 1993, so that its title is now MOPTMA.

These goals and plans dovetail broadly with those of the Generalitat. Its programme and overall political stance are clearly economy-led, although the nationalist concern for Catalonia's culture and territory can sometimes lead to conflicts between developmentalist and environmentalist approaches. This is officially dealt with, as it is in Madrid, by the ubiquitous late 80s/early 90s faith that economy and environment are mutually supportive and that therefore conflicts cannot be real. This is backed, again at both levels, by a discourse which stresses European/international values of clean living, apparently a kind of yearning after the Swiss model of wealth (without much yearning for Swiss culture).

Municipal goals are similar to those higher up, especially in the aggressive place marketing of Barcelona city. However, there is in most municipalities a greater concern for social objectives, as a secondary theme, which can on occasions lend support to more environmentalist positions. This is especially noticeable in the few

councils still controlled by Iniciativa per Catalunya (ex-Communists, PSUC), for example in Sabadell and El Prat del Llobregat – the latter features centrally in the second case below.

Instruments

The main instruments used by the Generalitat and municipalities, in the last 15 years or so, to secure environmental goals, have been the traditional ones:

1) *Urban Planning* – controlling the local placing and arranging of uses, and intervening to rehabilitate degraded areas. This has been the great success story of environmental policy – even though it is not called that. It has been led by the municipalities, but given strong backing by the Generalitat's Directorate General of 'Urbanisme' (see Keyes et al 1993 for a general account).

2) *Infrastructural investment*, primarily in water and sewage treatment plants, under the Pla de Sanejament, approved in 1982. Many of the rest of such (mainly public) investment programmes have been of uncertain environmental value: the expansion of road capacity, water supply, ports and airports has been matched by a much weaker emphasis on the management of water or energy demand (via pricing, recycling etc.) or the investment in renewable resources.

What of the other instruments that *might* be used? Some of these have more recently come into the picture, since the formation of the Generalitat's Department of Environment:

1) *Charging* was introduced for waste water treatment under a law of 1981 and is intended to cover much of the cost of the investment programme (Departament d'Industria i Energia 1992). The Generalitat favours in principle increased use of charging mechanisms, although there are political as well as practical obstacles.

2) *Education and persuasion* have played a larger role in the last 3-4 years, with high profile campaigns on recycling, particularly of batteries. This is supported by initiatives to increase the range of environmental programmes in universities.

3) *Industrial policies* have so far probably been touched mainly at the level of discussion, with the Generalitat promoting conferences on 'clean production' and with extensive debate (but so far little investment) on the industrial waste issue, since 1989 (see Isla 1992).

4) *Environmental Impact Assessment* was introduced, in line with EC requirements, in 1988, but appears to be taking some time to be effectively incorporated into the planning and investment systems; at any rate environmental groups like DEPANA have been consistently critical of the practice of most EIAs, especially in relation to quarrying and road schemes.

5) *Regional planning* might seem to be a potentially significant weapon in controlling or mitigating environmental impacts, given that Catalonia began its 'territorial plan' in 1980. However its effect so far has been limited, as will be explained below.

There are of course other instruments which could be used for environmental purposes. It has been argued (eg. Jacobs 1991) that *which* instruments are used is more a pragmatic than a general (or even ideological) matter. The best instrument is seen to depend on the context and goals, and combined use, in varying forms, will often make most sense. This may be reasonable in principle. But in practice the widespread weakening of public planning instruments is often more than just a 'pragmatic' decision, and may also lead to a loss of ability to achieve the most important environmental goals, as well as social justice objectives. Regional planning and public investment planning may be vital in this respect.

In the belief therefore that established (or reformed) physical planning procedures may be of considerable importance for a socially just environmentalism, the following case studies are presented. The first is on regional planning, the second on *one* aspect only of urban/metropolitan planning – but an aspect which may be of some significance to improve the already strong record of Catalan urban physical planning.

The Catalan Territorial Plan

The regional plan for Catalonia (Pla Territorial General de Catalunya – PTG), begun in 1980, was issued in an advanced draft state early in 1993 (Generalitat de Catalunya 1993). After 6 months of 'institutional' discussion (open to local authorities), it was revised in response to comments received and was due to enter the Catalan Parliament in June 1994. Elsewhere an account has been given of its long gestation, the political and profession influences behind its content and the public reactions to the 1993 draft (Marshall 1994b). Here the aim is only to relate the plan to environmental issues. The assessment will be largely critical, but the point is to understand the plan in relation to the Generalitat's goals, and in relation to other *possible* agendas for planning Catalonia.

Time Scale

The plan adopts a relatively remote target date, 2026, and proposes a distribution of population by (sub)regions for this year, on the assumption of a particular population total (the distribution is shown on Figure 1). In principle this attempt to look forward more than a generation would appear to be environmentally beneficial. It is true that economic activity is not given target images in the same way as demography; but it might be claimed that a guidance of the space economy is implicit in the settlement strategy. The plan's critics have said that the target date is quite unrealistic, as no instruments are put in place which could secure the goals proposed. Nevertheless the longer time scale, which seems to derive from one side of Catalan nationalism's (especially Jordi Pujol's) project of 'fer pais' (making the country), could *potentially* fit with a more ecological planning framework.

Overall Developmentalism

In fact, the plan is primarily one for growth and development throughout much of the territory of Catalonia. This is so in terms of the provision of infrastructure, particularly of roads and of new supply systems for water and gas. It is also shown in the assumption on population increase, from 6 to 7½ million in 2026. Whilst it is stressed that this is *only* an assumption, it does broadly structure expectations of required urbanisation, and particularly the strategy for adjusting slightly the weight of the country away from the Barcelona conurbation. This is proposed at two levels, firstly within the metropolitan area and secondly within the country as a whole (Figure 2). In both cases the aim is to direct as much of the increase as possible to growth poles near the coast; the Barcelona region would still grow, but less than in a 'no intervention' scenario.

In general terms the model proposed is for a country with greater environmental impacts, from transportation, urbanisation and leisure activities. No doubt the Generalitat does have aspirations to balance this by means of cleaning up measures, both in production and consumption, so that the environmental impact coefficient (Jacobs 1991) is lower than it would be otherwise. But in terms of this particular instrument, the plan is oriented *primarily* to managing or promoting development, not considering the development – environment balance as a whole.

Areas of 'Environmental Gain'

Nevertheless there are parts of the plan which show the effort made to incorporate some environmental features, no doubt in part due to the pressures from the Department of Environment since 1991.

In one respect this stems from an earlier phase of the plan, when it was decided that a separate subject plan would be made for 'areas of natural interest' (Pla d'Espais d'Interes Natural – PEIN). The plan was finally approved in 1992, and designated about 20% of Catalonia as protected spaces – including various kinds of national parks and smaller zones. Whilst welcomed as a first step, this plan was criticised by environmental groups as only creating a set of islands and leaving the other 80% of the country implicitly available for development. The PTG responds to these criticisms by including a set of norms for a wider definition of spaces to be protected. These could come into many different (and probably overlapping) categories:

- of intrinsic value (in the PEIN, and for areas linking PEIN areas);
- of agricultural or forestry value (defined very broadly, starting with land carrying crops with denominations of quality and origin);
- of value as 'green lungs' near to intensely built up areas;
- of historic or cultural value;
- of value in ways defined by sectoral plans – on the coast, next to rivers, around infrastructure corridors.

In order to implement these norms, the PTG proposes some general directions:

(1) to classify all these spaces as 'non-urbanisable';
(2) to initiate the preparation by the relevant agencies of sectoral plans (agricultural, forestry, cultural heritage);
(3) to ensure that EIA was always applied in any significant cases in these areas;
(4) to develop 'parcs comarcals' (county level parks) which would protect more locally significant spaces;
(5) to treat the whole set of spaces as an integrated network;
(6) to work towards the 'progressive deprivatisation' of protected spaces, or establish compensation for the owners.

It can be seen therefore that the initial framework has been formed for treatment of protected land; what is missing is the development of that framework. Environmental measures are, beyond this issue of protected land, treated only in passing, with phrases such as "the objective is to make economic/development compatible with environmental protection... they must complement and strengthen each other" (PTG 1993 M.107).

An important extra feature of the plan, however, which gives potential scope for extra environmental leverage at a later stage, is that numerous subsequent plans are proposed, either sectoral (such as for ports, agricultural land, health provision etc.) or regional (for 6 subregions of Catalonia). One of the regional plans, that for the Barcelona region, has been in preparation for several years (Marshall 1993). Whether the other plans are produced depends on the PTG's fate and subsequent politics. But they would give opportunities for a subsequent 'greening' of both sectoral and regional development, allowing more developed ideas of sustainability to be introduced.

Alternatives

Most of the plan's critics focused on its alleged shortcomings in economic and physical terms, arguing that it was not capable of delivering the anti-metropolitan pattern it was perceived as promoting. A shorter timescale, backed by more sophisticated economic guidance, was generally recommended. However a few commentators also objected to the lack of environmental content in the plan. Thus the official 'Council for Nature Protection' considered that the absence of 'sustainable development' as an orienting goal and the very limited attempts to define protected land further and weigh up the conflicts between development pressures and nature support made the PTG a far too weak instrument, which required major revision (Consell de Protecció de la Natura 1993). The federation of Catalan municipalities (those of parties other than CiU) also argued that planning must extend to the basic resources of the country – water, energy, minerals, forests – and that it must link in this respect (as well as economically) to adjoining territories (France, Aragon etc.). It demanded "a future pact of Catalan society with its own territory and environment" (Federació de Municipis de Catalunya 1993 page 1). The commentary of Iniciativa per Catalunya (1993), the ex-Communists, was even more insistent that the plan was a "developmentalist" one (the word has overtones in Spain of the uncontrolled urban extensions of the Franco period). It argued that the

infrastructure developments, especially of the port, airport and the water transfer proposed from the river Ebro to Barcelona, were not justified, whilst public transport was given no priority. The growth poles along the coast to 'rebalance' Barcelona were rejected as continuing the misguided trend of filling up the whole coastal strip of Catalonia. Finally DEPANA, the nature protection alliance, argued that at least the plan should respond to the very special topographic and ecological features of Catalonia, compared with most European regions which have a more homogeneous character. DEPANA felt the PTG should be converted into a "Plan for Sustainable and Balanced Development" (DEPANA 1993).

There are therefore some in Catalonia who would like to see regional planning used for more environmentalist purposes. The pressure is coming broadly from the left of the political spectrum, from those who are more prepared to consider regional economic strategies than is the present CiU administration. But the criticisms do not in the main go into much detail as to what alternative territorial model or strategy they might propose – leaving a relatively easy path for the Generalitat, in that they are unlikely to feel obliged to justify their choices or revise the PTG, beyond some limited modifications. The plan is largely what one might have expected from the economic and political goals described above – with the interesting extra twist of the long time horizon and some at least superficial aspirations to hand on the country in a better state to future generations. Both of these, it is suggested, are the result of the nature of Catalan nationalism – and the achievement of either is made unlikely by that nationalism's current CiU form. This interpretation will be developed further after looking at the second case.

The Llobregat Delta – Metropolitan Infrastructure 'Concertation'

The other planning exercise to be examined here began in 1991 and reached an initial conclusion in early 1994. It has also been described in detail elsewhere (Marshall 1994A), and will be examined here only in broad terms. It is quite different from the PTG, in that it covers only a few square miles, adjoining Barcelona, and is intended to locate and programme mainly infrastructural investment in this area for the next 20 years or so. The area is in many ways a key one for Catalonia, and for Spain, in that it includes Barcelona port and airport, as well as the transport links to these. But these are located in a rich agricultural zone with some small remaining wetlands. There is therefore an opportunity here to make a very concrete intervention in the balance of economy and environment – and the present scheme does reflect fairly well that balance as generally conceived in Spain. Whilst the PTG was prepared before 1993 essentially *within* the Generalitat, by a small team fairly insulated from public and political debate, the Delta exercise has had to take into account differing institutional viewpoints from the start. It will be seen though that this has not taken it outside the more or less hegemonic 'developmentalist' framework of Spanish and Catalan politics, despite some interesting minor challenges to this hegemony.

The leading actor in this case is the Madrid ministry, led by the Catalan Josep Borrell. On his appointment as 'infrastructure supremo' in 1991, with a merger of

the public works and transportation ministries, he decided that a much more coherent planning and programming framework was needed. This resulted in the Plan Director de Infraestructures (PDI). This plan included proposals for six key zones where the government considered that special coordination exercises were needed: two in Madrid, one each in Bilbao, Seville, Valencia and Barcelona (the Delta).

In the case of Barcelona such an initiative had been encouraged by circumstances which had been simmering for many years – certainly since the mid 1960s when a demonstration took place in El Prat del Llobregat against the government's proposed diversion of the Llobregat river. In the later 1980s the municipality of El Prat came to be a regular thorn in the side of the port authority, intent on expanding its activities with distribution and logistics centres, and of the airport planners wishing to modernise and eventually expand the airport. For a long time El Prat had suggested that a concerted approach was needed to these problems, with far greater attention given to environmental issues of all kinds:

- the improvement of the beaches and sea quality;
- protection of the remaining wetlands;
- protection of the (much contaminated) aquifers;
- control of airport expansion and of its noise impact on El Prat and other residential areas;
- protection of good agricultural land from development;
- avoidance of the Llobregat diversion, which was regarded as unnecessary and ecologically damaging.

Where did this type of environmental concern come from?

Clearly in part it was a matter of local self interest. One third of the municipality's land area had been consumed by the airport (expropriated by Madrid); it looked as if more would go for the same purpose, and now yet more for the port. Other `selfish' motives were important, such as the demand that the airport (and perhaps later the port) pay local taxes. But there were also more complex processes at work. El Prat's mayor was a member of Iniciativa per Catalunya (IC), and ruled with other parties' support until 1991. In that year a hard fought election gave IC outright control, on a platform stressing above all environmental issues, against other parties' more developmental stances. In part IC's position stemmed from a long, historically inbred understanding of the importance of *local* natural resources – the soil quality, the importance of the aquifers – especially industrially, in a municipality where most workers were in large water-using factories like the textile or paper works. Through the 1980s environmental education programmes were developed which brought school children (and others) from all over Catalonia to see the delta's wetlands (not easy, as they are still privately owned).

In addition IC, like the Spanish 1980s left generally, was increasingly influenced by ecologist currents. In El Prat this was in part magnified by the above local circumstances, in part modified by a strong strand of developmental or job creation priorities – symbolised in the 'Mas Blau' tertiary centre propelled by the council from the mid 1980s. IC's victory in 1991 (when the ex-communists were elsewhere falling back) suggested that Madrid could not just push aside El Prat in its wish to

develop the delta. In addition the ministry was itself taking on some green positions, if very hesitantly, as was the Generalitat. The time was thus ripe for the attempt at making a deal between the three levels of government – including in this Barcelona city, with their heavy infrastructural drive embodied in their 'Barcelona 2000' strategic plan.

On the core issue of the river diversion neither ministry nor Generalitat were to be shifted and in early 1994 El Prat backed down on this issue. It should be stressed that both central and regional governments considered the delta as an absolutely vital location. The ministry argued that the delta would be a centre of the first strategic level for southern Europe, a key articulating node of Spain with the rest of the Mediterranean, Europe and the whole world (via Suez), a "logistical platform" (MOPT 1993B). The proximity of port and airport, with good transport links in all directions (high speed train, motorways), was seen to constitute a highly valuable competitive factor in post 1992 Europe. In addition the project was seen as a new focus for planning, post the Olympics drive, filling a need for new 'grand projects'.

The agreement signed in April 1994 by the municipal, regional and central governments lay down a tight programme of investment for the late 1980s, to be guided by a Monitoring Commission. This Commission was made up of 5 central, 5 regional and 6 municipal representatives. Figure 3 shows the main elements of the package. The agreement was broadly for major development of roads, port and (in the long run) airport, but promised protection of the wetlands, a water purification plant, and that in the future the port and airport would pay local taxes. El Prat's demands can be seen as only a green *modification* of the hegemonic developmental conception of Barcelona's role in Catalonia and Spain – as a distribution centre, a manufacturing pole (especially of cars, and chemically related sectors) and a tourist focus. IC, at least in El Prat, were not demanding a rupture, a new development path. But even so, El Prat has been radical in its insistence that on *local* issues the state should finally *act* and wield its power to overcome the degradation which has ruled the area throughout the twentieth century. It remains to be seen whether the necessary planning and investment decisions will be forthcoming, on this level.

On the broader issues, at the scale of CO_2 emissions (and hence transport systems), forms of food production (use of farmland) and the appropriate bases of Catalonia's (and Spain's) economy, the concertation exercise will only give very limited satisfaction to green aspirations. The major investments will be in roads, the airport (for expansion from the present 9 million to 40 million passengers in 2015–20) and the port, with only secondary amounts for rail and environmental renovation. The port and rail investments could well be helpful, or at least adaptable, for ecologically sound developmental paths later in the next century. The same seems unlikely to be the case for roads and airports.

Of course the PDI, and the Generalitat (and Barcelona city) are planning for at the *most* one generation in advance, in general, and so longer term issues are unlikely to be seen as relevant. From the point of view of getting good value for public money, many consider impressive that the state has pulled together investments within a constrained and difficult territory, with some consciousness

for local ecological relations. This overcame years of uncoordinated planning by sectorised public agencies and conflicting tiers of government.

Conclusions

The Catalan regional plan (PTG) and the L'lobregat delta planning exercise are very different animals, with quite different processes, actors, trajectories and relations to environmental change. The delta exercise is the one which fits best into current planning approaches, being of mainly shorter duration, focused on a specific problem (transport infrastructure), and localised. In a modest way, it would make some environmental improvements, if implemented, although its overall environmental impacts would be much less obviously beneficial. In one respect though the exercise is not within 1990s fashions, as it is a firmly public sector led exercise, involving mainly public investment (most core infrastructural investors still depend directly on the Spanish state; of course this may change). In addition it gives some decision making access to democratically elected bodes, and to a limited extent, to public debate. Its strength and that of the PDI as a whole lie in part in this unfashionably social – democratic étatist style, which may indeed give Spain (and Barcelona especially) competitive advantages into the next century – on the back of the heavily state-managed Olympics project.

In this we see one difference from the PTG. Here is a potentially long term, coherent regional planning exercise, begun in a burst of nationalist enthusiasm in 1980, which united much of the political spectrum. But under a centre-right, anti-economic-interventionist Generalitat, the plan, whilst retaining some of its aspirations, has lost most of its potential instruments; those still publicly controlled are mostly held by the Madrid state. Any attempt to imagine some long term economic-environmental path for Catalonia has therefore been virtually impossible. This has not precluded some effort to respond to environmentalist demands on land and nature protection – though even this has fallen far short of these demands. But the chance to consider fully the use of the natural resources of this newly autonomous and partially "liberated" nation has not been taken. Or, if this *has* been implicitly considered, the choice has been firmly for a continuation of the standard developmental model. This need be no surprise. It is clear that other paths are not easily available, at this scale and within this framework, in the global or Euro competition of the 1990s. This is however in part an issue of broad ideological direction, of considering alternative "socio-ecological projects" (Harvey 1993). What environmental, economic and social relationships should Barcelona and Catalonia develop, between themselves and within their 'hinterland'? Is their hinterland mainly Spain (as in the autarchic and desperate 1940s) or Europe (as in the more recent and mainly happier decades) or wider spheres (the growing dependence on Algerian gas and on remotely controlled corporations for example)? Is a less energy intensive and natural resource damaging path *conceivable*, within any democratically agreeable project – or is that only an outside projection from long rich north European countries? At first the answers seem easy – there is no alternative to the high energy path. But at some stage various sorts of resource addictions and

dependencies may have to be changed; countries like Catalonia which may conserve useful 'cultural capital' in terms of hydroelectric resources, only partially damaged soils and more intangible psychological or cultural characteristics, *may* be in a position to at least take some longer term protective measures now, even while continuing on the current rather risky globalist path. An open, social, nationalist ideology might be *one* frame of ideas which could govern the emergence of such a regional sustainability path. Catalonia has some facets, historically, which could provide fertile ground for such an ideological shift, beyond the current limits of Pujol's Catalanism.

Returning to the present, there are still hints that as an instrument regional planning may be serviceable for future sustainability purposes. Catalonia has a developed planning culture, from Barcelona's nineteenth century planning onwards, and the delta exercise looks to be showing that public agencies and government tiers *can* work together for rational purposes, and, in this case, for *some* environmental gain. The level of Catalonia, and large subdivisions of it, constitute good scale levels for tackling many environmental issues (better for many purposes than that of the delta exercise, for example, or Barcelona city). (Clearly some of these issues have to be resolved, or at least targets set, at much higher levels of governing). If the PTG is approved, sectoral and (sub) regional plans might then be set in motion and these could benefit from the wealth of professional experience at municipal level and from the enthusiasms of environmental and other interest groups. *If* a sustainability agenda is to emerge in Catalonia in the coming decades, the regional planning process set in place by the 1983 law (PTG, regular plan reviews, sectoral plans) could then become an important mechanism for guiding the environmental (which means social-economic) future of this changing European national community. Regional planning would be a necessary spatial complement to the other instruments (charging/taxing, investment programming, educating/persuading) of environmental policy.

References

CONSELL DE PROTECCIÓ DE LA NATURA (1993) *Dictamen sobre el Pla Territorial General*, Report of July 1 1993, Barcelona.

DEPANA (1993) "El Pla Territorial General de Catalunya – Reflexions sobre el Projecte", *DEPANA en Acció*, No 3/1993, magazine of "La Lliga per a la defensa del patrimoni natural".

EUROSTAT (1993) *Basic Statistics of the Community* (Eurostat, Luxemburg).

FEDERACIÓ DE MUNICIPIS DE CATALUNYA (1993) "Allegació al Pla Territorial General de Catalunya", *Dossier*, No 5, 9 July 1993, FMC, Barcelona.

FOLCH R ed (1976) *Natura, us o abus, Llibre Blanc de la Gestió de la Natura als Paisos Catalans*, Barcino, Barcelona.

GENERALITAT DE CATALUNYA (1992) *L'Energia i L'Aigua (Quaderns de Competitivitat)* Departament d'Indústria i Energia, Direcció General d'Indústria, Barcelona.

GENERALITAT DE CATALUNYA (1993) *Projecte de Pla territorial general de Catalunya*, Departament de Política Territorial i Obres Públiques, Direcció General de Planificació i Acció Territorial, Barcelona.

HARVEY D (1993) "The Nature of Environment: The Dialectics of Social and Environmental Change", in *The Socialist Register 1993* ed R Miliband and L Panitich, Merlin Press, London.

INICIATIVA PER CATALUNYA (1993) *El Pla Territorial General de Catalunya* Iniciativa per Catalunya, Grup Parlamentari, Barcelona.

ISLA M (1992) *La Protecció del Medi Ambient (Quaderns de Competitivitat)* Departament d'Indústria i Energia, Direcció General d'Indústria, Barcelona

JACOBS M (1991) *The Green Economy*, Pluto, London.

KEYES J, MUNT I AND RIERA P (1993) "The Control of Development in Spain", *Town Planning Review*, Vol 64, No 1, pp 47-63.

MARSHALL T (1990) "Letter from Barcelona", *Planning Practice and Research*, Vol 5, No 3, pp 25-28.

MARSHALL T (1992) "Of dreams and drains", *Town and Country Planning*, Vol 61, No 1, pp 78-80.

MARSHALL T (1993) "Environmental Planning for the Barcelona Region", *Land Use Policy*, Vol 10, No 3, pp 227-240.

MARSHALL T (1994a) "Barcelona and the Delta", forthcoming, *Journal of Environmental Planning and Management.*

MARSHALL T (1994b) "Regional Planning in Catalonia", forthcoming, *European Planning Studies.*

MINISTERIO DE OBRAS PUBLIQUES Y TRANSPORTES (MOPT), (1993a), *Plan Director de Infraestructuras*, MOPT, Madrid.

MINISTERIO DE OBRAS PUBLIQUES Y TRANSPORTES (MOPT), (1993b), *Directrices para el planeamiento de las infraestructuras del Llobregat*, MOPT, Madrid.

PEARCE D (1994) *Blueprint 3*, Earthscan, London.

Figure 1 Population Distribution: Proposal for 2026
Source: Projecte del Pla Territorial General

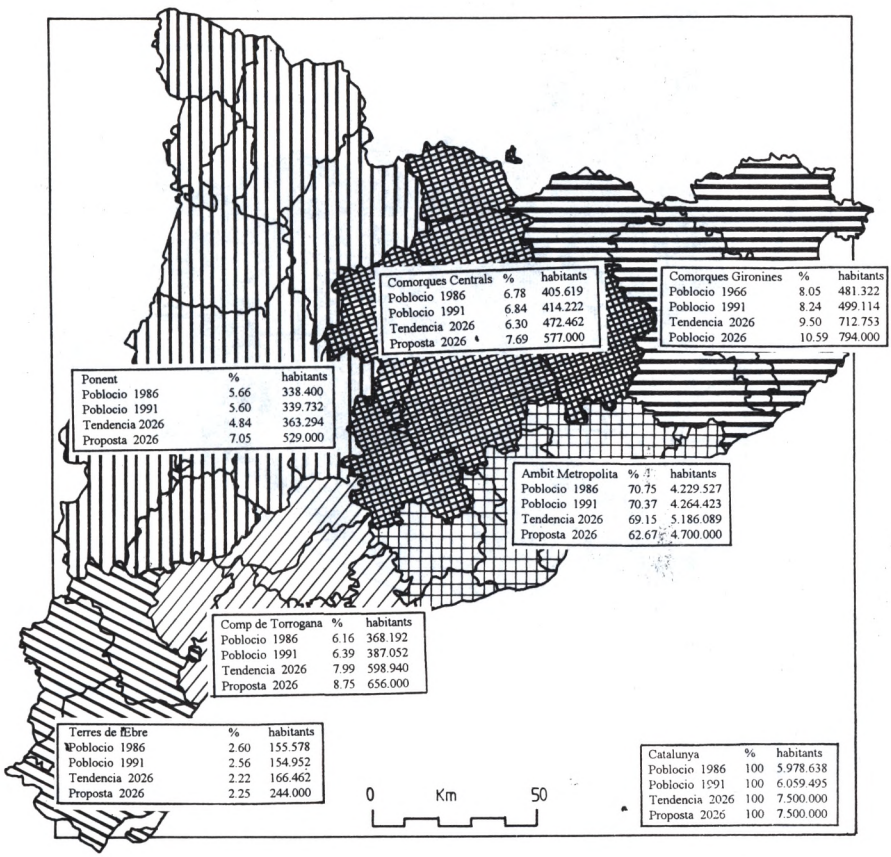


Figure 2 Growth Points to Rebalance Catalonia
Source: Projecte del Pla Territorial General

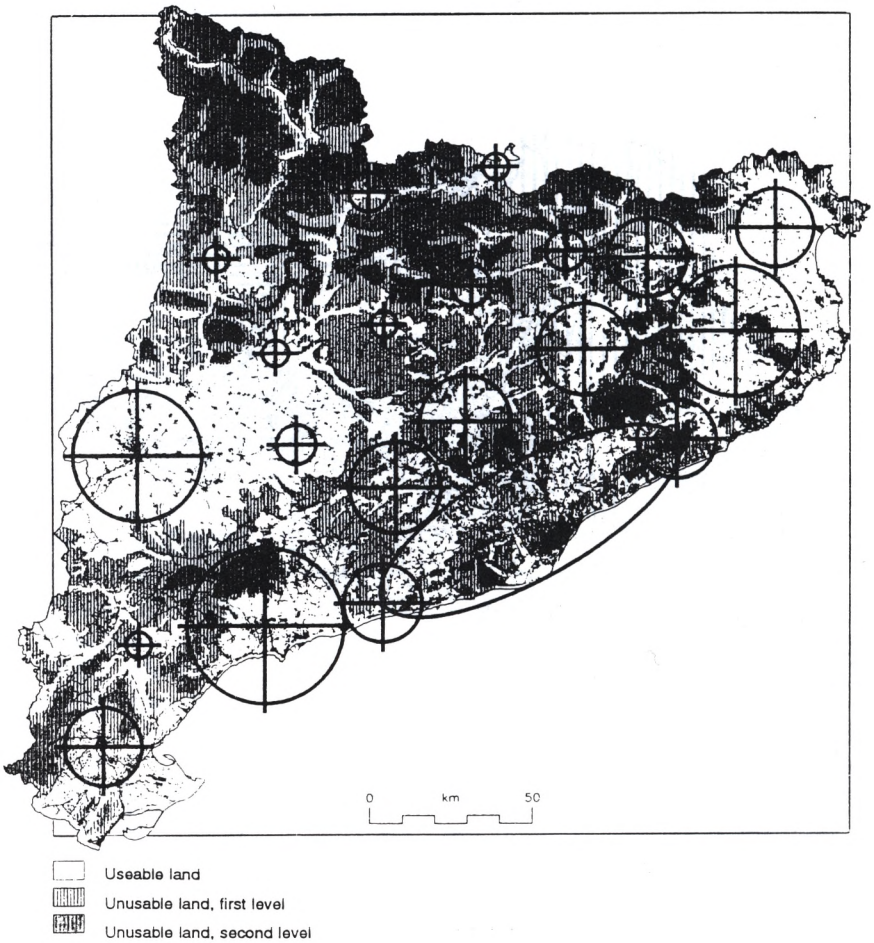
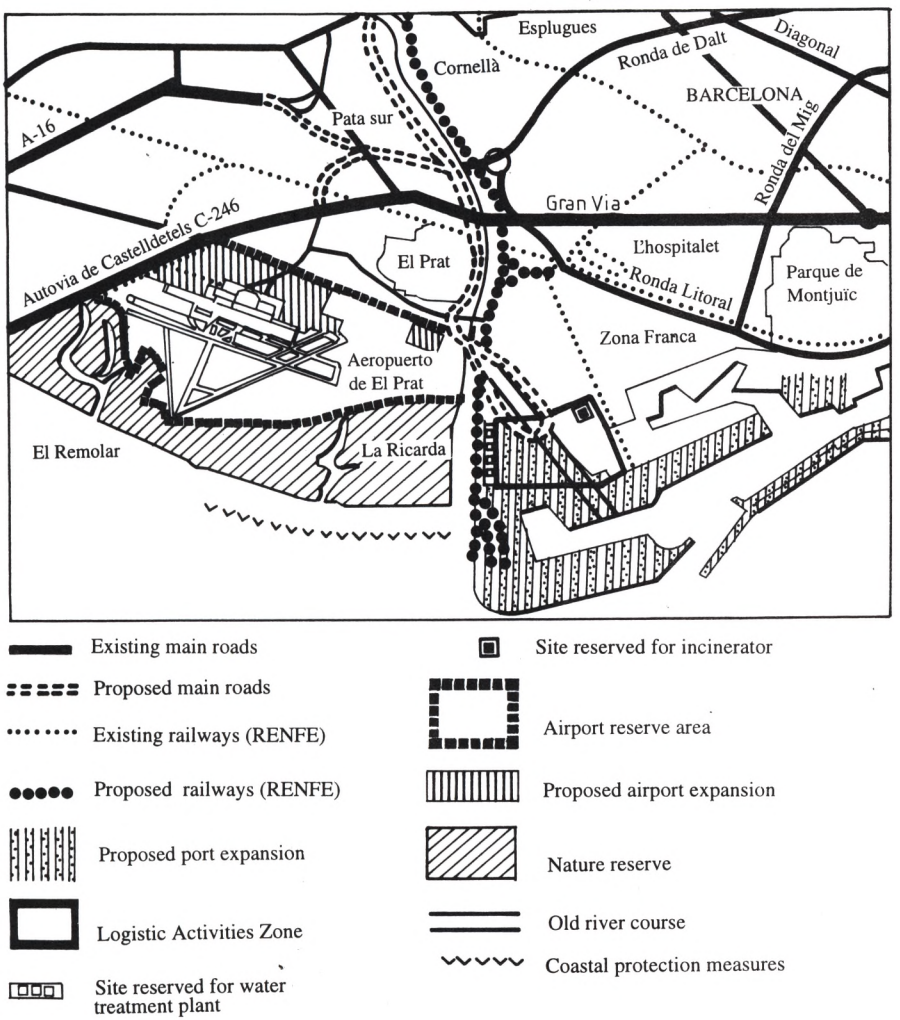


Figure 3 Proposals for the Llobregat Delta, April 1994
Source: Derived from "El pais" newspaper, April 17 1994



III Rural Environments and Landscape Protection

ENVIRONMENTAL MANAGEMENT AND SUSTAINABLE TOURISM: A CASE STUDY OF PROPOSED NOTRANJSKI NATIONAL PARK AND NOTRANJSKA KRAS BIOSPHERE RESERVE, REPUBLIC OF SLOVENIA

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Summary

The aim of this paper is to explain the challenges and opportunities that arise from the development of environmental management policies related to the designation of new National Parks and Biosphere Reserves. In order to assess actual experience with this form innovative environmental management, the case study of Notranjski National Park and Notranjska Kras Biosphere reserve in southern Slovenia will be examined. Notranjska Kras takes its name from a resident classical limestone landscape, a terrain of caves, sinkholes and complex hydrology which hosts both a unique human culture and complex natural ecosystems. The case study area is located in the south of Slovenia and includes the Municipalities of Ilistra Bistrica, Postojna, Cerknica, and Logatec. It covers an area of 1 672 square kilometres, and supports 60 000 inhabitants in some 272 settlements. Park and Biosphere Reserve designation is being sough by area residents as a means of preserving the region's rich cultural and ecological resources, and towards the building of a sustainable regional economy.

Introduction: A Profile of Slovenia

Slovenia is a newly independent nation situated at a cross-roads of Europe – between Austria to the north, Italy to the west, and Croatia and Hungary to the east. The country is relatively small in size at 20 251 square kilometres, and has a

population of approximately 2 million people. Slovenia is located at a convergence of The Alps, the Dinaric Mountains, and the Pannonian Plain, physiographic regions which remain predominantly rural in nature. Fully 82% of Slovenia's land area is classified as non-urbanized, with its capital city, Ljubljana, hosting a modest population of 330 000. Of 36 countries in the 'new' Europe, Slovenia ranks 26th in population, 27th in size, and 20th in population density.

In economic terms Slovenia accounted for only 80% of the former-Yugoslavia's population, yet generated 20% of its Gross Domestic Product, and 30% of its exports. This underlines the economic importance of the region to the former-Yugoslav economy, and explains why Slovenia had the highest standard of living in comparison with other constituent regions. Its economic strength and prosperity meant that it was often considered "the Switzerland of the socialist world".

The export-based economy consisted of a number of key manufacturing industries, including furniture, paper, footwear, electrical equipment, and transport road vehicles. Slovenia manufactured goods were protected by import duties and other tariffs, and achieved high demand in the domestic market. The fragmentation of the former-Yugoslavia, and the political tension between Serbia and other emergent republics, has meant that Slovenia has lost the majority of its traditional internal market.

Tourism is another economic sector that has been affected by the transition to independence. Prior to break-up, over 8 million tourists annually visited the beaches of Yugoslavia's Adriatic coast. The cutting of travel routes to traditional resort destinations has caused the Slovenian government to place greater emphasis on development and promotion of alternative visitor destinations.

As a consequence of existing political and economic uncertainty, in March 1992 95 000 Slovenians were unemployed, or 12% of the labour force. It is predicted that unemployment levels will reach 100 000, or above, as the national economy continues to adjust to a new economic system.

The Slovenian government has limited financial resources and reserves, and this has brought about a growing need to attract foreign investment into the country. The Slovenian state has moved towards adjusting its tax and regulatory system in line with European Union legislation and general western European practices. One of the key economic priorities of the Slovenian government has been to introduce a privatisation programme as part of a broad effort to liberalize the national economy.

An important aspect of the economic liberalization of former east and central European countries is the sheer pervasiveness of the old command economic system. Attempts to unravel such economics have become a complex and time consuming objective. The adoption of free-market principles, and the introduction of a system which allocates resource via pricing signals, has resulted in the necessity to establish a new and unfamiliar institutional framework. New physical and technological infrastructure has been required, as well as new rules and laws to activate a market-based system.

Tourism in Slovenia

Tourism is considered by the Slovenian government to be a vital component of the emerging new national economy. Given the dislocation of the traditional tourism industry, Slovenia has had to reconsider how it will present itself as a visitor destination. This assessment is being made by acknowledging trends in growth of tourism activity which are being experienced across the European Union and the world.

Characteristics of contemporary tourism can be summarized (Bratko et al. 1993) as including:

- Gradual increase in number of tourists;
- Ageing of the tourist population;
- General increase in tourist flexibility regarding time and destination of holiday;
- General search for higher quality in every aspect of tourist service;
- Aspirations for holidays that offer opportunity for personal enrichment and development;
- Higher emphasis placed on vacation activities;
- General increase in ecological consciousness of tourists.

The growth in world travel and tourist activities implies that emerging states like Slovenia have an opportunity to tap what is essentially a new market. While the economic benefits of tourism may be easy to identify, the development of tourism, in particular mass tourism, can have a detrimental effect upon the environment. In areas of outstanding natural and cultural significance the exploitation of these environmental assets can in the long run be undermined if tourism strategies are not planned in such a way as to ensure sustainability. Tourism has the potential to both benefit, or destroy, localities which tourists want to visit.

Tourist Activity and Impacts on the Environment

The understanding that development of tourist activities has significant impacts on the environment is well documented. However, given the speed of transition in many former east and central European countries lessons learned in the so-called 'west' regarding the consequences of particular tourism development strategies should be reiterated. Potential negative impacts from tourism and international travel can be summarized as follows:

- Changes in land-use patterns and the consequence this has on ecosystems;
- Pollution and the generation of emissions, litter, sewage, and other waste products;
- Pressure on heritage and other cultural and natural resources from visitor numbers;
- Increasing densities of development leading to congestion and overcrowding;
- Imposition of homogenized architecture that does not respect local use of vernacular styles and materials;

- Competitive pressure from tourist activities for scare local resources and infrastructure such as transport facilities, water, and other utilities;
- Undermining of local cultural practice and tradition;
- Possible habitat and micro-climate change associated with resort development.

(Source: WTTRC 1992)

Possible negative impacts of tourism related development must be considered in conjunction with the delivery of specific benefits to a region or locality. The potential for economic growth, or job and income generation are the obvious positive impacts that can be experienced. Other possible benefits to tourism development that can be identified include:

- The protection and active conservation of natural and built heritage resources;
- Attachment of economic value and protective measures to resources which otherwise would have had no perceived value to local residents;
- Opportunity to interpret and communicate the values of natural and built heritage and of cultural inheritance to residents of visited areas;
- Enhancement of the natural and built environment in order to meet rising quality standards necessary to sustain modern tourism;
- Reconstruction for visitor usage of urban environments and restoration of environments degraded by the industrial practices of former extractive and manufacturing industries;
- Establishment of attractive environments for tourist destinations which may also support other compatible new economic activity;
- Effective management of visitors within an environment so that it can support stable visitor levels and supply long-term economic development;
- Research and development of good environmental practices and management systems to provide positive influence on operations of tourist business and visitor behaviour;
- Opportunities through direct consumer contact to interpret values of local natural and built heritage and culture to visitors, thus helping to create a new generation of responsible consumers.

The Notranjska Kras Region

To explore the feasibility of implementing ecologically and economically sound tourism activity in Slovenia a case study approach was taken. The intention of the investigation was to understand the programming and implementation of a tourism development strategy in a region of Slovenia considered to be of international environmental importance. Completion of this case study allows for achievement of further insights into the potential opportunities and conflicts which arise from the need to reconcile both environmental conservation and tourism development goals.

The Notranjska Kras region of Slovenia is famous for attributes related to its outstanding limestone geomorphology. As early as the 1500's, naturalists and explorers were attracted to the complex surficial and subterranean landscape of the region. Water seeping into limestone fissures has carved upwards of 1 000 caves, many of which are several kilometres in length. Sinkholes leading to this underground labyrinth sometimes cannot absorb heavy rainfall, a phenomenon which creates a network of mysteriously appearing intermittent lakes. Some portions of the vast cave network have collapsed, causing precipitous canyons that are bridged by soaring natural arches. It is a region of surprise – of views, of openings into the depths of the earth, of the rivers which sink and appear many times over their length.

In addition to a unique physical environment the Notranjska Kras region also hosts part of the largest uninterrupted natural forest in Europe. This Fir-Beech habitat is home to bears, wolves, lynx, deer and up to 200 species of nesting or migratory birds.

Human society has uniquely adapted to this mysteriously formed region. Over 60 000 residents live in 272 dispersed and independent settlements. The largest of these communities, Postojna, Cerknica, Logatec, and Ilirska Bistrica all have populations of less than 10 000 persons. The regional economy is dominated by agriculture, furniture manufacturing, and metal fabrication. Several of the caves in the region have been developed for mass tourism, with the most famous, Postojnska jama, having been visited by upwards of 25 million persons since 1881.

Background To Environmental Management In The Notranjska Kras Region

It is not surprising that attempts have been made to gain protection for the Notranjska Kras region through designation of its 1 500 square kilometres as a national park. However, this process has been gradual, and as yet is not fully realised.

In the 1960's accelerated efforts were made to block sinkholes to permanently flood several plains, or poljes, occupied by intermittent lakes. The goals of these plans was to create lakes for recreation and public utility use, and to protect farmland and settlements form flooding. Local opposition to these schemes resulted in the first calls for park designation. Legislation was drafted to create a park in the 1980's, but was never enacted. Water management agencies, the military, and government bureaucracies with vested interests in the region delayed any further consideration of park development.

Shortly after Slovenian independence was won on June 25, 1991, a group of government surveyors, engineers, and other Cerknica area professional formed a privatised consulting company. From offices in Cerknica this new enterprise, called AREA, began to win planning contracts with the national and municipal governments. AREA soon became proponents of park designation, and coordinated an effort to begin detailed planning for Notranjski National Park. Government support for this effort was soon achieved, and a contract awarded which allowed detailed feasibility planning to begin.

AREA did not simply treat the park planning process as a technical exercise. As residents of the region within which they were planning, they realized that the park would only be successful if the vision of sustainable tourism development became 'owned' by area residents. This fundamental understanding has helped to create a planning process that treats cultural, economic, and ecological concerns on a balanced and open basis.

AREA planners first reviewed the natural and cultural resources they were trying to protect. This list grew to include karst landforms, indigenous threatened plants and animals, native forests, heritage buildings and vernacular architecture, and the traditional human culture of the region. Next, they envisioned the type of tourists and tourism development that could coexist with protection of these attributes. It was decided that mass-tourism would be restricted to Postonjnska jama, with new development directed to support of an even network of small-scale, locally-controlled amenities and enterprise. Extremely detailed lists of activities that would be promoted were completed under the following general headings:

- Excursion tourism;
- Wilderness tourism, including speleology;
- Event tourism: cultural, recreations, historic;
- Sport and recreation tourism;
- Nature-conservation tourism;
- Educational and scientific research tourism;
- Forest tourism;
- Farm tourism.

From this foundation vision two critically important planning exercises were then completed. An assessment of institutional and physical constraints to park development was made. Next, definition of an integral tourism development strategy for the region was conceptualized. Each of these efforts will be explained in detail.

The Starting Point: Constraints and Opportunity

Through community meetings and consultation a picture was gained of the environment within which park development and management must operate. This must have been a sobering exercise, but it placed the park development effort firmly in the real works. A selection of the issues that were identified include:

- Existing visitor amenities are concentrated in one community only;
- Visitors stay for too short a period in the region;
- Income form tourism is far below potential;
- Lack of parking spaces and pedestrian and bicycle paths;
- Infrastructure development in the region has been uncoordinated;
- Lack of spirit of entrepreneurship;
- No legislation offering incentives for protection of heritage resources;
- Owners of land are unaware of tourism related uses to which their property could be put;

- Some government and corporate land managers unsympathetic to coordinated tourism development;
- Land in the park is controlled by monopolies rather than the public;
- Lack of awareness that cultural preservation can be a function of ecological tourism.

This daunting list, substantially longer in park planning documents, shows that AREA planners went into the development process with their eyes wide open. It is significant that this assessment was made public, with no effort made to gloss over, or turn into a public relations exercise, the hurdles that would have to be crossed.

Definition of an Integral Tourist Strategy

An integral tourist strategy is considered by Notranjska Kras planners to include five major components: organizational, economic, legal social measures, and spatial planning. Through attention to these five areas of integrated action, it is believed that the vision for sustainable development of the Park can be implemented, and most constraints to park development overcome.

Organisational measures generally describe activities that will allow the citizens of Notranjska Kras to act concurrently on many fronts to implement the Park development vision. High on this list are activities such as:

- Establishing relations with all local governments in the Park area;
- Defining conservation research and capital investment goals;
- Establishing information, education and training networks.

Action in the economic sphere is proposed to centre on the duel efforts of unleashing small-scale entrepreneurial spirit, and creating a macro environment conducive to long-term investment and development. Some of these activities include:

- Coordinated direction of funds into basic infrastructure;
- Incentives and rewards for small business formation related to park development;
- Coordination of programs which deliver all government aid to the area in a manner which achieves a synergistic positive impact;
- Proposal of programs which would offer incentives for heritage conservation and adapted re-use of abandoned buildings.

Action in the legal arena is proposed to concentrate on lobbying for the passing of legislation that will in various ways enhance the park development environment. Legal remedies considered as being critical include:

- Institution of heritage conservation incentives including tax reduction on renovation materials;
- Adoption of spatial planning legislation;
- Adoption of protected area legislation, including provision for regulation of economic activity and awards of concessions;
- Empowerment of local municipalities to regulate traffic and parking.

Development activity in the social realm is to be focused on creating a pride-of-place, and guaranteeing direct local control of park management activities. Public support for the park development process is seen as being directly related to the degree in which local people and communities benefit from a stable visitor economy. There is a strong element of education within this category, including:

- Encouragement of self-employment and entrepreneurship;
- Service and tidiness awareness programmes;
- Local competitions to develop products, management regimes, and promotion strategies that best allow the Park to develop.

And finally, in the realm of what is called spatial planning, a number of sustainable development support measures would be completed, including:

- Management of critically important conservation areas;
- Coordination of conservation and tourist activities;
- Heritage structure designation;
- Zonation of the Park region according to the level of tourist, conservation, or other primary land-uses that can be sustained.

What is immediately evident from this ambitious programme is that the residents of Notranjska Kras are expected to be direct partners in the park development and management process. What is being sought is perhaps is a marriage of the best of the free-market and socialist approaches to governance and development. Government activity is envisioned as preserving opportunities for integrated tourism development which benefit local residents. The unique development goal is to provide a stable new component of the regional economy and protection of the regional cultural integrity.

Biosphere Reserve

During the early Park planning process the opportunity arose to submit an application for designation of an area significantly larger than the proposed Notranjski National Park for designation as a Biosphere Reserve. Biosphere Reserves are administered by a branch of the United Nations, and are intended to strictly protect globally significant ecological resources. AREA coordinated completion of this submission, which included detailed assessment of the unique ecological profile of the region. The application has been favourable reviewed and formal designation is imminent.

The designation of Notranjska Kras as a Biosphere Reserve serves to illustrate two important points. First, the AREA team was able to act relatively quickly to organize existing research into the appropriate application format. This shows how an aggressive group of sustainable tourism proponents can act to maximize support for their wider designation has put pressure on the national government to legitimize park status for the core area of the Biosphere Reserve.

Bioregional Mapping

An important aspect of the Notranjska Kras planning process has been to seek links with a network of university and technical institutions located outside of Slovenia. One result of this outreach was the instigation of a bioregional mapping programme in cooperation with the School of Planning and Housing at Heriot-Watt University in Edinburgh, Scotland. One objective of this mapping exercise is the creation of an "English" atlas summarizing cultural and physical resources resident in the proposed Park area. This process has involved a review of graphic and written material related to the park, and translation of this information into a series of carefully layered images. This technique was pioneered by McHarg (1968), expanded by Steiner (1991), and adapted by Aberley (1993). The goal is to create a document which shows a dynamic association of physical, ecological, and socio-cultural resources.

It is intended that the finished bioregional atlas be used for:

- A visual guide which reinforces and integrative planning and development process;
- Explanation of park identity to visiting researchers and technicians;
- An appendix to applications for park development and management funding;
- As part of a detailed interpretative guide for eco-tourist;
- An educational resource for local schools;
- Illustration for conference displays;
- A foundation for eventual CAD and GIS mapping programmes.

Again, it is evident that the AREA team is extremely flexible in adopting methods and techniques that assist to further the vision of sustainable tourism development in the Notranjska Kras region. The development of this capability augers well for success of the wider and very ambitious park planning and management regime.

Conclusion

As Hall (1991) points out, tourism has gained increased importance as a mechanism to assist the process of economic transformation in former eastern and central European countries. As an industry tourism can provide hard currency and thereby improve the balance of payments. Tourism can instigate social change as local residents come in contact with visitor with different values and perceptions. The tourism industry helps to upgrade local infrastructure which otherwise would have deteriorated from lack of investment.

The service sector is considered to be an important element in the process of economic restructuring, especially in a period of intensive privatization which exposed local industry to national and international competition. Stemming from this service lead development is also the growth of specialist tourist activity and the commercial development of business and conference tourism. Given these perceived economic opportunities it is not surprising that the tourism sector is con-

sidered by may as a 'pot of gold' ready for the taking. The people of the Notranjska Kras region appear to have no such illusion. They have indeed identified tourism development opportunities, but have tied these aspirations to strict protection of the physical and cultural environment that is so attractive to visitors.

For the Notranjska Kras Park and Biosphere Reserve development strategy to be a success several critical hurdles must be crossed. First is the issue of government support. Privatisation and land de-nationalization programmes are gaining momentum. If this action is to assist rather than hinder the Notranjska Kras sustainable development process land and attraction concessions must be vested in community, not private, control.

The second issue relates to an ability of Notranjska Kras interests to regulate development in the proposed part area. Without passage of legislation that will allow protection of cultural and ecological attributes of the region, the present park development concept will not be realized. Threats from mass-tourism interests, and the destruction of visual amenities through incremental incompatible development, are equal dangers to realization of a sustainable tourism industry.

Third is the issue of funding. Development of a sustainable tourism industry will take commitment of significant funding from Slovenian and international sources. While the need for such support can be persistently explained by local residents, whether or not money is forthcoming is largely beyond local control.

The final major hurdle is the degree to which local communities in the Notranjska Kras region will feel that they own the proposed Park. As in all rural societies there exists an intrinsic resistance to change. Without intensive local education, park development opportunities will accrue to outside interests, placing indigenous residents in the role of service staff rather than interpreters of a unique culture and environment. This perversion of tourism has occurred across the planet, and could also blight what is now the pristine power of the Slovenian karst.

If early successes are any indication it appears that the Notranjska Kras development process is a strong candidate for success. In a relatively short period of time a dedicated group of resident professionals have breached the usual suspicions of their rural neighbours. Tenets of environmental management have been translated into a language that is familiar and which offers benefits that can be simply understood. It is common sense to residents of rural regions that economy should be treated together. It is with this simple but powerful integration that the Notranjska Kras development process proceeds in small but steady steps.

References

ABERLEY, D. (1993) Boundaries of Home: Mapping For Local Empowerment. (New Society Publishers, Philadelphia).

BRATKO, B.B, MAHNE, L. GOSAK, S. and DVORSCAK, K. (1993) The Notranjska Park in the Republic of Slovenia. EC-project B4-3040/92/12696. (AREA, Cerknica, Slovenia) .

ECONOMIST INTELLIGENCE UNIT (1992) Country Report No.2 Yugoslav Republics. (Economist Intelligence Unit, London).

GAMS, I. and HABIC, P. (eds.) (1987) Man's Impact In Dinaric Karst: Guide Book. (Department of Geography, Faculty of Letters, University "E. Karfelj" and Institute for Karst Research, Ljubljana).

HALL, D. (ed) (1991) Tourism and Economic Development in Eastern Europe and the Soviet Union. (Belhaven Press. London) .

LICKORISH, L. J. (1991) Developing Tourism Destinations. Policies and Perspectives. (Longman).

McHARG, I. (1969) Design With Nature. (Doubleday/Natural History Press, Garden City, New Jersey).

POGACNIK, A. (1991) Planning Slovenia as an Independent State. Town Planning Review. 62(3).

SLOVENIAN MINISTRY OF SCIENCE AND TECHNOLOGY (1992) Facts on Slovenia. (Ljubjlana).

STEINER, F. (1991) The Living Landscape: An Ecological Approach to Landscape Planning. McGraw-Hill. New York).

WORLD TRAVEL & TOURISM ENVIRONMENT RESEARCH CENTRE (1992) Travel and Tourism. Environment and Development. (Oxford).

ECONOMIC REVITALIZATION IN PROTECTED LANDSCAPE AREAS

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Summary

The main objectives of prosperity in marginal regions are discussed based on the frontier region of Hornacko (South Moravia). The aim is, to change the disadvantages of marginal position and landscape preservation into advantages that will enhance prosperity.

Introduction

Two approaches are generally used to protect natural or cultural heritage: preservation by itself including protection from social and economic activities, or preservation as part of economic and social life. The former approach, promoted often by green fundamentalists, has been shown to be ineffective with the exception of a very limited number of natural peculiarities.

Our concern in this discussion is the protection of the cultural landscape. In fact, there is only cultural landscape in our country as it is probably completely impossible to get back to 'natural' landscape. The key question is whether or not economic prosperity is in opposition to landscape protection and what limits and barriers have to be respected in managing land use in protected regions.

The microregion of Velká nad Veličkou, ethnographically called 'Horňačko', was selected as our model region. It can be found in the district of Hodonín in south Moravia. A great part of the region is situated in the territory of the 'White Carpathians' protected landscape area. The economic and social character of the region is shaped by its distant location, not only from the district center but also from all regional centres of south Moravia, and its unadvantageous natural conditions for agriculture.

Before 1945, the problems of the area were solved by the seasonal migration of breadwinners to find work. The centrally planned economy supported agriculture to offset ineffective farming and formed the 'Kordárna' industrial enterprise to

employ excess labour. The recent transformation to the market economy hence influenced the region very strongly.

Alongside general changes, this has meant the releasing of employees from productive sectors, and the realisation of the special problems connected with geographical position of the region. Governmental support for agriculture was discontinued. Agriculture oriented towards production of corn for the last 40 years, lost any chance to compete with regions in the lowlands. The only industrial enterprise which has been the source of social security is also a bearer of social hazard, because the future of the region is overly connected with the future of the factory. The split of Czechoslavakia means that the region was changed into a frontier area which intensified its marginality and limited its market. Pending any settlement U Sabotu is a subject of negotiations between Czechia and Slovakia. Also landscape protection represents certain legal barriers to economic development.

Characteristics of the Region

About 7 thousands inhabitants live in seven communities in the territory of about 120 sqkm. This means a population density of 59 people per sqkm which is unusually low for south Moravia. There are some 3 200 people living in the center of the region – a village called Velká nad Veličkou which is 18 km away from the nearest Moravian town – Veselí nad Moravou, 35 km from the district center Hodonín, 90 km from Brno and 62 km from Zlín. The nearest town – Slovak Myjava is newly separated by state frontiers. Marginality factors relate not only to distance but also to the broken physical relief.

As to demographic structure, the number of people in pre-productive and post-productive age is the same. But emigration from the region is double the average in the district. As most people in the first half of their productive age move, a worsening of the demographic structure is only a matter of time.

Higher than average employment in primary and secondary sectors is typical of the region. Many employees daily or weekly travel for work. But the limitation of the labour market by the state frontier after separation of currencies, and a substantial increase in the cost of public transport form important barriers. A low proportion of people with higher education represents another problem in the labour market, manifested in lower adaptability for changing market conditions. The highest level of unemployment in the district, at times exceeding 10%, is a consequence of this.

The quality of housing as well as ownership of capital commodities are typical of rural regions. But technical infrastructure is completely insufficient, including water supplies, sewage, sewage treatment plants, the quality of roads and communications. Social infrastructure, medical care and basic education are at a relatively good standard. But opportunities for further and higher education are missing. Also the majority of services for inhabitants as well as for visitors are insufficient.

The White Carpathians is a flat hilly-land formed by sandstones and clays. The protected landscape area established in 1980 is characteristed by meadows with

dispersed trees. Land is used for forests and pastures, in lower altitudes also as arable land.

In summary the main barriers to the prosperity of Hornačko are:

- marginality and frontier position,
- insufficient transfer of innovations,
- one-sided structure of employment,
- lower level of education and private enterprise,
- a regressive population structure and emigration,
- insufficient utilities,
- lower standard of living,
- disadvantageous natural conditions for agriculture,
- legal protection of landscape.

Analysing the advantages of the region, it is found that they are same as the disadvantages. It is only a matter of how they are viewed. In other words, it is necessary to search for solutions to future prosperity inside the region, to turn seeming barriers into opportunities and to define realistic objectives for our efforts.

The historical development of population over the last 140 years shows that the region has always been able to sustain 6 – 7 000 inhabitants. There is no need to increase this number. It is necessary to give up the idea that development is always connected with a population increase. the problem is how to abate the population decrease in outlying settlements.

The marginality of Hornačko has allowed specific popular culture related to with Czech-Slovak relations to be maintained. This cultural life seems to be unconnected with economy but in fact it is an important element of the region and individual villages. This identity was disturbed by nivelization within the centrally planned society. Its renewal is considered to be a basic condition in order to stabilize the population. Cultural importance is also one of the preconditions for the development of tourism.

Landscape protection puts limits on agricultural technologies, but also ensures that agricultural production is based sound ecological procedures. This leads to higher production costs and impedes competition in the market. Difficult natural conditions make intensive production of corn impossible. But they also make space available for the growing of special products such as medicinal plants. The same landscape protection is a great incentive for the development of special forms of active tourism directed to the understanding of ecological landscape processes. The problem of the Czech agricultural concept is that the agriculture in protected areas is not supported by the government.

The frontier position of the area limits the market, creating psychological, political and financial barriers. But it is possible to utilize it for the exchange of local goods, and establishing activities connected with the crossing of frontiers. The region has a long tradition of Czech-Slovak relations going back to the times of the Austro-Hungarian monarchy. Why not revive this tradition in such a way as to bring new activities to the tertiary sector?

The only large industrial plant in Hornačko presents social risks. But it means that the destiny of the enterprise is firmly connected with the prosperity of the region. After the loss of Czech, Slovak and East European markets, Kordárna was reorientated relatively quickly for West European and extra European markets. It collaborates intensively with for example the American company Dupont and offers work opportunities to prominent experts. But it is a great problem to bring foreign partners or prominent experts on poor roads in a region with poor infrastructure and without hotels or good restaurants. This fact motivates the co-operation between the factory and local communities.

Programmes of Revitalization

Revitalization in the region of Horňácko consists of environmental, cultural and socio-psychological aspects. The relatively well-preserved landscape, cultural and ethnographic traditions and the relationships between people and their communities have been mentioned. We propose that this approach could be under certain circumstances able to stabilize the population and invoke necessary social activities. From it follows that neither fighting against landscape protection nor making efforts to attract foreign industrial investments, but keeping the environmental and cultural heritage is the correct way forward.

Agriculture plays henceforth a substantial role in the economy of the region. Not only its productive role but also its social and landscape roles are of great importance. Agriculture is passing through the fundamental transformation of ownership, organization of production and specialization. The main methods of revitalization are seen in the production of foods for local consumption, in ecologization and in diversification, e.g. the processing of products, their use in local restaurants, marketing, services, recreation and in non-productive functions e.g. afforestation, sowing grass etc., growing for energy generation and fruit growing. There are enough opportunities but all of them ask for a change of thinking on the part of farmers and often support from the government aimed at the elimination of risks.

Local small industry and businesses represent another productive component of the region. Horňácko has traditions in some areas of popular handicrafts as pottery, production of clothes and costumes, wooden production and embroidery. Not the scale of production but identification with the region and developing connections with tourism is the way to achieve the revitalization of handicrafts. It is probably the last opportunity to save traditional handicrafts, because only the oldest people maintain the necessary crafts. Local industries can also develop the processing of agricultural products. There are enough facilities of this type concentrated in towns. The proposal is not to compete with them but to produce special local products from ecological agriculture. Besides this, some small textile enterprises in the region can take advantage of cheap female labour forces.

Recreation and tourism are great hopes for the region. Special recreation could be directed at studying protected nature, the rural way of life, cultural heritage, rural architecture, and special courses in arts. It is possible to take advantage of popular and religious festivals, rural fairs, exhibitions of traditional handicrafts but

also certain aspects of usual rural life. Accommodation in private farms, and helping out in agricultural activities could be an attractive form of holiday for urban families. Development of tourism could bring new opportunities also in other braches of rural economy: in agriculture, handicrafts, services. The main barriers are seen in insufficient infrastructure and the lack of preparedness of people.

Conditions of Implementation

It is usually thought that the main problem in implementing revitalization programmes is funding. We disagree. The main limit is a lack of educated people able to elaborate concrete programmes, to win resources and to organize activities. It is necessary to take into account that educated people are the first who leave the region and move to towns. Educated classes were mostly represented by management of agricultural co-operatives and state farms in marginal regions over the last 40 years. They lost their positions and often left.

Also financial problems are connected with personality issues. A low probability of winning foreign or central support, results not only from central bureaucracy but very often from the inability of people from marginal regions to prepare first-rate grant applications. The next problem is seen in the low level of security from property in rural villages for loans. Establishing associations of communities is one of the ways to overcome this problem.

The creation of an image of the region is one of the pre-requisites to implementing the revitalization programmes. Advertising, participation in tourism fairs or the support of the local press are suitable methods.

One of the key questions is, who should organize the revitalization. We are of the opinion that a professional agency, operating on a market basis is the right answer. It has to take into account the whole microregion, not only its center.

Conclusions

The basic idea of economic revitalization in protected landscape areas consists of utilizing the fact they they are being preserved, not in fighting against it. There are a number of ways to do this: ecological agriculture, sensitive tourism, and the resurgence of traditional life-styles. Revitalization is not understood as a quantitative development but as form of qualitative prosperity. Such regions are able to feed and support only limited numbers of people.

From a regional point of view, microregions are optimum territorial units to organize revitalization. Microregions are defined as systems "center and its hinterland". They unify labour markets, systems of services, and the daily movement of population. It shows that differences among microregions within one district are usually bigger than differences among districts within the country.

The most substantial problem of revitalization in marginal regions is a lack of educated people, capable of winning the necessary financial support and also prepared to do so.

References

MIKULIK, O. – VAISHAR, A. (1993): Revitalizace venkova v okrese Hodonín [Revitalization of countryside in the district of Hodonin] (REGIOGRAPH, Brno).

MIKULIK, O. – VAISHAR, A. (1993): Revitalizace venkova v mikroregionu Velká nad Veličkou [Revitalization of the countryside in the microregion of Velka nad Velickou] (REGIOGRAPH, Brno).

MIKULIK, O. – VAISHAR, A. (1994): Program rozvoje Hornacka [Development Programme for Hornacko] (REGIOGRAPH, Brno)

ENVIRONMENTAL POLICY AND VALUED RURAL ENVIRONMENTS: THE ROLE OF ENVIRONMENTAL MEDIATION

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Summary

In this paper the contribution of mediation approaches to resolving environmental disputes is discussed. These approaches originated in the United States of America. The possibilities are reviewed for their use to resolve environmental disputes in valued rural environments in the very different political and cultural circumstances of the European countries.

Introduction

In this paper I discuss the use of environmental mediation approaches to resolve land resource policy disputes in valued rural environments. These environments may be national parks or sites of nature conservation value, designated by central or local government but in which issues of resource use remain, or they may be areas that conservation or amenity pressure groups urge the state to protect. They are areas that, in the words of a former director of the Cevennes National Park, "territories of others or territories of all", because of the presence of overlapping interest groups and public agencies (Leynaud, 1985). They can also be seen by some as areas of "scientific colonialism", imposed by the more urbanised metropolitan core of a country constraining the economic and social development opportunities for land occupiers in the remoter less developed periphery (Mather, 1993).

These conflicts can be expressed as disputes over the use of specific tracts of land, for example the areas in northern Scotland discussed by Mather, which are disputed between nature conservation and forestry interests. A number of such location specific disputes are discussed by Lowe et al. (1986). These include the agricultural improvement of grazing land in the Exmoor National Park, which offended conservationist and recreational groups in the 1970s, more recent agricultural improvement in the Somerset Levels and the Norfolk Broads, forestry or

conservation use in the Berwyn Mountains of Wales. Sub-regional planning processes for land use in an area, may be used to provide a framework to allocate land between uses (eg Selman & Barker, 1989). Location specific disputes may arise from a lack of clear national policies that set a framework which would prevent specific conflicts from arising or would rapidly defuse them (this is the argument of Lowe et al). In Britain there has been a lack of a clear regulatory regime for the allocation of land between agriculture, forestry and conservation or recreation. Resolution of policy disputes over the cost and environmental consequences of, say, the Common Agricultural Policy, will have an impact on site specific disputes. In France, at least up to the early 1980s, the argument was made that the state itself was imposing an economically oriented restructuring of rural areas; in the case of the alpine national parks this seemed to some to favour big business tourism at the expense of more conservation oriented approaches (Champollion, 1977, Guerin, 1984) and one may see in France also scope for mediation at three levels: the location specific dispute, related to some development issue, a sub-regional level of land allocation between competing interests, and a national policy dialogue, which may provide a frame for the other two levels. Two questions are explored here:

(1) What are environmental mediation approaches?
(2) What is the scope for environmental mediation in valued rural environments in European countries such as Britain and France?

What are environmental mediation approaches?

Obviously mediation, as such, is not a novel idea. It has been used in international negotiations and in industrial relations disputes for many years. It is claimed that the first specifically environmental application was in the United States in 1973, in the Snoqualmie river case (Bingham, 1987). Bingham reports on 162 development disputes and policy debates in which mediation was used. Susskind (1991) stated that environmental mediation was now a multi-million dollar business in the United States. Chapman (1991) also gives examples in the United States and elsewhere. In Britain, the possibilities of mediation methods have been taken up by the Environment Council, an environmental organisation supported by business and other interests. The Council has held a number of talks and workshops to introduce mediation approaches. In France the use of mediation in relation to environmental disputes has also been discussed (e.g. Montgolfier & Natali, 1987).

Definition and Origins of Environmental Mediation

Environmental mediation involves the application to environmental disputes of "alternative dispute resolution" techniques, alternative, that is, to resolution through the courts or political processes. There are two essential aspects of the mediation process: (1) there is a negotiation process going on, (2) there is the use of a neutral third party, the mediator, or mediating team, whose function is to assist the negotiating parties with the exploration of the possibilities open to them of

reaching an agreement acceptable to all: "Mediation is a voluntary process in which those involved in a dispute jointly explore and reconcile their differences. The mediator has no authority to impose a settlement . His or her strength lies in the ability to assist the parties in settling their own differences. The mediated dispute is settled when the parties themselves reach what they consider to be a workable solution." (Institute for Environmental Mediation, quoted by Cormick, 1987, see also Susskind & Cruikshank, 1987).

It will be noticed from this quotation that mediation has three core values: (1) that consensus solutions, i.e. ones agreed by all the parties as meeting their needs, are the only ones that work in the long run, (2) that consensus solutions to problems can be reached, (3) that the way to do so is through some form of structured negotiating process that can be agreed between the parties. Consensus is seen as a solution that positively satisfies the needs of each party without there being any overall winners and losers. The structured negotiating process is the key to reaching this "win/win" solution. It is of course possible for disputants to set up their own structured framework and police it mutually without external assistance. The frequently referenced exemplar of structured negotiation is "principled negotiation" (Fisher & Ury, 1983), deriving from the Harvard Negotiation Project. The approach can be summed up by their four principles:

(1) "separate the people from the problem",
(2) "focus on interests not positions",
(3) "generate options before deciding what to do",
(4) "insist that the result be based on some objective standard".

The first of these principles requires the parties to set aside or neutralise any personal suspicions before entering the negotiation, the purpose of the other three is to try to build as objective a statement as possible of the interests of each party, and objective criteria to judge a range of possible solutions. It is suggested the parties should each identify their best alternative to a negotiated solution that would otherwise be available to them ("BATNA") so the negotiation is always focussed on how it could benefit the parties.

An important distinction is made between three types of mediating intervention: (1) consensus building, (2) mediation, (3) policy dialogues (Cormick, 1987). He defines consensus building as "a problem-solving approach grounded in small group processes that emphasises the common interests of disputants in jointly defining and solving problems", (p. 29). Mediation takes place between parties who have continuing different interests and are looking for common agreement on limited specific actions, for example in employer – trade union negotiations. Policy dialogue is an ad hoc negotiation of a common agreement between usually mutually opposing interests of, for example, environmental groups and industry. An example of such a process would be a process of negotiation over United States energy policy in which 250 representatives of industry and other interest groups cooperated over two years to work on a national energy strategy. The personal qualities of the mediator may be similar in the three contexts, and it may be important to establish rapport between participants, but in the consensus case all the participants are pre-

sent, and some of the "small group processes" mentioned by Cormick are aimed at solving the problem by dissolving it, by for example changing attitudes and generating greater empathy at a personal level. In the other two cases, there is always some external constituency of the participants that cannot be present and needs to be persuaded by their representatives outside of the negotiation (e.g. ministers have to convince parliament, environmental groups are only loosely representative of broad social movements). In these two cases there may also be continuing differences of aims (just as in industry a settlement of this year's pay claim does not mean that the aims of business and trade union are harmonised for all time).

The skills of the mediator (or mediating team)

The mediator needs to be neutral as regards possible solutions, an expert on the process of negotiation rather than the issues themselves (Cormick, 1987). However Cormick plays down the role of the mediator in orchestrating the face to face contact of the participants. He suggests that the process of establishing with the parties separately that they do want to enter a mediation process, and of setting up the framework for negotiations is as significant as the actual negotiations. Within the mediation itself, the mediator may again work with individual parties to help them establish their aims and explore what their alternatives are, and to take ideas from one group to another. The mediator advises on the process, and can help the parties explore the consequences of proposals made by others. Cormick suggests that technical expertise in the subject is actively unhelpful beyond having a reasonable knowledge of the issues and their institutional context. Among the most important of his reasons is the reminder that the critical aspect of mediation is to deal with the parties' own values and understandings of the issues, and not to substitute another superficially attractive set of values and expertise.

Conditions of Success

Three questions may be of interest here:

(1) What are the necessary conditions to bring the parties into a mediating process?
(2) What are the conditions for the mediating process to bring about a solution that is adopted to the satisfaction of all?
(3) Can mediation be a worthwhile process if the parties walk away or a solution is not implemented?

Some tentative answers can be suggested. Regarding the first question, if we have regard to the BATNA concept, then axiomatically all the parties must feel that negotiation is better than continuing as they are. In the classic Snoqualmie case, mediated by Cormick, proponents of a flood prevention and irrigation scheme were blocked by legal action of environmental groups, and were willing to negotiate some intermediate solution; the environmental groups knew that their blocking action could not last for ever and could be undermined politically if disasterous

flooding occurred (Montgolfier & Natali, 1987). Bingham (1987), in regard to the cases studied by her, states that 78% of cases reached agreement. She showed that policy dialogue cases were less likely to be implemented fully than site specific cases (41% compared to 80% of the cases that reached agreement). A key factor was "whether those with authority to implement the decision participated directly in the process" (p. 45). One must also consider the quality of the process of considering mediation and of the mediation. Whether mediation was worthwhile, even if it does not result in agreement, or agreement is not implemented in some degree, must depend on whether the parties at least clarified their aims, and the range of possible solutions, through using mediation.

What is the scope for environmental mediation in the European context?

I want to consider two particular issues about the transferability of mediation approaches to the European context: first, is the institutional context in Europe more or less favourable to mediation as a way of solving environmental problems? Second, what kind of mediation process is appropriate?

The question of institutional context is raised by Chapman (1991). He cites as particular problems the relatively tight control by the state over the policy process in Britain, state secrecy, a preference for consultation only regarding options already decided on by the state. Arguably the culture is antipathetic to new approaches. The degree to which there is judicial review of administrative decisions is another relevant issue. In the United States use of the courts by citizen groups to challenge and delay development decisions has been one factor in making mediation attractive. In Britain the courts have been reluctant to question government decisions and only require due process to be observed. The main avenues to challenge state policy are collective, either political or street protest. There is no ground to appeal to the courts to veto policy on grounds of a logic higher than government policy (as the American constitution does). Might it be that the role of the state in other European countries is more similar to its role in Britain than in the United States? Certainly, in France, somewhat parallel characteristics could be cited, a strong centralised state with a long tradition of development planning (Clout, 1972, 1987). Against Chapman's view one may argue that the status of the state in Europe is changing towards the American model as the state accepts the jurisdiction of European Union law, that provides a web of supranational obligations on the state, enforceable through litigation by the European Commission, other member states, and individuals. European legislation, such as the environmental assessment directive, or the habitats directive, and European institutions such as the European Court make the individual state into an actor like other actors in environmental disputes, and less able to impose the terms of debate, hence more amenable to negotiation and mediation. Admittedly this process is implicit rather than final.

The second issue is about what kind of mediation is appropriate in European conditions. What kind of institutional openings are there? Some points by Godschalk (1992) are relevant to thinking about this. He is concerned with development

disputes in the USA that involve more than one government agency. He suggests that the "conventional wisdom" of environmental mediation emphasises exceptional cases of impasse and the use of ad hoc mediation processes outside of normal processes. He sees a need to use mediation and negotiation techniques to deal with normal conflict, by developing existing institutional processes and the skills of normal policy makers. These suggestions give us places to look for inserting mediation over here.

In the environmental disputes analysed by Lowe et al (1986) and Selman & Barker (1989) one can see a number of processes being used that could be built on. One can also identify deficiencies. In the Exmoor case, the national park authority sought to identify objectively the resources at risk from agricultural improvement, farmers leaders responded by defending what became known as the voluntary principle, i.e. that farmers be compensated for any loss of commercial freedom they accept, and the role of Lord Portchester was very much as arbitrator. In the Somerset Levels, there were multiple levels of negotiation, and also a local authority led plan and consultative forum. In the Berwyn Mountains a new amenity society led by farmers was a focus for compromise proposals. In the Norfolk Broads, the two ministries involved, Environment and Agriculture, devised formulae to solve the dispute between the Broads Authority and farmers and their representatives. In these cases, environmental pressure groups had to be taken into, account, they acted as spurs to the government bodies, stimulating them to fulfil their legal obligations. The major problem was the need to escalate the disputes from local to national level since they were due to the lack of a national framework to relate the consequences of support for agricultural expansion to public aims for nature conservation. Selman & Barker (1989) discuss the Somerset case and five others in which some form of joint working between agencies was used. The experiences they discuss show the importance of involving all those with power over the situation and that the underlying interest groups participate.

A more recent case is the dispute over afforestation in the northern Scottish Highlands. An agreement was reached through a working party chaired by the Regional Council, with the relevant government agencies as members. It received representations also from the pressure groups. The report of the working group shows that it sought to identify quite objectively the interests of the various parties, and the extent to which they could be met with least mutual damage (Highland Regional Council, 1989). As with some of the other cases, the acceptance of a solution is in part due not to the process itself but the changing balance of power between the interests. Nevertheless there is here a sort of mediating role and structured process and involvement of all the parties.

In France, Montgolfier & Natali (1987), two researchers working for the Ministry of Agriculture, reviewed a number of rural land use conflicts, mostly involving decisions about how to revive traditional agricultural areas. One case was that of conflicts of interests over the prevention of forest fires in Corsica, where graziers tended to use fire to clear scrub land rather than negotiate with absentee owners, and where land improvement was technically feasible but not the most practical option in the absence of a reform in land law. They devised a method of

decision making that combined the input of scientific knowledge with investigation of the needs and requirements of individual land users. The scientific input represents the objective evaluation in "principled negotiation", and the analysis of user objectives is comparable to the "interests not positions" and "brainstorming of options" concepts. Montgolfier & Natali's particular contribution is to ground their analysis of interests in the methodology of the French organisational sociologist, Michel Crozier (in e.g. Crozier & Frieberg, 1980).

References

BINGHAM, G. (1987) Resolving Environmental Disputes: A Decade of Experience in Brower, D. & Carol, D.

BROWER, D. & CAROL, D. (eds) (1987) Managing Land Use Conflicts: Case Studies in Special Area Management. (Duke University Press. USA).

CHAMPOLLION, A. & CHAMPOLLION, P. (1977) L'Ecologie Denaturee: Les Parcs Nationaux – Le Cas des Ecrins. La Pensse Sauvage, Claix, France.

CHAPMAN, M. (1991) Building Consensus on Environmental Policy: A New Approach. Policy Studies vol.12(4).

CLOUT, H. (1972) The Geography of Post War France. (Pergamon. Oxford).

CLOUT, H. (1987) Regional Development in Western Europe. (David Fulton Publishers. London).

CORMICK, G. (1987) Environmental Mediation: the Myth, the Reality, and the Future. in Brower, D. & Carol, D.

CROZIER, M. & FRIEDBERG, E. (1980) Actors and Systems: the Politics of Collective Action. (Chicago University Press. USA).

FISHER, R. & URY, W. (1983) Getting to Yes: Negotiating Agreement Without Giving In. (Hutchinson, London).

GODSCHALK, D. (1992) Negotiating Intergovernmental Development Policy Conflicts. Journal of the American Planning Association vol.58(3) pp. 368–378.

GUERIN, J-P. (1984) L'Amenagement de la Montagne. Editions Ophyrs, France.

HIGHLAND REGIONAL COUNCIL (1989) Caithness and Sutherland Working Party: Summary Report and Land Use Strategy. Inverness.. Scotland.

LEYNAUD, E. (1985) L'Etat et La Nature: L'Example des Parcs Nationaux Francais. Parc Natuional des Cevennes. Florac, France.

LOWE, P. ET AL. (1986) Countryside Conflicts. (Gower Publishing, Aldershot, England).

MATHER, A. (1993) Protected Areas in the Periphery: Conservation and Controversy in Northern Scotland. Journal of Rural Studies vol. 9(4) pp. 371–384.

MONTGOLFIER, J. DE. & NATALI, J-M. (1987) Le Patrimoine du Futur. (Editions Economica, Paris, France).

SELMAN, P. & BARKER, A. (1989) Rural Land Use Policy at the Local Level. Land Use Policy vol. 6(4) pp. 281–294.

SUSSKIND, L. & CRUIKSHANK, J. (1987) Breaking the Impasse. (Basic Books, New York, USA).

SUSSKIND, L. (1992) Environmental Dispute Resolution. Unpublished lecture organised by the Environment Council, 23rd March 1992 at Royal Horticultural Hall, London.

ENVIRONMENTALLY SENSITIVE AREAS AND THE GREENING OF AGRICULTURAL POLICY

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Summary

The United Kingdom's 1986 Agriculture Act provided the basis for the designation of Environmentally Sensitive Areas (ESAs) "in order to contribute towards the introduction or the maintenance of farming practices compatible with the requirements of the protection of the environment". From 1987 farmers in eighteen designated ESAs have been able to conclude voluntary management agreements with government to farm in a proscribed environmentally-friendly manner. New ESAs are proposed in recent agri-environment measures submitted to the European Commission. This chapter examines the establishment of ESAs in the UK, with special reference to ESAs in Scotland and lowland England. Their creation and operation is set against the background of the move away from productionist farm support policies towards payments for farmers "to produce countryside". There is consideration of how agriculture and the environment have fared in the ESAs since their inception, with special reference to the Breadalbane ESA in Tayside. Brief comparison will be made with the application of the ESA policy in Denmark.

Introduction

During the last decade there have been various reforms of the European Union's Common Agricultural Policy (CAP). These have addressed the fundamental imbalance between demand and supply for agricultural produce, the spiralling costs, surpluses and also a number of environmental disbenefits associated with the drive for greater productivity. Reforms have included the introduction of quotas, reductions in guaranteed prices, removal of land from arable production (set aside), promotion of new enterprises (farm diversification) and the adoption of 'environmentally-friendly' farming practices (CEC, 1991).

This chapter concentrates upon the last of these reforms, which should be seen in terms of an overall 'greening' of rural policy whereby environmental considerations are increasingly influencing political and economic decisions. With respect to promotion of environmentally-friendly farming, this has also been associated with a changing view of the farmer: a move from farmers as output maximisers to a more complex function as 'producers of countryside' (Buttel, 1992; Robinson and Ilbery, 1993). It is this idea of the production of countryside that is central to the particular reform that will be considered here, namely Environmentally Sensitive Areas (ESAs).

The legislative framework for ESAs was set out in 1985 in Article 19 of Council Regulation (EEC) No. 797/85. This enabled member states to introduce an aid scheme "to contribute to the introduction or maintenance of farming practices compatible with the requirements of the protection of the environment" and especially in areas particularly sensitive from this point of view. The legislation envisioned that farmers in designated areas of high conservation value would agree to adopt 'environmentally-friendly' farming practices for all or part of their farms and receive payment for so doing over a five-year period. These payments were to vary according to the type of farming and the physical character of the designated ESA (Baldock et al., 1990; Potter, 1988).

Initially, ESAs were taken up most enthusiastically in the United Kingdom, the first designations being made in the Agriculture Act of 1986 (Figure 1). More were added in 1987 to create a total of 17 at that stage. Under UK legislation, areas have been designated as ESAs for protection of natural beauty, flora or fauna or historical or archaeological features if this objective is likely to be assisted by maintenance or adoption of particular agricultural methods. Therefore there is a close relationship between farming and environment in ESAs, which emphasises positive conservation measures and a basic protection from agricultural intensification.

The selection of areas as ESAs was performed by the agricultural ministries and departments in the UK, largely on five grounds:

a) each area should be of national significance;
b) its conservation should depend on adopting, maintaining or extending particular farming practices and operations;
c) as far as possible, each area should represent a coherent unit of environmental interest;
d) there is occurrence or likelihood of changes in farming practices which pose a threat to the environment;
e) it must permit the economical administration of appropriate conservation aids (MAFF, 1985).

In the designated areas, conservation objectives were identified and formed the basis of a conservation plan agreed to by each participating farmer. The plan identifies features to be protected and areas where work is to be carried out, plus a programme of work for the period of the agreement which was for five years initially. This followed the prototype for ESAs which was the UK's Broads Grazing Marshes Conservation Scheme. This established the principle of flat-rate payments in return

for compliance with a set of management prescriptions. In ESAs farmers receive a flat-rate payment related to their type and amount of land. However, additional payments may be received based on implementation of particular conservation measures identified on their plan. These measures and payments are set out in various tiers of options. As shown in Table 1, measures vary from scheme to scheme, those in Scotland, for example, emphasising protection of rough grazing, restoration of stone walls (dykes) and hedgerows, and general improvement of landscape amenity.

Take-up rates for the scheme were limited initially. After two years less than one-eighth of the agricultural area within the ESAs was covered by ESA agreements (Robinson, 1991). This reflected the scheme's voluntary nature, with farmers reluctant to undertake management agreements to replace 'normal' farming activities. Lack of sufficient financial incentives for joining the scheme may have been a factor. However, as familiarity with the rationale of ESAs has grown, so take-up rates have risen and in the Scottish ESAs by early 1992 65 per cent of farmers eligible to join had done so, representing 70 per cent of families in these schemes (Robinson, 1994).

Monitoring exercises for the UK's ESAs have been performed on a systematic basis. The findings from two such exercises are described below, one for six ESAs in lowland England based on evaluations by the Ministry of Agriculture, Fisheries and Food (MAFF) and for the Scottish ESAs, and particularly the Breadalbane ESA in Tayside, for which evaluations have been made by a number of agencies including the Scottish Agricultural College, the Macaulay Land Use Research Institute and the Countryside Commission for Scotland.

ESAs in Scotland

All the Scottish ESAs have been designated in areas where livestock production is central to the rural economy. In Breadalbane, where the ESA covered 120 000 ha when designated in 1987, hill sheep farming is the primary agricultural activity, frequently being combined with the rearing of store cattle. The majority of agricultural land is rough grazing, but there is good quality permanent grassland around Loch Tay for fattening lambs. There is also some arable land for growing winter feed and cash crops on the alluvial floodplain of the Tay. Two main conservation issues were identified in the ESA designation. These were the need to maintain viable hill sheep farms so that farmland was not sold for blanket afforestation which would drastically alter the character of the area, and the need to restrict intensification of farming which could have significant effects upon sensitive habitats such as herb-rich meadows and wetlands. Particularly valuable habitats were identified as being herb-rich pastures close to farmsteads, heather moorland and scrub woodlands which provide good habitat for wintering and breeding small birds.

Of the 150 farmers in the ESA over 75 per cent, accounting for half the area in the ESA and a substantial majority of the agricultural land, had joined after five years of the scheme's operation. The non-joiners tended to be from both ends of the farm-size spectrum. Smallholders (<50 ha) did not have enough conservation features to derive worthwhile payments whilst some of the largest farmers (>200

ha) did not regard ESA payments as sufficient to compensate them for reduced earning capacity from their normal farming activities (Lilwall et al., 1991:50-5; Skerratt et al., 1992:7). Those farmers joining the scheme frequently cited a general interest in conservation and the environment and the positive attraction of income from both the itemised and flat-rate payments. Payments for tasks that farmers wished to undertake, but for which they didn't have sufficient funds or labour, were particularly attractive. This included restoration of dykes (stone walls acting as field boundaries) and fences, and tree planting.

In Breadalbane total expenditure, projected to 1996, is £1.75 million, which represents an average of £15,625 per participating farm. Of this, two-thirds have been allocated to non-flat-rate payments, though only a certain proportion of a particular activity on a given farm has been funded as part of a programme encouraging a variety of measures on each farm. In Breadalbane all participants have spent money on repairing dykes, with over 80 per cent fencing off existing woodland and planting trees (Table 2). Dyking has accounted for 58 per cent of item payments and woodland protection for 30 per cent (Lilwall et al., 1991:56).

The direct impacts of the Scottish ESAs upon patterns of livestock stocking have been somewhat confused by the presence of headage payments as part of the Less Favoured Areas (LFAs) scheme which covers all of upland Scotland. These headage payments have been an important additional income source for farmers, and there has been a reluctance to specify stocking limits in ESA farm management plans as this would have restricted such payments. Thus the greater impact has been on the management of stock and the co-incident enhancement of the landscape through renovation of field boundaries, tree planting and protection of certain landscape features such as coppices and scrub woodland. For example, removal of livestock from fenced woodland areas has encouraged germination of birch and even oak. In contrast, pressure of stocking upon unfenced heather moorland has not been reduced significantly (Nolan and Still, 1992).

One of the aims of all Scottish ESAs has been to preserve and enhance landscape character by affecting both the appearance of particular landforms and of vegetation patterns. To this end management agreements focused on diversity of vegetation cover, the structure of that cover, and both loss of or protection of individual features. Monitoring of landscape character by the Countryside Commission for Scotland (CCS) (1991a; 1991b) revealed significant differences between unchecked continuation of trends present prior to ESA designation and initial effects of implementing farm plans. However, monitoring also showed that a clear assessment of existing landscape character on farms was often overlooked in formulating the plans and so important elements in the landscape, notably trees and small coppices, were not targeted. Another weakness of the scheme has been its limited influence on non-agricultural land uses.

In the Breadalbane, Loch Lomond, Stewartry and Whitlaw/Eildon ESAs the focus has been upon the maintenance of stone dykes, probably at the expense of considering overall landscape character. It is a view of conservation that perhaps overly concentrates on the spatial distribution of selected landscape features rather than on the broader relationship between the landscape and prevailing farming

system. However, there have been a number of clear benefits which have led to substantial extensions of the ESA scheme in Scotland and other parts of the UK. One indirect benefit was the creation of employment associated with various tasks of landscape maintenance and enhancement. A more direct benefit has been the opportunity for farmers to be paid to undertake work which they had previously eschewed for lack of funds. It was therefore a way of rewarding farmers both for current 'good practice' and the adoption of additional environmentally-friendly methods.

In the Breadalbane ESA additional employment has been created principally for the rebuilding and renovating of dykes. Thirty-three jobs have been established for this, mainly through hiring contract labour, nearly half of which comprised local men living inside the ESA. This additional labour has been supported by ESA funds, nearly half of which have gone towards costs of dyking. In total, contract labour has accounted for 65 per cent of expenditure and farm labour just 14 per cent.

ESAs in Lowland England

Six ESAs were designated in lowland England in the first two years of the scheme's operation: the Broads, Somerset Levels and Moors, the South Downs, Suffolk River Valleys, Breckland and the Test Valley. In all of these a central feature was to maintain and extend extensive livestock grazing systems in areas where, with the exception of the Somerset Levels and Moors, arable farming predominates. Threats to grassland were posed from several quarters, including conversion to arable land, agricultural intensification and under-use. Therefore ESA management agreements tended to specify maintenance of traditional grassland landscapes through restricting applications of chemicals, field cultivations, drainage, stocking rates and hay/silage cutting dates. Some specific payments were available in some of the ESAs to reintroduce grassland in areas historically grazed (arable reversion). These land reversions received the highest payments, up to £300 per ha per annum.

In terms of the impacts of the scheme in the lowland ESAs, it is important to recognise differences between the general first tier of options, generally maintaining the traditional grassland landscape, and more proscriptive tiers intended to produce specific benefits for wildlife habitats and landscape character. Froud's (1994) summary of impacts suggests that much of the more intensively used land has not been entered in the scheme and so the effects upon farming practices and the landscape have not been far reaching. Methods of weed control, restrictions on usage of fertilisers, some reduction of stocking rates and changes in grassland conservation were produced on about one-fifth of farms under tier one agreements. Stocking rates were lowered and the extent of grassland conservation was altered on about 50 per cent of holdings under tier two. Nearly three-quarters of farmers reduced fertiliser input under tier two agreements. However, most of the effects upon farming systems have been relatively limited, with the most intensively used land not being included in the ESAs. The greatest changes have come in those ESAs with arable reversion options where there have been significant shifts from

arable to livestock production. The largest conversions have been in the Suffolk River Valleys where 2455 ha were converted in the first five years of the scheme.

Unlike the Breadalbane ESA in Scotland, there has been limited creation of new employment in the English lowland ESAs. Some temporary employment for erection of fences and establishment of grass swards has occurred, but the most lasting impact on jobs has been some maintenance of the farm workforce that might otherwise have been reduced. Perhaps more significantly, there is evidence of farm incomes being increased slightly through participation in the scheme. This reflects a trade-off between extra costs incurred, for example for clearance and maintenance of drainage ditches, and savings in the usage of fertiliser, lime and herbicide. Average income effects per holding over the initial five years of the scheme have varied from just over £5000 for the Somerset Levels and Moors to around £20,000 for the Breckland. However, it is difficult to produce accurate estimates because of variations in both short-term and long-term costs incurred through following the ESA management plans.

In contrast to most of the Scottish ESAs, there has been less likelihood of substantial environmental impacts because land entered into the scheme has often represented only a small proportion of a farmer's land – the average maximum being just 32 per cent per holding in the Somerset Levels and Moors. Indeed, here and in the Breckland there have been reports of decreased landscape quality brought about by intensification of farming on land not covered by management agreements. Lack of attention to hedgerows, woodlands and ponds in the scheme has also been noted. The greatest effects on landscape have been where management agreements have resulted in a consolidation of traditional pastoralism.

In her evaluation of the initial stages of all the English ESAs, Merricks (1990) distinguished between those where the focus was upon peripheral habitats on farms and those where the ESA affected land vital to the farm economy. Participation tended to be greatest in the former, with farmers being generally prepared to give up marginal land to conservation if they felt that they were adequately compensated. It has been this type of scheme that has been predominant in the lowland ESAs. This contrasts with ESAs in upland UK where schemes have placed greater restrictions on the farming system as a whole. In such cases it can be argued that farmers are being paid not to alter farming systems that they probably had relatively little intention of changing anyway. However, ESA payments can prevent land abandonment and so, by helping farmers to stay on the land, they are acting as a social and regional subsidy rather than representing compensation for profits foregone.

The various monitoring exercises for the UK's ESAs reveal that the scheme has adopted a 'component approach' to conservation, in which only certain features within the landscape have been deemed as worthy of protection (Gaskell and Tanner, 1991). This has involved insufficient consideration for the overall character of the landscape and for the relationship between this character and farming activities. The voluntarism in the scheme has also led to a 'patch-work effect' that operates on a number of levels. There are some farms electing to stay outside the scheme and where conservation ideals may be receiving a very low

priority. There are farms which may have some land under an ESA management agreement and not other, more intensively-farmed land. And there are farms where all land is subject to an agreement. This patchwork is then extended to the differentiation between ESAs and non-ESAs. The arbitrary nature of this last distinction has now been addressed by a series of boundary changes and the creation of several new ESAs in a substantial vote of confidence for the scheme. In Scotland this has meant the addition of 69 000 ha to the Breadalbane ESA and 6 000 ha to the Loch Lomond scheme. Five new Scottish ESAs have been created (see Figure 2), with the provision of an additional £12 million for the ESA programme in Scotland. Accompanying these additions are some alterations to the scheme itself, including a wider range of measures for enhancement of woodlands, wetlands, herb-rich pastures, heather regeneration and archaeological sites. A prime objective of the Scottish ESAs will be the regeneration of damaged heather moorland and other forms of upland vegetation. Financial incentives have also been revised, awarding £2 000 for basic protection measures and £4 000 for environmental enhancement, plus biennial revisions of payment rates and additional incentives for positive conservation measures. Throughout the UK, new agreements will be for a ten-year period with a break clause after five years.

ESAs in Denmark

Although the UK's ESAs have been designated under EC regulation, this regulation has been employed to somewhat different effect in other countries. For example, in Denmark the policy has been to designate many small ESAs instead of a few large ones. The first set of Danish ESAs was designated in 1989 when 915 were created. The majority of these were less than 20 ha. Overall, though, they cover 5.8 per cent of Denmark's land area and 8.8 per cent of the agricultural area. This compares with 3.2 per cent of the UK's land area covered by the first 17 ESAs and 4.2 per cent of the agricultural area. Administration was handled by county councils, who had signed about 4 000 agreements with farmers by the end of 1991. This devolved management follows a twenty-year old practice of allowing local authorities to enter into landscape management agreements with farmers. Such agreements were quite rare, though, prior to the ESAs.

The Danish ESAs have been designated in order to protect habitats, conserve landscape quality and protect surface and ground water against pollution. The management agreements concluded have tended to prohibit or limit use of fertilisers, pesticides, ploughing, levelling and re-seeding. Agreements are for a five-year period, with different rates of payment by county and by type of conservation measure. Primdahl and Hansen's (1993) evaluation of the scheme noted that those farmers not participating frequently cited insufficient compensation for loss of revenue as a major factor. Take-up rates were slow, though this evaluation was made on the basis of under two years operation of the scheme. Rates were lowest in areas reliant on high fertiliser input on intensively farmed ground moraine where the aim of the ESA was to protect ground water against nitrate contamination. Where take-up rates were higher, this frequently reflected the fact that agreements

were supporting practices already followed by farmers. Therefore agreements had little or no impact upon management practices and land use. In such cases the chief virtue of the scheme would seem to be in ensuring continuity of habitat protection or preventing the abandonment of agricultural land. A major weakness in the Danish approach is that, with such small areas involved, there is little scope for having an influence upon regional landscapes. It is a micro-level approach compared with the UK's meso- or macro-scale focus.

Conclusion

The ESAs scheme has linked food production and conservation "through reward payments based on conservation achievements, rather than relying on compensatory management agreements or on purchase" (Lomas, 1994:123). It has been an approach that has involved partnership between agencies and land managers, and which generally has been well received by the farming community because of its voluntarism and the positive impact it has had on maintaining and enhancing farm incomes. It is a scheme that is regarded by some as a 'watershed policy' as it marks a move away from previous over-emphasis on high price guarantees and high output (Turner and Brooke, 1988).

Some of the basic characteristics of ESAs have now become a feature of other, more widespread policies in the EU promoting environmentally-friendly farming. In particular, there has been increased encouragement of the use of farm conservation plans, with annual flat-rate payments in return for a standardised set of conditions and further tiers of payments based on the extent of features identified in recognition of positive management. This idea has been embodied in the UK's agri-environment package submitted to the European Commission in August 1993 as part of EU-wide agri-environment measures. The UK package includes payments to farmers for converting intensively-farmed fields into wildlife-rich habitats, reducing fertiliser input, improving access to ramblers, compensation to hill farmers for reducing the size of sheep flocks, and an organic conversion scheme to increase the area of organically-farmed land. The chief difference between the environmental measures available outside the ESAs and those within them will probably be the continued requirement for a farm conservation plan in the latter.

References

BALDOCK, D., COX, G., LOWE, P. and WINTER, M. (1990) Environmentally Sensitive Areas: incrementalism or reform?, *Journal of Rural Studies*, 6.143-62.

BUTTEL, F.H. (1992) Environmentalization and greenibng: origins, processes and implications, in HARPER, S. (ed) *The Greening of Rural Policy: International Perspectives* (Plenum Press, London and New York) pp. 12-26.

COMMISSION OF THE EUROPEAN COMMUNITY (CEC) 1991 *The Development and Future of the CAP* (CEC, Brussels).

COUNTRYSIDE COMMISSION FOR SCOTLAND (CCS) (1991a) *Breadalbane Environmentally Sensitive Area: The Effect of the Designation in the Landscape* (CCS, Perth).

CCS (1991b) *The Machair of the Uists, Benbecula, Barra and Vatersay: The Effect of the Environmentally Sensitive Area Designation on the Landscape Character* (CCS, Perth).

DEPARTMENT OF AGRICULTURE AND FISHERIES FOR SCOTLAND (DAFS) (1989) *Environmentally Sensitive Areas in Scotland: A First Report* (DAFS, Edinburgh).

FROUD, J. (1994) The impact of ESAs on lowland farming. *Land Use Policy*, 11. 107-18.

GASKELL, P.T. and TANNER, M.F. (1991) Agricultural Change and Environmentally Sensitive Areas, *Geoforum*, 22. 81-90.

LILWALL, N.B., PERKINS, T.J. and SKERRATT, S.J. (1991) *Socio-economic Evaluation of the Breadalbane ESA Scheme 1987-1990: Final Report* (Edinburgh School of Agriculture, Edinburgh).

LOMAS, J. (1994) The role of management agreements in rural environmental conservation. *Land Use Policy*, 11. 119-23.

MINISTRY OF AGRICULTURE, FISHERIES and FOOD (MAFF) (1985) *Environmentally Sensitive Areas: A Consultation Paper* (MAFF, London).

MERRICKS, P. (1990) *A Review of Environmentally Sensitive Areas in England I: Main Report, II : Annexes* (Nature Conservancy Council, Peterborough).

NOLAN, A.J. and STILL, M.J. (1992) Botanical monitoring of the Breadalbane ESA, 1989-1991. unpublished paper presented to the Symposium on Land Use and the ESA Schemes, Battleby, 6.3.92.

POTTER, C. (1988) Environmentally Sensitive Areas in England and Wales: an experiment in countryside management. *Land Use Policy*, 5. 301-13.

PRIMDAHL, J. and Hansen, B. (1993) Agriculture in Environmentally Sensitive Areas: implementing the ESA measure in Denmark. *Journal of Environmental Planning and Management*, 36. 231-8.

RAMSAY, P. (1993) Land-owners and conservation. in GOLDSMITH, F.B. and WARREN, A. (eds) *Conservation in Progress* (Wiley, Chichester).

ROBINSON, G.M. (1991) EC agricultural policy and the environment: land use implications in the UK. *Land Use Policy*, 8. 95-107.

ROBINSON, G.M. (1994) The Greening of Agricultural Policy: Scotland's Environmentally Sensitive Areas (ESAs). *Journal of Environmental Planning and Management*, 37. 213-23.

ROBINSON, G.M. and ILBERY, B.W. (1993) Beyond MacSharry: reforming the CAP. *Progress in Rural Policy and Planning*, 3. 197-207.

SHERRATT, S.J., PERKINS, T.J. and LILWALL, N.B. (1992) Socio-economic evaluation of the Breadalbane Environmentally Sensitive Area scheme 1987-1990. unpublished paper presented to the Symposium on Land Use and the ESA schemes, Battleby, 6.3.92.

TURNER, R.K. and BROOKE, J. (1988) Management and valuation of an Environmentally Sensitive Area: Norfolk Broadland, England, case study. *Environmental Management*, 12. 193-207.

Table 1: Objectives of The First Scottish ESAs

Objective	B	LL	Mach	S	WE
Protect rough grazing	x	x		x	x
Protect unimproved, enclosed land in valleys	x				
Repair farm dykes/hedges	x	x		x	x
Regenerate farm woodland	x	x			
Harmonize new developments with landscape amenity	x	x		x	
Limit modern agricultural practices			x		
Encourage traditional crofting techniques			x		
Protect machair from over-stocking			x		
Encourage positive conservation of machair			x		
Protect wetland areas/loch shores from damage				x	x
Protect archaeological earthworks					x
Restrict pesticide usage on edges of arable fields					x

Notes: B – Breadalbane; LL – Loch Lomond; Mach – Machair of the Western Isles; S – Stewartry; WE – Whitlaw/Eildon.

Source: DAFS (1989).

Table 2: Conservation Activities in The Breadalbane ESA

Item Payments		Use of ESA Payments	
Activity	% of expenditure	Activity	% of farmers using ESA payments for activity
Dyke-work	58	Dyke-work	100
Woodland protection	38	Fencing off existing woodland	89
		Planting trees	86
		Fencing off wetland	58
		Fencing off unimproved pasture	44
		Bracken control	42
		Protection of archaeological sites	35
		Hedge restoration	16
		Heather regeneration	7

Sources: Lilwall et al. (1991:56); Ramsay (1993:267).

Figure 1: ESAs Designated in The UK, 1986/7

Figure 2: The Scottish ESAs

THE SUSTAINABLE DEVELOPMENT OF RURAL AREAS

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Introduction

Both Hungarian agrarian production and the rural population are experiencing an enormous range of problems associated with the transition. Unregulated property ownership, and the organisational and institutional uncertainty connected with this situation, the loss of effective markets, the decrease in opportunities for sale and marketing and the increase of direct and indirect loss of incomes all contribute to unfavourable situation. The result of these factors has recently become obvious. The growing number of problems is clearly shown by a number of impacts: the massive over indebtedness of producers, the rapid decrease in the number of livestock, an almost complete lack of investment, the reduction in the use of artificial inputs (such as chemicals) and regression to the level of primitive agriculture, the growing proportion of uncultivated areas and the growing number of unemployed.

The consequences of the regression in agricultural production do not only afflict the population directly reliant on agriculture, but the whole of the rural population. The reason for this is that the closure of rural work places (factory units) accelerated, commuting became more expensive, and people gradually lost their sources of income from the second economy (part time agricultural activities). These additional sources of income used to give the rural population a feeling of security.

The rehabilitation of this unfavourable present situation will be a long term process. It will result in the establishment of a new rural society. This is likely, because the process of joining Western Europe will create new requirements. Unfortunately, currently we can report a complete lack of vision of what should be the ideal future picture. Apart from the contradictions of an unstable agrarian policy during the past few years, the main objective should be to establish agricultural production that can meet the requirements of the private property based, efficient and competitive agriculture of the European Union. This could be achieved by reforming conditions of ownership and, because of inadequate internal resources, the participation of external capital.

Sectoral development trends

Sectoral trends so far are rather contradictory, despite all government efforts for development (establishing product councils, or liberalisation of external trade). It seems, that the different food processing and marketing companies unfortunately seek to increase their success, not by extending their old markets and winning new ones, but, taking the path of least resistance, which means tapping the incomes of basic agricultural activities. Without adequate investment capital and development resources the production of quality raw materials can not exist. Joining Western-Europe requires a development concept that is more than simply sectoral development.

As a result of political fights and economic difficulties during the past four years, the agricultural sector has collapsed. Despite its excellent export performance and its positive role in slowing inflation in the economy, agriculture was politically under-valued. This was a very serious mistake, because Hungary has two characteristics that could ensure the process of catching up with Western European level of comparative advantage. One of these is its favourable conditions for agrarian production (including among others climate and soil, as well as the high culture of production and tradition of large-scale farming, etc.). The other positive characteristic of the country is its geographical location, the fact, that it lies in the centre of Europe, on the junction of trade roads and on the border of differently developed regions. These two advantages can only be exploited through well-co-ordinated development, because they can only assert themselves, if a positive picture of the country is established that will inspire confidence for both its agricultural products and its services. These two characteristics could serve as bases for a high quality service and industrial base. These will enable the use of the culture of work and intellectual capital that are characteristic of this country.

Regional issues

The emphasis of development varies in different regions. Development requires rethinking and better utilisation of regional potentials. One of the most significant among these factors could be agrarian production. The pressure of different factors and circumstances make this rethinking necessary. It is an important advantage, that the establishment of autonomous local governments harmonised the ownership and administration of given land areas, because these lands are the economic bases for local governments. This fact is important for the agrarian sector, because even after solving the problems of the current situation and establishing ideal routes between tillage and market (although the signs of this kind of change can not be seen yet), we have to consider serious problems in the future.

The expected problems are, that production will significantly narrow because of new market boundaries. Development will release significant amounts of labour and land. Regional crisis centres may develop causing the complete ruin of some areas, loss of population, or the poverty of remaining inhabitants. Agricultural production will necessarily retire to the best areas, so that it will be less effective in

regions with less advantageous capabilities, mostly further away from the markets (with the exception of 'islands' of bio-production, and areas especially suitable for fruit and vegetable cultivation). Here the extensive forms of animal farming (cattle, horse, sheep, deer, etc.) will dominate. Marketing success finally depends on the costs of production, and how far we are able to convince foreign buyers that the product they are willing to buy is not only of better quality than average, but is also of higher value, because of more natural ways of animal husbandry and cultivation. Of course they also need to meet modern environmental and animal protection requirements as well as the requirements of food hygiene.

We emphasise here, that the increased significance of environmental protection is not only a matter of fashion, but a means of cost reduction, it is also a condition for economically competitive production. Agrarian production that is based on a conscious rotation, professional organic matter husbandry, cultivation that preserves the fertility of soil, and the limited and careful use of chemicals, could be the source of significant extra results. This would naturally require significantly more intellectual investments at the same time. As a result of the release of bigger land areas, the tasks of agrarian production will increase. Beyond the traditional, industrial, raw material production and food processing, agricultural production will have to take up energy production as well (heating works operated with biomass or bio-diesel) and establish the regeneration conditions for conservation and recreation. These tasks have far more significance beyond the whole sector and can be organised only on settlement or regional level. This is the same in the case of the employment of labour that is released from agriculture.

All settlements must have detailed information about their region's assets and potentials to ensure a rational development process that would not decrease the land's potential significantly in the hope of winning some short term advantages. For these reasons settlements have to inform themselves precisely about their:

- Human resources (division of population concerning age, sex, education)
- Production potentials (mineral and water reserve, soil quality and amount, operating industrial facilities, wood property, valuable areas specially suitable for grape or fruit cultivation, infrastructural conditions, etc.).
- Natural potentials (thermal waters, ground and under ground water reserves, special land properties, rare species of plants and animals and their eco-systems).
- Settlement potentials (schools, health facilities, quality of administrative and other community services, valuable building stocks, special activities).

Every region and every settlement has special assets, resources and potentials, but these are limited. The settlement's image can be established through the well-co-ordinated development of these assets. They also provide the basis of tourism in given regions and can collectively effect the country's reputation:

The following factors currently constrain regional development:

- lack of detailed knowledge about regional potentials,
- undeveloped behaviour of the population,
- infrastructural underdevelopment in certain regions,

- lack of necessary development resources,
- and especially the complete lack of regional co-ordination.

The limits of development could be removed by a complex survey of the land belonging to the settlements and processing the results in a database that is accessible to the public. Strict and consistently applied regulations on the national and regional level, and the rational and co-ordinated utilisation of infrastructure and national and regional development resources, all require a conscious regional co-ordination.

In the complex development process the different sectors can not be isolated. Agricultural production is only one, but still a determining aspect of regional development because of its economic significance and because it largely effects the landscape of an area. The current chaotic production, struggling between broken and unintegrated product chains, has to be replaced with a regulated production based on complete product paths that extend to the market. The strongly export oriented mass production is still being organised by the bigger regional food processing and marketing companies, connecting production to international market networks. The small and medium sized companies, seeking to supply smaller regions, which would undertake only the less complicated processing phases, could show significant cost advantages compared to bigger companies, because of their short product paths.

As a consequence of production failures of the new landowners, the proportion of uncultivated but good quality land grows. This could have a negative impact. Even more dangerous is the fact, that the land loses its value, which leads to an increase of land withdrawal. Valuable land area can fall victim to short term economic interests, causing irreversible losses, not only for the given region but for the whole country.

Experts predict, that about 800 000 – 1 000 000 hectares of land area will be taken out of agrarian production in the near future. 80% of this land is not utilised any more, even at the present time. This can be an advantage from the point of view of ecology and economy and a drawback at the same time. The establishment of a high quality silviculture in these areas, which can produce marketable goods is surely an advantage. It does not only create new workplaces for local employees, but supplemented with agricultural by-products, it can provide a basis for local energy production as well. This way of energy production could balance the lack of energy resources due to the decline of the coal-mining industry. The value of forests will grow anyway. The reason for this is, that the increase of forest areas have a very fortunate climatic impact. Considering the climatic prognosis for Hungary forests will be appreciated even by agricultural production.

In the further development of forestry, short term utilitarian exploitation should be avoided. The proportion of the indigenous and extraordinarily valuable oak- and beech forests should be increased instead of fast growing species. Planted forest belts with the strict consideration of ecological circumstances of the area, and the insects and birds living in wetland areas could contribute to the decrease of chemical processing and the cost of agricultural production. This process requires conscious land planning, so that both the area of production and natural habitats

are shaped carefully. If not, the landscape value of the country will continue the decline that was actually not ruined by the often blamed planting process, but rather by the fact that there are huge fields of uncultivated areas between forest plots.

The natural balance can restore itself on its own, but this is not really desirable, either from an economic nor ecological point of view, because it would be a very long process. A conscious development on the other hand can ensure preservation and improvement of the country's species that would make the country even more attractive. These interventions can establish the conditions for tourism.

This is an opportunity that has to be recognised by the national, regional and local management of the country. But also the population's environmental culture must improve. This is an economic but at the same time educational issue. We have to differentiate between valuable elements of folklore architecture and culture – that we can be proud of – and underdevelopment and backwardness.

To be able to assimilate into Western Europe, and achieve integration, we have to establish a positive image for the country that will meet in every respect the Western European requirements. The condition for this is that all settlements identify and respect their own assets, and establish their own image based on these advantages. This is important, because the image of the country is formed by all settlements together. The emphasis has to shift from sectoral development to a complex regional and settlement development, that will harmonise the different development goals (infrastructure, agriculture, forestry, industry, service sector etc.).

Conclusion

The goal is to utilise the regional potentials to the greatest extent possible, and to achieve a high level of employment of local citizens, which is only possible through the common development of different activities and the preservation of natural assets. Agrarian production has to adapt itself to these requirements, through the use of given areas, on the basis of the area's characteristics. These can include: the intensive use of good quality lands, and the extensive use of the less good lands, development of forestry and of game that will preserve natural assets, establishing the conditions for bio-production in the case of an adequate demand, and the consideration of local demands, while creating local activities (for instance local production of energy, deposit of waste water, or food demand). All this together will make it possible for agricultural production to be integrated into regional development.

This task requires entirely different attitudes on the part of national, regional and local management but also from the population. Only an intensive process of education can ensure adequate success. This process of learning can establish the basis for effective development, and through that make the country attractive for external development resources.

THE COMMUNITY FOREST INITIATIVE: PAST, PRESENT AND FUTURE PERSPECTIVES

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Abstract

The Community Forest initiative is a major scheme designed to improve the social and economic conditions of urban fringe locations. The following paper aims to trace the evolution of UK forest policy towards multiple objective planning, outline the Community Forest concept and location and finally to consider the major obstacles inherent in translating policy into practice.

Past perspective

Evolution of multi-purpose forest policy. The Forestry Commission was established in 1919 under a remit to increase public sector afforestation whilst stimulating the private sector by way of limited grant aid funding. The location of new afforestation programmes, however, was to a great extent determined by the dictates of protectionist agricultural policies. which effectively confined forest expansion to the poorer soils of upland Britain. This had a major influence upon the structure of forests in the UK as well as public perceptions toward the forest industry as a whole. The need to expand forestry development emanated from problems of war time timber shortage which had reduced standing supplies to their lowest ever level (Foresty Industry Committee of Great Britain 1992), a problem which resurfaced in the early post-war period of the 1940's. UK forestry at this time was production led, with development focused on coniferous softwood species, the predominant timber demand. Plantations became characterised as mono-culture geometric blocks of conifers clothing hillsides and conflicts soon became apparent as conservation interests questioned the value of forests upon the landscape and environment (Ramblers Association 1980). Negative perceptions were fuelled in the 1950's with the understanding that the arrival of the nuclear age lessened the national importance of timber supplies and the forest industry could no longer rely upon strategic arguments alone to justify expansion (National Resources Committee

1957). The industry would now need to derive a broader range of benefits in order to justify increased development, yet the drive towards a multi-purpose forest policy was constrained by the accounting procedure used to determine return on public investment. Low financial returns have thus proved a major disincentive towards multiple objective planning, mainly by reason of the marginality of afforested land alongside a long investment period. Official reports criticised the performance of the Forestry Commission and disregarded the claims of leisure and conservation as insignificant in relation to economic returns. HM Treasury (1972) and the National Audit Office (1986) were critical in their recommendations, yet their reports were compiled almost exclusively from a financial standpoint and ignored many of the non-market benefits derived from forestry development. The Forestry Commission (1987) questioned this view point, arguing that these problems were not unique to the UK and that many other timber producing countries placed greater emphasis upon the non-tangible benefits of forestry.

Recent years have witnessed a greater awareness of the importance of forestry worldwide as the degradation of natural forests have threatened the balance of the global environment (Robinson & Probert 1994), leading to an increase in understanding of the role temperate forests can play in satisfying timber demands and reducing damage to tropical and boreal forests. The Forestry Commission have a statutory duty to "seek a reasonable balance between timber production and wildlife conservation" under the Wildlife and Countryside (amendment) act 1985. This situation had arisen at a time of increased interest in all sectors of the community as to the importance of the forest environment and heritage (Walker 1992), with higher recreational demands placed upon the countryside (Benson & Willis 1991). In recognition of such issues the government announced an increase in broad-leaved planting (Forestry Commission 1985), to be developed in areas where woodlands were scarce, including locations on the outskirts of major towns and cities. Forest expansion into the lowlands was becoming increasingly possible as the existence of agricultural surplus throughout the European Community became recognised. Financial support structures for agriculture needed to be radically altered as a result and diversification of redundant farm land in itself became a grant aid focus (e.g. Set Aside). The Countryside Commission carried out a major review of the forest industry in 1987 (Countryside Commission 1987a), which culminated in the recommendation to develop multi-purpose forests in lowland Britain, including the identification of sites in urban fringe locations which would be considered for the creation of "Forests for the Community".

Present perspective

The Community Forest concept. The Community Forest concept is defined by the Countryside Commission as the creation of "...living forests supporting a rich variety of wildlife. They will also be working forests providing employment in forestry, farming, conservation and leisure. But above all they will be forests for the community, shaped by local people for themselves and their children to cherish for generations to come." (Countryside Commission 1989).

The Community Forest initiative was officially launched in July 1989, a joint venture of the Countryside and Forestry Commissions. There are currently twelve Community Forests involved in the national initiative (see fig. 1), all situated in urban fringe environments. These forests are intended to cover between 10 000 to 15 000 hectares of land with between 30%–60% tree cover, which will be predominantly broad-leaved in composition (Taylor 1989).

Figure 1: Location of the twelve Community Forests

1 – Great North Forest; 2 – Cleveland; 3 – Mersey Forest; 4 – Red Rose Forest; 5 – South Yorkshire; 6 – The Greenwood; 7 – Forest of Mercia; 8 – Marston Vale; 9 – Bristol/Avon; 10 – Great Western Forest; 11 – Watling Chase; 12–Thames Chase

Each Community Forest has been established with a project team charged with the responsibility of implementing strategy, backed by a combination of Countryside Commission and local authority funding, and supported by technical advice from the Forestry Commission. Project teams hold no statutory powers and must therefore concentrate upon persuasion and negotiation as their main tools of implementation in locations where the majority of land is held in private ownership. Incentives for land owners are derived mainly from the Farm Woodland Premium Scheme and Woodland Grant Scheme, supported by payments under the Community Woodland Supplement.

The initiative encompasses a broad range of objectives (see fig 2, overleaf). The creation of increased leisure provision in close proximity to centres of population is recognised as a central element of the initiative, backing up national policy to

provide rural leisure activities to as many people as possible (Countryside Commission 1987b).

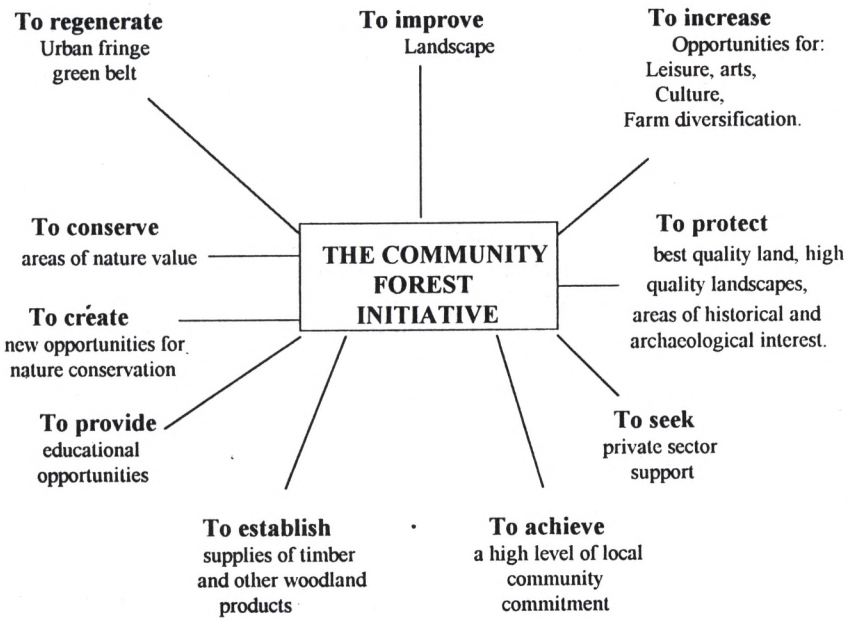
The interaction of potential benefits is ultimately expected to regenerate urban fringe environments both economically and socially, and to ensure that green belt areas remain permanently green (Thames Chase 1992). This recognises the fact that problems encountered in urban fringe environments can differ significantly from those experienced in completely rural surroundings.

The urban fringe. The urban fringe has been defined as "...an intermediary zone of transition between the hard urban area on its inner edge and open countryside or the fringe of an adjoining area. The zone includes green space which extends from the edge into the urban areas. The zone is constantly evolving both in terms of the area it covers and the processes occurring within it. In this zone, the attributes of modern society – sewerage works, waste disposal, new development allocations, recreation, horse related activities, litter, trespass, vandalism etc. – mingle and interact with agriculture, often in inappropriate and detrimental ways." (Gillis 1991).

The urban fringe is recognised as an area with the greatest potential for change and is acknowledged to suffer from a number of problems which directly affect economic and social conditions. Agriculture is the major land use in many urban fringe environments, characterised by a large number of small scale, marginal farming units in juxtaposition to residential and industrial developments. Due to its proximity to large urban populations, access to land (often illegal) can be a considerable pressure with vandalism a major threat to agricultural operations. This can contribute to an element of distrust in terms of providing public access which in many cases has caused serious conflict between land owners and land users. It is not purely access however, which affects farming profitability but also substantial areas of land are utilised for mineral extraction and land fill operations as well as transport networks to service and bypass the nearby city. Such a diversity of land use has contributed to the emergence of a complex land ownership regime with a proliferation of tenant farmers present in many urban fringe areas.

Development pressures are also high in urban fringe locations, which are often governed by green belt legislation which aims to prevent urban sprawl and coalescence. One result of such pressures is the presence of 'hope values' attached to land, with owners retaining areas of degraded land in the hope that they will be able to develop the site in the future. These sites can include former industrial land where decline, decentralisation and relocation have all contributed to the existence of degraded and derelict land. This can have major implications upon the image of an area and affect the attraction of investment, whilst lack of civic pride and community identity create little incentive to improve neighbourhoods further blighted by instances of illegal fly tipping. The Community Forest initiative is designed to address these problems and act as a catalyst for regeneration. The translation of policy into practice however, must overcome a number of problems if the initiative is to successfully satisfy the multi-purpose objectives it sets out to achieve.

Figure 2: The objectives of Community Forest development (Evans & Davis 1993)



Future perspective

The Community Forest initiative faces a number of constraints and difficulties during the implementation process. These will either be overcome through effective management and ongoing financial backing or the effectiveness of the initiative in regenerating urban fringe environments will be limited.

It is foreseen that the following issues will be paramount in determining the likely success of Community Forest implementation in the future.

- The extent to which land owners/farmers can be persuaded by way of grant aid payments to contribute to the initiative.
- The success of project teams in limiting land use conflict and gaining public support through promotion and education.
- The extent to which conservation and leisure activities can offer a return to land owners as well as a marketable service for the community.
- The extent to which the community can act as an integrated unit as opposed to individualistic motivations or apathy towards the Community Forest initiative.
- The role of local authorities and the extent of their support and financial backing of the initiative.
- Cooperation between the parties involved in implementation and the adoption of non-statutory forest plans in the legal planning system.

- The extent to which derelict land can be restored and the effect of an improved environment on attracting internal and external investment.

These issues are by no means exhaustive, yet the above mentioned problems will need to be successfully addressed if the long term regeneration of large areas on the periphery of major towns and cities is to be a realistic goal as opposed to an idealistic vision.

References

FORESTRY INDUSTRY COMMITTEE OF GREAT BRITAIN (1992), Memorandum to the House of Commons Environment Committee. Forestry and the Environment vol. II, HMSO, London.

RAMBLERS ASSOCIATION (1980), Afforestation: The case against expansion.

NATIONAL RESOURCES COMMITTEE (1957), Report of the Zucherman Committee on forestry, agriculture and marginal land. HMSO, London.

HM TREASURY (1972), Forestry in Britain: An interdepartmental cost benefit study. HMSO, London.

NATIONAL AUDIT OFFICE (1986), Review of Forestry Commission objectives and achievements. HMSO, London.

FORESTRY COMMISSION (1987), Annual Report. Forestry Commission Edinburgh.

ROBINSON, D. & PROBERT, S. D. (1994), Timber labelling scheme to encourage the achievement of Tropical Forest sustainability. Applied Energy 48, pp. 65–93.

WALKER, W. B. (1992), Making money from farm woodland. Paper from National Agricultural conference, 28th January, Stoneleigh.

BENSON, J. & WILLIS, K. (1991), The demand for Forests for Recreation. Research Paper no. 6, Newcastle University.

FORESTRY COMMISSION (1985), Policy for broad-leaved woodlands. Forestry Commission Edinburgh.

COUNTRYSIDE COMMISSION (1987), Forestry in the countryside. Cheltenham.

COUNTRYSIDE COMMISSION (1989), Forests for the Community. Cheltenham.

TAYLOR, G (1989), The National Community Forests programme and the South Tyne and Wear/NE Durham Community Forest. Countryside Commission North Regional Office.

COUNTRYSIDE COMMISSION (1987), Policies for enjoying the Countryside. Cheltenham.

THAMES CHASE (1992), Thames Chase Plan, draft document for consultation.

GILLIS, J (1991), Planning and the urban fringe. Paper given at the RTPI Conference, 5th April 1991.

EVANS, S. & DAVIS, D. (1993), A review of Community Forest policy and the constraints on its implementation. Environmental Policy and Practice, vol. 2, no. 4, pp. 399–411.

IV The Public and Local Agenda 21

DELIVERING LOCAL AGENDA 21: THE UK EXPERIENCE

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Summary

Local Agenda 21 is fast becoming the focus for local authority environmental action in the UK, incorporating both the UNCED Rio agreement to Agenda 21 and the requirements of the European Union's Fifth Environmental Action Programme, 'Towards Sustainability'. This paper examines some of the problems which are emerging in Britain as the Local Agenda 21 process unfolds.

What is Local Agenda 21?

The enigmatically titled "Agenda 21" is in many ways the most influential environmental document ever to have been signed at the international level. It is generally regarded as the most important agreement to have emerged from the 1992 UNCED 'Earth Summit' held in Rio, and it was signed by all the attending national governments, some 150 in number.

Agenda 21 is a 500 page document with 40 chapters which sets out how both developed and underdeveloped countries can work towards sustainable development, and it specifies the actions which will need to be taken by the world community if development is to be reconciled with environmental concerns. In addition to requiring a reduction in the usage of energy and raw materials, and of pollution and waste, Agenda 21 also represents a call to share wealth, opportunities and responsibilities more fairly between North and South and between rich and poor, both nationally and internationally. In this sense, Agenda 21 is, in Levett's words, "profoundly democratic and egalitarian in outlook" (Levett, 1993).

The document not only emphasises the need to adopt policies and strategies which meet the needs of disadvantaged groups, but it also stresses the importance of encouraging such groups to participate in decision making and in the implementation of policy. The concept of "capacity building" has a prominent place in Agenda 21, referring to the need to develop the capacity of people and

organisations to help themselves to undertake and implement policies which will contribute to sustainable development.

Local government has a major role to play in the implementation of Agenda 21. Most observers agree that the majority, perhaps over two thirds, of Agenda 21 policies and programmes cannot be delivered without the commitment and involvement of local authorities. However, local government was only brought into the Rio negotiations at a very late stage when the International Council for Local Environmental Initiatives (ICLEI) acting on behalf of the major international local authority associations, lobbied for a separate section of Agenda 21 to be written which should specify the role of local authorities. That section was written, and became Chapter 28 of Agenda 21.

The wording of Chapter 28 has now become very familiar since it is the frame of reference for Local Agenda 21, which is now the principle mechanism for implementing sustainable development at the local level throughout the world. The Chapter specifically calls on local authorities to initiate the Local Agenda 21 process, and to establish partnerships with local people, business and voluntary organisations to secure sustainable development at the local level. The plan to establish this process – the Local Agenda 21 – should be in place by 1996. The United Nations has now established the Commission for Sustainable Development (CSD) which was agreed at Rio. Its major task is to encourage and assist governments in implementing Local Agenda 21, and in turn, governments have to report annually to the CSD.

Local Agenda 21 is a world wide process, but member states of the European Union have an additional, though complementary, environmental programme. This is the EU's Fifth Environmental Action Programme "Towards Sustainability" (EC,1992) which has a somewhat similar approach to Agenda 21. The Programme argues for a partnership approach to securing sustainable development, and identifies a range of policy actions which member governments are committed to implement, and it also specifies the agencies for implementation. As with Agenda 21, local authorities are to implement the a major part, perhaps 40% of the Programme.

"Towards Sustainability" will condition and determine EU environmental policy for the next decade, and as such it is inseparable from Agenda 21 for EU governments. For this reason, Local Agenda 21 programmes are usually closely associated with the recommendations and requirements of the Programme.

The development of Agenda 21 in the United Kingdom

The first stirrings in Britain of what has come to be termed the 'new environmental agenda' (Agyeman & Evans, 1994) may be traced back to the late 1980s. The publication of the Brundtland Report in 1987 was clearly a major catalyst in the development of environmental policy internationally, and in Britain this was quickly followed by a number of reports which had a major and immediate influence. Perhaps the most important was that published by the environmental pressure group the Friends of the Earth in 1988 (FOE, 1988), and their

'Environmental Charter' was adopted by many UK local authorities as the basis for their new environmental policies. The local authority associations quickly followed with a variety of reports and publications, notably the two reports on environmental policy and practice which were published by the Local Government Management Board (LGMB, 1990, 1992)

During the years since the signing of the Rio agreement, UK local government has enthusiastically embraced environmental policy and action, initiating and experimenting in a number of creative and innovative ways, to the extent that, together with environmental pressure groups such as Friends of the Earth, they can now be collectively regarded as constituting the greatest repository of environmental knowledge and experience currently existing in Britain.

In contrast, the UK national government has done very little. A number of Ministers have stated that the government is committed to sustainable development, and a report, the UK Strategy for Sustainability (HMSO, 1994) has been produced as the UK Government's national sustainability strategy, as required by the Rio agreement. This report has been widely and exhaustively criticised as a vacuous document which is breathtaking in both its complacency and its triviality.

Despite the fact that there is virtually no practical government support for the UK Local Agenda 21 process, a large number of local authorities are actively involved in preparing an LA21, or have made some kind of progress towards this. The Local Government Management Board estimates that approximately half of all UK local authorities have made a report to committees or council on LA21; some 50% propose or are involved in some kind of community consultation on LA21; 60% are looking at some kind of environmental management system; and 305 now have an officer in place to take responsibility for LA21 (LGMB,1994). Given that LA21 has existed for only just under two years, this is a considerable achievement.

Problems in implementing Local Agenda 21

The major problem which exists in Britain with respect to implementing LA21 is the lukewarm support offered by the UK government. There is no substantial political, financial or legal backing for environmental policy generally or for LA21 in particular, and despite the supportive noises made by the government in the UK Sustainability Strategy little has materialised in practice. On the contrary, the evidence suggests that the government has been more active in blocking environmental reform, such as that required by EU Directives, than it has been in promoting UK environmental policies and strategies.

At the local level there are several difficulties which may be replicated in other countries. The most predictable problem of course, is the availability of resources. Although environmental policy is one of the cheaper areas of public policy, since it can operate on regulation rather than massive investment, there still remains the substantial costs – direct and opportunity – of formulating and implementing policy. This means that in the UK it is not unusual for one person alone to be charged with the responsibility for environmental policy for a large local authority of perhaps 200 000 residents.

The shortage of finance for policy development is compounded by the particular character of environmental policy. Unlike other policy areas, 'the environment' cannot easily be compartmentalised, and the need for policy integration and holistic approaches is clear. However, established departmental and professional interests have, in some local authorities, prevented these new ways of working from becoming established.

This problem is compounded by the fact that, although the Agenda 21 process has political and moral authority, it has no statutory status. In contrast, local authorities are required to maintain plans and strategies relating to, for example land use planning and housing. There is a tendency to 'graft' LA21 onto already existing statutory commitments, particularly land use planning with a consequent loss in the quality of approach and vision. The Local Government Management Board, as the principal advisor to UK local government on Agenda 21, argues that LA21 is a process rather than a product. The crucial objective is to secure the patterns of partnership, and the attitudes towards planning for sustainability, rather than to be over concerned about the production of specific LA21 plan documents.

There is some logic to this, but it should also be recognised that large and often diffuse organisations need some focus and direction, and the production of a plan can often provide this. The problem is that many of the more traditional local authorities or local authority departments will simply use this as justification for amending land use planning arrangements and documents to incorporate sustainability, often in limited and unsatisfactory manner.

There is one further point which demands emphasis, and this may be summarised as the 'problem of sustainability'. It is clear that sustainability is in essence a political rather than a technical notion, and it is equally clear that, to be anything like effective, the process of environmental policy will inevitably involve decisions which will threaten current lifestyles, for example by restricting mobility and car usage, or by reducing levels of consumption and consumer choice.

Such decisions (and these are mild 'environmentalist' examples) would presumably be taken on the basis of securing the future of the planet and protecting the interests of as yet unborn generations. This raises the difficult issue that sustainability is potentially an inherently undemocratic principle, in that it is likely to generate policies which run counter to the immediate short term objective interests of the populations of both developed and underdeveloped societies. It seems likely that comparatively few people in a country such as Britain will actively support policies which will reduce their perceived living standards or limit their immediate choices and it has to be recognised that public opinion in Britain is still substantially distanced from many of the positions, values and attitudes which are taken as common currency by those actively involved in environmental policy.

It is very clear that an environmentally sustainable society can only become a possibility if large numbers of people abandon existing attitudes and adopt new ones which may not be in their immediate short term interests. It is for this reason that a programme of community environmental education, or what the United Nations Environment Programme refers to as 'education for sustainability', is essential (UNEP–UK, 1992). In other words, there is a plain need to accompany

environmental policies with an explanation of why such policies are necessary and indeed, desirable. The importance of this cannot be underestimated, and it is essential that the process of community environmental education should be an integral part of any strategy for sustainability.

The problem in Britain is that there is at present no indication that such a programme is on the horizon, and until this occurs it would seem likely that despite all the current interest and action, LA21 will remain very much a marginal matter on the national political stage.

Prospects for Local Agenda 21 in Britain

We have argued elsewhere that there are four contributory themes which inform and contribute to the principle of sustainability, and as such they are central to the success of Local Agenda 21 (Agyeman & Evans,1994).

Community Environmental Education. As has already been indicated, this must be put this first because of its centrality to sustainability. It will be impossible to secure popular support for policies designed to secure sustainability without a massive programme of public education. This is not an optional, add-on extra. It is fundamental to the success of policy since, as has been argued above, sustainability must be viewed as an inherently undemocratic principle which requires that many people in countries such as Britain act against their perceived short term interests.

Community environmental education should be a life-long process which seeks to empower people such that they develop an empathy with the aim of sustainability. The task therefore is to enable people to develop the attitudes, confidence, knowledge and skills necessary to make informed choices about the local and global environment, their role within it and their life and workstyles, either as individuals or collectively, such that they minimise their impact upon it.

Part of this process is clearly related to the existing, formal educational system, from nursery to tertiary level, associated with a programme of public information and awareness conducted through the media and community educational programmes, similar to those undertaken by the health service such as the anti-smoking and Aids/HIV programmes. However, it is more than this. It is also a process which requires dialogue, patience and tolerance, and perhaps most importantly, time. There can be little doubt that the changes in public attitudes which all this requires are immense, and that there are many powerful and established interests who will seek to frustrate and undermine such a programme. Nevertheless, it is clear that without a commitment to CEE at national and local levels, there can be little expectation of significant long term achievements in local environmental policy.

Democratisation. As Jacobs has argued, democracy is central to sustainability (Jacobs, 1991) in that greater democratisation and involvement in policy making is fundamental to the acceptance and achievement of policy objectives in this field. Moreover, if democracy is integral to sustainability, it is equally clear that sustainability also implies some measure of sharing common futures and fates and hence some degree of perceived equity. This two-pronged and overtly political agenda will clearly cause some difficulties, particularly for those of an 'environmentalist'

persuasion who see environmental problems as being amenable to managerialist solutions, not involving questions of power, control or financial interest.

Sustainability and the new environmental agenda implies more than simply providing an opportunity for citizen participation in decision making. As the Agenda 21 agreement makes very clear, both empowerment and capacity building are central to the environmental policy process. There has to be a programme of education and encouragement which will not only prepare people for informed participation in the decision making process, but also mechanisms which will enable and assist in building the capacity to actually deliver policy and programmes in partnership with other agencies.

As we have already seen, there is little evidence to suggest that the UK government is at present prepared to offer more than tokenism with respect to these two notions. Nevertheless, despite the dismal prospects for the early implementation of any kind of empowerment or capacity building, it is important to emphasise the essential contribution that these objectives have for environmental policy, and the complementary purposes that exist between community environmental education and democratisation.

Balanced Partnership. This notion reflects the importance of cooperation and collaboration at the local level between statutory agencies, including local government; the private sector and 'the community'. There may be other players, perhaps national pressure groups or the local authority associations, but it is likely that the main partnerships for local policy, will have to be between locally based agencies and institutions. The term 'balanced partnerships' is used here to emphasise the need to avoid links and associations which principally benefit existing established interests and stakeholders.

It is clear that 'partnership' is a central plank of some areas of current UK government policy, notably urban regeneration in the form of the City Challenge programme, and it is equally clear that the arrangements as currently structured tend to disadvantage the majority of ordinary residents in favour of a few larger organised groups, the private sector and local authorities. Whilst it is necessary to have no illusions over the form and character of current partnership agreements, it is equally important to recognise the need to involve all key local organisations, views and approaches into the environmental policy process as the only way of progressing towards sustainability.

Holistic and integrated policy making. The final 'contributory theme' is a simple reflection of the need to adopt policy mechanisms which mirror the complex and interdependent character of environmental problems. The need for local policy making which is integrated and holistic, and which transcends traditional, professional and departmental boundaries is clear, and many UK local authorities have already adopted such approaches, either partially or completely. What is still lacking is a national system of environmental plans, incorporating land use, pollution control, resource management, transport, water, energy and all the other components of environmental policy.

It is important to be very conscious that the above may be read as a naive and hopelessly utopian 'wish list', and there must be no illusions as to the likely imple-

mentation of many of these suggestions in the immediate future. However, it is essential that environmental policy is continually contextualised, so that achievable, 'realistic' policy initiatives are always understood and placed within a larger, longer term set of objectives. Within the day to day compromise of local environmental policy and politics 'the art of the possible' may rule supreme, but there is always the need to keep the spirit and purpose of the long term goal firmly in view.

References

AGYEMAN, J. & EVANS, B. (1994), 'The New Environmental Agenda' in AGYEMAN, J. & EVANS, B. (eds), Local Environmental Policies and Strategies, (Longman, Harlow).

COMMISSION OF THE EUROPEAN COMMUNITIES (1992), Towards Sustainability: The Fifth Environmental Action Programme, CEC.

FRIENDS OF THE EARTH (1988), Environmental Charter, (F.O.E., London).

HMSO (1994), Sustainable Development: The UK Strategy, (HMSO, London).

JACOBS, M. (1991), The Green Economy, (Pluto, London).

LEVETT, R (1993), Agenda 21: A Guide for Local Authorities in the UK, (LGMB, Luton).

LOCAL GOVERNMENT MANAGEMENT BOARD ET AL (1990), Environmental Practice in Local Government, (LGMB, Luton).

LOCAL GOVERNMENT MANAGEMENT BOARD ET AL (1992), Environmental Practice in Local Government (Second Edition), (LGMB, Luton).

LOCAL GOVERNMENT MANAGEMENT BOARD (1994a), Local Agenda 21: Principles and Process, (LGMB, Luton).

LOCAL GOVERNMENT MANAGEMENT BOARD (1994b), Survey of Local Authorities, (LGMB, Luton).

UNITED NATIONS ENVIRONMENT PROGRAMME – UNITED KINGDOM (1992) Good Earth Keeping, (UNEP–UK, London).

UNITED NATIONS COMMISSION ON ENVIRONMENT AND DEVELOPMENT (1992), Agenda 21, (UNCED).

ENVIRONMENTAL POLICIES AND PUBLIC PARTICIPATION DURING TRANSITION PERIODS: A COMPARISON BETWEEN BRITAIN AND RUSSIA

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Summary

Public involvement in environmental strategy in the UK and Russia is compared during current transitions in economy and politics. In transitional periods, public response to environmental issues and the need for an explicit system of environmental planning are confirmed. Understanding social responses to environmental issues is vital for effective planning.

Introduction

Concern about the threat of global environmental disaster has generated the well known range of governmental and intergovernmental responses of the last five years culminating in the Rio conference. At the national scale, the collapse of the Soviet system and the breakdown of state socialist systems in Eastern Europe has highlighted the immediate, massive and deep seated nature of damage caused to the environment by rapid industrial development and the neglect of ecological and health issues. Meanwhile in Britain, as elsewhere in Western Europe, a range of environmental problems has evoked both public pressure for improved environmental control and a range of official measures to counteract adverse impacts on the environment.

To many, the size and severity of problems confronting Russia and the FSU, amounting to 'ecocrisis', indeed even in some areas to 'ecocide' (Feshbach 1992), would appear to put the environmental problems of western Europe so far into the shade as to make comparison meaningless, but there are important reasons for adopting a comparative approach to analysis of the policies. An examination of the role of public participation in the evolution of policy is not least amongst these. One of the principal requirements for achieving sustainability set out in Agenda 21 is increased participation by the public in both decision making and action on the

environment. The recognition that public involvement is essential to bring about effective environmental improvement is evident in the UK government's strategy document which states that "sustainable development requires changes in lifestyle from everyone" (H.M.S.O. 1994). The issue for the future lies in the social processes that are set in train when public participation occurs.

In Russia, despite the fact that the concept of sustainability is a long way from being on the agenda of economic strategy, its principles formed the basis for the new State Environmental Policy developed after Rio, and for the 'Concept of the Ecological Security of the Russian Federation' (1994) formulated by the Russian Ministry for Ecology and Natural Resources. In addition, although the role of public participation in formulating environmental policies has not been strongly represented in either document, the latter specifies that "the policy of ecological security is a purposeful activity of the state, public organizations, juridical bodies and separate individuals" (Zelony Mir 1994 p.6). However, the real effect of public participation apparent across the Union in the 1980s was tremendous. Although some scientists overestimate the part played by ecological deterioration in the collapse of the communist system (Mnatsakanyan 1992), it is a generally accepted fact that the first massive public protests were environmental. Peterson (1993) argues that "environmental groups have evolved into an important catalyst for change in the Soviet and post-Soviet era". Although the current acute economic difficulties have shifted the focus of public attention to other issues more topical in this transition period, the need for active public involvement is no less urgent.

Comparison between the two very different environmental and social settings exemplified by the UK and Russia is useful because between them, the two countries exemplify a continuum of economic and industrial contexts ranging from those found in the 'developing' world , and still prevalent in parts of Russia, through those which are 'industrially developed' evidenced by Britain from the nineteenth century and by much of the industrial landscape of Russia and East Europe today, to an emerging 'post industrial' setting now beginning to emerge in Britain. A style of environmental policy making can be identified in each of these settings. Both countries are experiencing transitions in their economic system – and while the nature of the political transition is far less dramatic in Britain than in Russia, the case can be made that the emergence of 'new social movements' has begun to supplant the traditional forms of political activity.

There is an increasingly widespread argument amongst social scientists in the West (Dobson 1990, Buttel 1992), that the emergence of 'green' concerns, and the increasing incorporation of 'environmental' dimensions into public policy has direct links not only to the kinds of issues that provoke public attention, but at a more fundamental level, to the nature of the society which is emerging from the restructuring of both political and economic systems world wide. Public attitudes, opinions and willingness to act on environmental issues have influenced the processes of official reaction to environmental issues, but frequently in ways that have been opportunist and even time serving, and hence prone to abandonment in the face of more pressing political concerns. The role of public participation as both

a prompt to government action and an element in policy is, then, at the heart of environmental planning.

The scope of environmental problems in UK and Russia

In Britain, environmental problems include the rising atmospheric burden of carbon dioxide, nitrous oxide and carbon monoxide, deterioration in soil quality, ground water pollution and loss of habitats (Blowers 1993). Problems of pollution, noise and congestion and the issue of waste management are major urban concern as is land contamination resulting from industrial processes.

In Russia the scope of environmental problems include those inherent to developed countries, such as air and water pollution, acid rain, radioactive contamination etc., but also those widely found in the developing countries of the 'Third World', such as extensive land degradation, desertification and deforestation. Their magnitude in Russia led, in one recent publication (Danilov-Danilyan 1993 p.186) to the use of the term 'exhausted ecological space'. With 16% of its territory termed 'ecological disaster zones', there are many areas where environmental degradation has reached a point of 'no return' (i.e. those affected by the Chernobyl catastrophe). There the impact of the problems on human health is unarguably apparent, and the threat both is, and is perceived as being, a threat to the very survival of the people living in affected areas, so the issue for environmental policy is the need to protect the people from adverse human impacts.

In Britain, health effects are frequently contested because the impact on the environment is comparatively less, to the extent that for environmental activists, the task of persuading both public and policy makers of the gravity of the situation remains a key issue. Recent cases in the European Court concerning the health impacts of polluted coastal waters give an example of this mismatch. A shellfish farmer in North Devon has recently successfully sued the local water authority in the European Court for destruction of his livelihood when pollution made his products unsaleable, and a case for ear damage caused by bacterial infection as a result of sea bathing in water polluted by sewage is currently being pursued.

The issue in both countries can therefore be formulated as the need to protect the environment for benefit to human health, but the emphasis on health is less pressing in Britain at present than it is in Russia.

The development of environmental problems and policies in the UK and Russia: economic policy and the attitude to nature.

Britain's history of industrial development has given it a longer experience of recognising the need for environmental measures and of producing policies. It is now in the process of working toward policies for an era beyond that of the 'developed industrial' economy. The relatively early emergence of concern about the health of workers can be seen as a purely pragmatic response on the part of industrialists. For example, the appalling working conditions of the cutlery operatives in Sheffield in the early 1800s produced many accidents, and for grinders, dust inhalation led to a

life expectancy of 35 years (Edward Vickers 1978). Further evidence of direct impact on the health of workers is to be found in the comparison of the average height and weight for men working in the Sheffield area even as late as 1900 when workers in the cutlery grinding workshops of the city were on average 5ft 4ins tall and weighted 9 st. 10lb, while those who had been born and grown up in the surrounding countryside were on average 5ft. 8 ins tall and weighed 12 st. 3lb. (Pollard 1959). Changes in the technologies of cutlery manufacture had much to do with the alteration of these conditions, but so also did the early growth of trade unions, founded as early as 1720 as sick clubs or benefit societies. Recognition of the need to improve safety and health at work was prompted both by the owners' pragmatic concerns to maintain an effective workforce, and by the participation of workers themselves in pressing their claims. The development of official action and legislation to control the impact of environmental 'externalities' such as effects on water and air quality came later, for example with the confirmation in 1854 of the link between pollution of drinking water and cholera, but there is a strong link between the role of philanthropic reformers motivated by Christian concerns and a general grounding of attitudes to nature in concepts derived from Christian tradition. The fact that such attitudes include both the domination of man over nature *and* the obligation of stewardship help to explain both the long tradition of environmental concern in Protestant capitalism, and the tensions that exist within and amongst such concerns (Silvertown and Sarre 1990). It can be argued that as atheism was the official political doctrine in the Soviet state, part of the neglect of environmental issues may be attributable to the loss of Christian concerns in attitudes to nature and the human being which were prevalent in pre-revolutionary Russia. The need to fill up this spiritual vacuum was represented with the advent of 'glasnost' through a mass 'return' to religion.

The core of environmental problems in Russia lies in the essence of the political system and its attitude to nature. The communist regime tended to achieve control not only of people but also of natural resources. Only 'transformation' and even 'victory over nature' was required to create a utopian communist society. It was actively asserted by the mass media that "the centralised planned economy was the guarantee against any serious ecological problems" (Ministry of Ecology and Natural Resources 1992b). An absence of public information characterised central planning. However, this type of planning, neglecting the impact of gigantic economic projects both on nature and human health, also failed to reach the stated economic goals. One of the major reasons was the absence of any economic incentives for a caring attitude to seemingly inexhaustible free natural resources. Another reason was lack of appropriate environmental legislation and the practice of 'collective administrative responsibility' instead of legal personal responsibility. This led to low effectiveness of the thousands of 'norms' regulatory documents created by the Soviet bureaucracy.

Environmental protection was officially included in the Constitution of the USSR as an inherent policy of the socialist state. In 1960 the 'Law on the Protection of Nature' was adopted. Numerous resolutions and government decrees represented 'concern for the environment', although most were declarative in nature,

rather than expressing specific policies. Concern for the people was always expressed in Communist Party programmes and economic plans, but this was 'wishful thinking' at best, and the real situation only became known to the public with the advent of *'glasnost'*. It is obvious now that the environmental laws and resolutions *could not* be implemented because of the nature of the totalitarian system. The goals of environmental protection were in contradiction to the priority interests of the state, which were industrial development and military confrontation.

Public participation in any kind of decision making, including the environmental area, was minimal. A letter containing complaint about the adverse effect of, for example, a chemical enterprise on drinking water quality and sent to the highest central authority in Moscow would normally come back to the polluter 'for reaction'. Ministries responsible for the use of natural resources were also in charge of 'protection measures', and so they could easily find ways to minimise them. This monopoly of industrial ministries, together with the ideological monopoly was a guarantee that environmental information would be concealed from the public.

Environmental policies during transition periods

Environmental concerns have formed so significant a dimension of public attitudes over last 10 years in Britain as to reach the point where membership of environmental groups has now overtaken in numbers that of Trade Unions. In the FSU, in Russia and elsewhere in Eastern Europe, environmental objectives were a significant element in the challenge to totalitarianism.

In the case of the UK, the approach adopted by *the Strategy for Sustainable Development* (H.M.S.O. 1994) indicates the way in which public participation is incorporated into policies committed to the promotion of 'market values'. The following themes can be identified:

i) emphasis on developing an 'agreed' scientific understanding of environmental problems, and a desire to communicate this information to the public as 'facts'.

ii) strong emphasis on the importance of persuading individuals to amend their own behaviour in environmentally friendly directions, through the use of information giving strategies. Avoidance of compulsion is a priority wherever possible.

iii) the existence of voluntary groups concerned with environmental matters is treated as an opportunity to mobilise people on behalf of the environment, and some government support is to be directed to them.

iv) emphasis on simplifying the procedures of direct government action, for example by merging different environmental control agencies and developing 'integrated pollution control' procedures.

v) after a period in the early 1980s when planning seemed to be under threat, being seen as evidence of the regulatory hand of an interventionist state, the *Strategy* identifies the Town and Country Planning land use management

system as a vital dimension of the 'battle for the environment', and even suggests that its brief will need to be extended.

While the *Strategy* is categorical about the importance of developing consensus in the interests of achieving sustainability, all the evidence of policy, action, and indeed participation in environmental action points to the primacy of *disagreement* as a characteristic of the environmental agenda. This is true whether we examine 'public opinion', voluntary groups, different government departments (the tension in the *Strategy* between the transport priorities of government and what it has to say about air pollution and consumption of fuel resources is a case in point), or indeed the work of scientists.

The transition period in Russia involves several political economic and social dimensions. Two phases should be separately considered: Soviet and post Soviet. The former started in April 1985 when Gorbachev took office and ended with the disintegration of the USSR in 1991. The main objective during this phase was the reformation of the Soviet economy to a more viable pattern oriented to self financing and market values. At the same time it involved a new type of relations with the West representing the end of the Cold War and also the democratic changes in the society which finally resulted in the collapse of the totalitarian regime. Despite the failure of Gorbachev's government to implement real economic reforms because of his persistent reliance on the communist party system, his contribution to the transformation of the society both at the national and international levels should not be underestimated. His policy of *glasnost,* through revelations in the ecological sphere, brought to life a multitude of environmental groups who insisted that the communist system had been as much an environmental disaster as it had been a political and economic one.

This unprecedented activism which started with meetings and demonstrations very rapidly led to the development of genuine public organisations and throughout this phase remained one of the most important features of the societal and political changes long awaited in Russia. It is true that some of these groups used environmentalism as a disguise for nationalism, particularly in the Baltic republics (Peterson 1993, Pryde 1991, Stewart 1992). However, for the majority, environmental concern was real, and shortly after the advent of *glasnost* the explosion of the Chernobyl reactor demonstrated that there are still strong grounds for such concern. One of the most important events of this time was the abolition of censorship on environmental information in the summer of 1986. An avalanche of shocking information followed, resulting in public anxiety and despair.

There was a significant increase in written and verbal appeals to all levels of government agencies, peaking in 1989. The subject of such appeals varied from the pollution of Lake Baikal to air pollution in Moscow and radio-active contamination from the Chernobyl and Chelyabinsk accidents. Public activism sometimes had a direct impact on decision making as the priority of environmental issues was high. Thus in 1989 over 100 production units were temporarily closed for violation of environmental protection laws. Most, however, were reopened when the economic losses were estimated (Peterson 1993). Protest meetings against construction of new dangerous enterprises were often followed by the organisation of regional

environmental groups with concrete targets. These small groups later united into public organisations, other NGOs and ecological funds. By 1991 twelve associations with branches in 150 cities and towns were registered in Russia (Ministry of Ecology and Natural Resources 1992a). From local tasks they turned to wider issues and multi-dimensional objectives. They were strongly supported by the new democratic mass media, including ecological newspapers which were established in the years of *perestroika*. Inevitable politicisation of the 'greens' followed, and in 1991 the Russian Green Party was officially registered. The role of scientists and writers in the environmental movement was of primary importance. Distrust of official information in Gorbachev's era was far from being groundless, and science provided a source of objective information for the people.

Apart from the general failure of the state environmental policies to bring any visible ecological improvements, there have been a few successes. One was related to the abandonment, mainly for financial reasons, of the major Siberian river diversion scheme in the summer of 1986. Another was institutional in nature and involved the creation of a single governmental body responsible for the environmental issues in 1988. Having undergone a series of rearrangements, it became the Ministry of Ecology and Natural Resources of the Russian Federation in 1992. Unfortunately, its influence on the highest level decision making is rather limited as are its real controlling powers since some eleven other federal agencies including the State Committee for Nuclear Control are independent from it.

Another achievement of this very changeable period was the formulation of the new Russian Law on Environmental Protection (first after 1960) which attempted to "create a coherent regime of environmental legislation" (Vartanov 1992) and introduce some economic principles needed for the transition to the market economy. This Law was elaborated in the conditions of "spiralling disintegration of the former USSR" and it has a number of limitations and drawbacks. However, this Law finally recognises the importance of public participation in the protection of the environment. A separate section on "the right of citizens to a healthy and favourable environment" defines the rights of individuals and public environmental associations. Despite the unsatisfactory presentation of these rights as "the right to raise the issue of bringing guilty parties to justice" and the fact that they are not substantiated by a proper legislative basis and concrete legal routines and responsibilities, this is a step forward and evidence of the recognition of the public role. What was probably also the outcome of mass protests was the introduction of a new practice of publishing government reports on the state of the environment which started in 1988. In these reports due attention was paid to the existing environmental organisations, public awareness and education. Although ecological issues were also used by political time servers to make up their careers, the real link between the people and decision makers was established during this phase. It was primarily attributed to the elections to the Congress of People's Deputies in the spring of 1990 when radical democrats including environmentalists and leaders of other opposition movements took legislative offices.

The current phase of the transition period has several new distinctive features. In economic terms it pursues a 'policy of breakthrough' i.e. actual reformation of the

economy. "The government of reforms launched a wave of decrees which began to break down the old structures and build up the new" (Sakwa 1993). 'Shock therapy', which started with the liberalisation of prices in January 1992, was shortly accompanied by enormous price rises, inflation, fast falling living standards, and an increase in crime rates. This new painful situation has resulted in a definite shift of public attention from ecological problems. Life on the verge of physical survival for the majority of the Russian population left little space for public initiatives on environmental issues.

The disintegration of the former Soviet Union at the start of this stage added a new dimension to ecological problems, particularly to trans-boundary issues. What gives hopes in this area is that on 8 February 1992, the Commonwealth of Independent States (C.I.S.) signed an agreement on 'Cooperation in the Area of Ecology and Environmental Protection' reflecting the urgency of the environmental crisis.

Other difficulties are, however, related to the apparent shifts in the priorities of the state even further toward economic goals. The recent government programme 'Development of Reforms and Stabilisation of the Russian Economy' takes into account the ecological factor in privatisation of enterprises, but it contains decisions which would be harmful for environmental management in the long run, for example, the abolition of the Federal Ecological Fund, financed from payments for the infringement of ecological regulations. At the same time, the state budget allocation for environmental protection in 1992 was 20% less than in 1991 (Eurasia 1993). Meanwhile, expectations that decline in economic production by over 18% in 1992 would be followed by a corresponding decrease in the pollution load did not come true, as water pollution increased by 8%. This demonstrates that during transition periods enterprises prefer to save on the implementation of environmental protection.

Prospects for the future

A range of recent research confirms the continuing – and contentious – role of public participation in relation to achieving new and effective policy (for example: Mitchell, Mertig and Dunlap 1991, Freudenburg and Steinsapir 1991, O'Riordan 1991, Stevenson 1992, Waller and Millard 1992, Baron and Jurney 1993). If we consider the part played by environmental concerns in challenging the totalitarian regime of the Soviet Union, we can see that the state of the environment produces social and economic concerns which translate into political action. In the case of Britain, public protest over environmental issues is also a challenge to political power and authority, and frequently gives rise to radical challenge on a wider front – alliances over motorway building for example.

The UK 'Strategy on Sustainable Development' and the Russian 'Concept...' document indicate that some action is being taken by both governments, and that there is commitment to environmental protection at this level . However, the failure to take real account of how social processes actually 'work' may well represent a glossing over of a 'business as usual' approach to the environment, that sees a

political and economic interest in a certain amount of cleaning up and saving resources, but is not actually too concerned about "compromising the ability of future generations to meet their own needs". Social processes that include conflict, sharing and negotiation of the viewpoints on environmental issues that are adopted, and competition for power amongst different groups, together with a continuing diversity in environmental opinions and attitudes will determine the adoption or otherwise of environmentally sustainable behaviour. Mere exhortation cannot possibly suffice.

So at present, Russia faces the dilemma shared by other post communist countries, namely, the balance to be drawn between environmental policies and the costs in economic and job loss terms. Transition to a market economy puts greater stress on the environment through the temptation and present tendency to reach quick profit by selling raw natural resources to the western countries, thus undermining the resource base for future generations. In these conditions, responsibility must rest with the state to implement actions. Reliance on the personal conscience and individual responsibility of managers is absolutely unrealistic. The situation requires serious planning efforts, an active state intervention, and strict control of the implementation of its compulsory requirements in the field of environmental protection. Therefore during transition periods the formerly discredited administrative approach holds certain promise for the future. At the same time, only active public participation can be the guarantee against any abuse of these powers by corrupt officials from state environmental bodies, the practice which is unfortunately not so rare at present.

In Russia strategies continue to be adopted which rely on the assumptions about control which were made in the past. This is promising in that it recognises the need for effective and comprehensive planning to achieve environmental protection. Such planning allows environmental analysis and understanding to be targeted in a coherent way at the operational processes of the environment. It is less promising in so far as it may retain the past tendency to disregard public opinion altogether, and indeed to limit public information. This resulted in mistrust on the part of the public, and in panic when information began to become available.

In Britain, the tendency to back away from planning in the early 1980s, taken alongside an extremely open, contested, and confusing presentation of information to the public, produced a situation in which environmental concern became fragmented amongst different shades of political opinion, and effective environmental action has been limited by the refusal to adopt planning as a clear basis of action.

Environmental protection has undoubtedly 'worked' in certain key respects in Western Europe, although it has failed and is continuing to do so in other absolutely essential areas (e.g. in respect of greenhouse gas emissions). If Eastern Europe is to look to the West for models of environmental protection, then there is equal need for the West to recognise the strengths of some of the strategies adopted and being developed in the East. Both Britain and Russia now acknowledge a continuing need for effective planning, although this commitment remains somewhat conditional in Britain. For planning to succeed, however, effective analysis of the ways in which the public come to understand environmental issues and then act upon such

understanding must form a more effective basis for devising strategies than any amount of appeal to individual self interest.

References

J. BARON and J. JURNEY (1993) "Norms against voting for coerced reform". Journal of personality and social psychology 64,3. pp. 347–355.

A. BLOWERS (Ed.) (1993) Planning for a sustainable environment (Earthscan. London)

F. H. BUTTEL (1992) Environmentalization: origins, processes and implications for rural social change. Rural Sociology 57,1, pp. 1–27.

V. I. DANILOV-DANILYAN and V. M. KOTLYAKOV (Eds) (1993) Russia in environmental crisis Federal Ecological Fund. Moscow.(In Russian).

A. DOBSON (1990) Green political thought Unwin Hyman. London

J. EDWARD VICKERS (1978) A popular history of Sheffield E.P.Publishing. Sheffield

EURASIA (1993) 'Government report on the State of the environment in the Russian Federation in 1992'. Eurasia 9, 17. (In Russian).

M. FESHBACH and A. FRIENDLY. (1992) Ecocide in the U.S.S.R. (Auzum, London.

N. FREUDENBURG AND C. STEINSAPIR (1991) 'Not in our backyards: the grassroots environmental movement.' Society and natural resources 4,3. pp. 235–245.

H.M.S.O. (1990) This Common Inheritance: Britain's environmental strategy. (H.M.S.O. London.

H.M.S.O. (1994) Sustainable Development: the UK Strategy. (H.M.S.O. London).

MINISTRY OF ECOLOGY AND NATURAL RESOURCES (1992a) Government Report on the State of the Environment in the Russian Federation in 1991. Ministry of Ecology and Natural Resources, Moscow. (In Russian)

MINISTRY OF ECOLOGY AND NATURAL RESOURCES (1992b) National Report of the Russian Federation for the UN Conference on Environment and Development. Ministry of Ecology and Natural Resources, Moscow. (In Russian)

R. C. MITCHELL, A. G. MERTIG and R. E. DUNLAP (1991) 'Twenty years of environmental mobilization: trends among national environmental organizations'. Society and natural resources 4,3. pp. 219–234.

R. MNATSAKANYAN (1992) Environmental Legacy of the former Soviet Republics. University of Edinburgh.

T. O'RIORDAN (1991) 'The new environmentalism and sustainable development' Science of the total environment 108, 1-2, pp 5–15.

S. POLLARD (1959) A history of labour in Sheffield (Liverpool University Press. Liverpool).

D. J. PETERSON (1993) Troubled Lands. The legacy of Soviet Environmental destruction. (Westview Press).

P. PRYDE (1991) Environmental management in the Soviet Union (Cambridge University Press. London).

R. SAKWA (1993) Russian Politics and Society Routledge. London

J. SILVERTOWN and P. SARRE (1990) Environment and Society Hodder and Stoughton in association with Open University.

J. M. STEWART (Ed) (1992) The Soviet environment: problems, policies and politics (Cambridge University Press. London).

R. J. STEVENSON (1992) "Thinking, believing and persuading: some issues for environmental activists" in The Environment in question: ethics and global issues. D.E. Cooper and J.A.Palmer (Eds). (Routledge. London).

R. V. Vartanov (1992) "A response to the new Russian Law on environmental protection" C.I.S. Environmental Watch 2.

M. WALLER and F. MILLARD (1992) "Environmental politics in Eastern Europe" Environmental Politics 1,2. pp 159–185.

Concept of ecological security in the Russian Federation (1994) Zelony Mir 1. pp. 6–9. (In Russian).

ATTITUDES OF THE POPULATION TOWARDS THE ENVIRONMENT IN EC MEMBER STATES AND IN HUNGARY

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Abstract

With the help of the EUROBAROMETER questionnaire and our own questions we undertook a survey to examine the environmental attitudes of the population in Hungary in 1993. We wanted to get answers to the following questions: How urgent is environmental protection? What is the opinion of people about the future of economic development and environmental protection, about serious environmental pollution, and global, continental and local environmental problems? Our aim is to use this information to help environmental protection in Hungary.

Introduction

As part of a research project The Environmental Protection Activity of the Society Beyond the River Tisza" (Tiszántúl) we made a survey of the environmental attitudes of the population in the autumn of 1993. We surveyed 542 people in Eastern Hungary (people from the county town, from smaller towns and from villages) using a representative sample including standard sociological parameters.

Two institutions took part in the survey: the Debrecen Group of the Alföld Scientific Institute of the Regional Research Centre of the Hungarian Academy of Sciences and the Department of Environmental Management of the University of Economics, Budapest.

The questionnaire consisted of 2 main parts: the first 14 questions were drawn up on the basis of the translation of page 37 of EUROBAROMETER, which was used in the 12 countries of the European Community a few months before the World Conference on Environmental Protection in Rio in 1992. Questions No. 15–52 are intended to cover specific Hungarian problems of environmental protection and the possible social solutions related to these.

In order to get to know how the citizens of Eastern and Western Europe relate to the problems of the environment the questions can be grouped as follows:

a) the urgency and priority of environmental problems,
b) opinions and worries in connection with the factors threatening the environment
c) personal responsibilities to protect the environment
d) information on the environment,
e) judgements of the activity of different level authorities,
f) problems of environmental protection in everyday life with special emphasis on particular problems (waste disposal, air, noise etc.)
g) social handling of certain environmental issues.

In this paper we examine the priority given to environmental protection and the factors which endanger the environment at different spatial levels.

We compare the results beyond the River Tisza with those of Western Europe. However we must note that the data used here, both the Hungarian and the European are mostly averages and hide differences between the particular countries. So they are more informative than factual. In our opinion they do though properly show the opinion of the Hungarian population and the European nations, and their differencies and similarities.

How urgent is the problem of environmental protection

Nowadays a lot of people are concerned with the problems of environmental pollution and environmental protection. So our first question asked how urgent these are.

The answers to this question show a favourable picture which surprised us. 78% of people thought these problems demanded immediate action. However the average beyond the River Tisza is well below the Hungarian and European averages which are both 85%.

Women are more worried about the environment than men, as 81% of women and only 75% of men found environmental protection an urgent problem – the national average for women is even higher at 86%.

With increasing age, people realised the importance of the environment less and less. Only 66% of the oldest age group, people above 55, thought it was an urgent problem. 84% of the people between the age of 25–39, and 93% of those who are under 24 thought it was an urgent problem. These differences are not so prominent nationally and in western Europe responses do not significantly vary with age.

The level of education plays an important role in the responses to this question contrasting with foreign countries where it didn't play an important role – the biggest difference was 3%. In the region beyond the River Tisza the difference between the university graduates and those who went to a three–year vocational school after primary school was 26%.

Actions against environmental pollution were taken *as a future problem* by 29% of skilled workers, 23% of those who are on child care leave, 27% of agricultural

manual workers, 20% of office employees, and 20% of people from Debrecen. One purpose of our survey was to open people's eyes to the problems of the environment.

13% considered environmental protection a problem for the future in our region, while the EC average is 11%.

16% of the pensioners, 19% of those who haven't finished primary school, 16% of the unemployed and 27% of the agricultural manual workers couldn't judge the problems of environmental protection at all. So certain important parts of society cannot even estimate the importance of environmental protection or social activity.

The harmony of economic development and environmental protection

We listed three opinions about the importance of economic development and environmental protection and people were asked to mark the one which is closest to their opinion. According to the first opinion, economic development is more important than environmental protection. According to the second economic development should be provided together with environmental protection. According to the third opinion environmental protection is more important than economic development. People also had the option to indicate other opinions.

Only 10% of those who were questioned in the region gave priority to environmental protection. There is not much difference between men (11%) and women (8%) for this question.

However there is a significant difference between age groups – 16% of the people under 25 gave priority to environmental issues, 11% of those between the age of 25 and 39 and 4-8% of those above 40.

In this respect we are far behind the West. The average in the West was more than twice of that of the Hungarian. The number of those who gave equal importance to economic development and the environmental protection is less in the West – 69%. 80% of the people of the region voted for the opinion that *economic development should be achieved together with environmental protection* (75% of men and remarkably 85% of women)

College graduates emphasized most the harmony between environmental protection and economic development, 90% of them voted for this opinion, also 90% of those who are not employed voted for this opinion.

9% *gave priority to economy* 1% gave *other answers* to this question. The results beyond the River Tisza are quite different from the Western results. When people in the EU were asked if economic development should have the priority over environmental protection or the other way round, or whether the economy should be developed together with environmental protection, the majority – 69% – chose the second answer.

From among those who chose one of the two contrasting alternatives most people thought that protection of the environment should have priority (22%) and only 4% voted for the priority of the economy. On the basis of former surveys it is remarkable that the number of those in favour of economy has been reducing since the 1980s. 27% of the people under 25 voted for environment but even in the age group 40–54 years 20% had the same opinion

What can be considered as serious environmental pollution and why?

We listed the 12 most important forms of environmental pollution and people had to choose the ones which *they* think are the most serious. The one which was considered to be the most serious was *factories releasing dangerous chemicals.* 71% chose this as the most dangerous form of environmental pollution. This number is the same in Western countries as well.

58% put *worldwide, global environmental damages* including the loss of tropical forests, the destruction of the ozone layer and the greenhouse effect in second place. The following issues were considered to be very serious as well *the storage of nuclear waste* (55%), *the environmentally damaging effect of industrial waste* (53%), and *the air polluting and other harmful effects of vehicles* (51%). The next in the line is the *excessive use of chemicals in agriculture* (45%) followed by acid rain (45%) and *oil pollution of the sea and coasts* (43%). 28% mentioned *sewage problems.* Much less people mentioned *technological and traffic noise* (14%) and uncontrolled *mass tourism* (11%). This is 7 times less than the top extreme value (71%) as these dangers appear and affect people in a different way both locally and subjectively.

The next question asked why these problems are serious. People could choose from 8 possibilities. The answers can be divided into 2 major groups as one of them was chosen by 60–70% of the people asked, and another was chosen by 35–40%. There were 2 options which were chosen only by a few people.

Factories releasing dangerous chemicals into the air and water, worldwide environmental damages and the storage of atomic waste are considered to be serious because they *endanger people's health.* 70% gave this answer. 67% thought *environmental damages cause irreversible consequences for future generations* which put this answer in second place.

The third question was *the environmental damaging effect of the polluted soil water and air* 63% considered it to be serious. Only 46% thought *the decreasing quality of life* as a serious problem and 40% marked *the spreading of the pollution to other countries* as a serious environmental problem. According to 35% of the people asked *the reconstruction of the damage is very costly,* so these people realised the material consequences as well. Only 4% marked *other reasons* and 2% answered "*I don't know*".

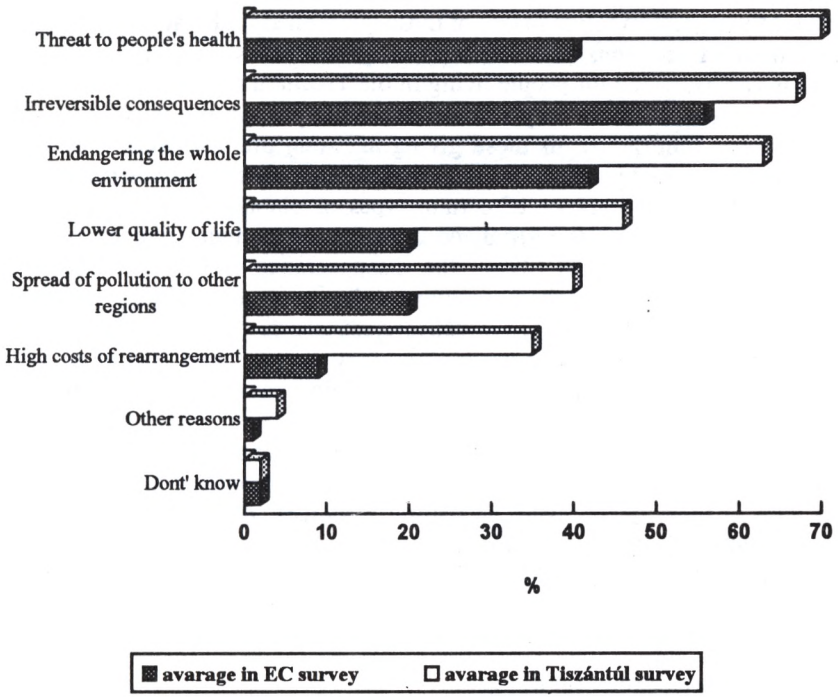
This order of the answers *differs* from the opinion of Western citizens at several points. The factors which make an environmental danger serious for a western citizen are: *the effect on the next generation* (56%) *and on the whole environment* (42%) and *the threat to human health* (40%). 20% chose the spreading of the pollution to other regions as a serious reason. Also 20% thought that the quality of life was decreasing. The costs of reconstruction were chosen by 9%, 1% chose other reasons and 2% answered "I do not know".

It is probable that behind these factors the same views can be found – namely that the environment in itself makes up a whole – and this is why similarities can be traced between the 20% of Europeans – who claim that when the environment is damaged in one place, it may spread to other regions or countries – and between

the 42% who presume that specific instances of water, air or soil pollution endanger the whole environment.

Looking at Diagram 1 it can be stated that a higher number of people living in the Tiszántúl region consider these causes serious, than people from Western countries. This is partly because they may be exaggerating the real significance of environmental risks, at the same time they know less about the means and methods of diverting these dangers, and they are less concerned about their own opportunities to influence them.

Diagram 1: Comparing the order of importance of environmental problems on the basis of the results of surveys in the Tiszántúl region and the EC



Dangers threatening the global environment

We have seen above what an urgent problem the protection of the environment is among people living in the Tiszántúl region. That is why it is worth having a second look at questions relating to our global environmental problems. A lot can

be heard about these in the mass media and maybe scientific research also helped in revealing the disappearance of tropical forests, the extinction of certain types of plants and animals, global warming, the destruction of the ozone layer, and other matters.

In the survey we tried to draw attention to these global problems. We wanted to find out to what degree people are worried about these phenomena: very worried, somewhat worried, not very worried, not at all worried or they don't know about the problem and they are not concerned about it.

They could choose more than one answer and this may be the reason for the result that more than half of those questioned are very worried about the global environmental problems mentioned on the survey sheet.

Most of the people questioned (73%) stated the destruction of the ozone layer to be very worrying 58% find using up natural resources, water, soil and minerals very worrying. Many others ticked the disappearance of certain types of plants and animals (53%), the disappearance of tropical forests (52%), and global warming (50%). More than two thirds (41%) of those questioned find that there is a high risk that pollution from industrialized countries spreads to less industrialized countries, which is very worrying for people living in the Tiszántúl region.

Besides those, who are very worried about the phenomena mentioned above, a large number (one fourth of those giving answers) are *somewhat worried* about global environmental problems. On the basis of their answers another hierarchy can be set up: the disappearance of certain types of plants and animals (33%), the spread of pollution from industrialized countries to less industrialized ones (30%), using up natural resources (29%), the disappearance of tropical forests (27%), global warming (23%) and the destruction of the ozone layer (13%).

If we *add the percentage of the above discussed two groups* and *compare* this with the percentage of the two groups "not very worried" and "not at all worried" then the conclusion is that the dominant opinion considers global environment problems *very worrying.*

Let's have one more look at the European data. The rate of those who are "very" or "somewhat" worried about global environmental problems is around 90%. At least 88% of them ticked using up natural resources. According to the combined data in 1992, 93% of those giving answers were worried by the disappearance of certain types of plants and animals. In Diagram 2 data of the Tiszántúl region and of the EC are compared.

Continental environmental dangers

Before discussing local environment problems we should look at national and continental problems. In this group we can find items which are of not current concern in our country, but their environmental effects can be important for us too.

Those who answered were asked to tick how much they were worried about the 13 problems. The answers reflect that the majority of the listed environmental problems worry people from the Tiszántúl region "very much" or "somewhat", that is *8.8 out of the listed 13 problems.* In the *Tiszántúl* region 93% stated *air*

pollution, and 90% *the pollution in rivers and lakes* to be "very" and "somewhat" worrying, with almost the same figure (89%) is damage to animals, plants and habitats.

Diagram 2: Comparision of data from the Tiszántúl region and from the EC about global environmental dangers

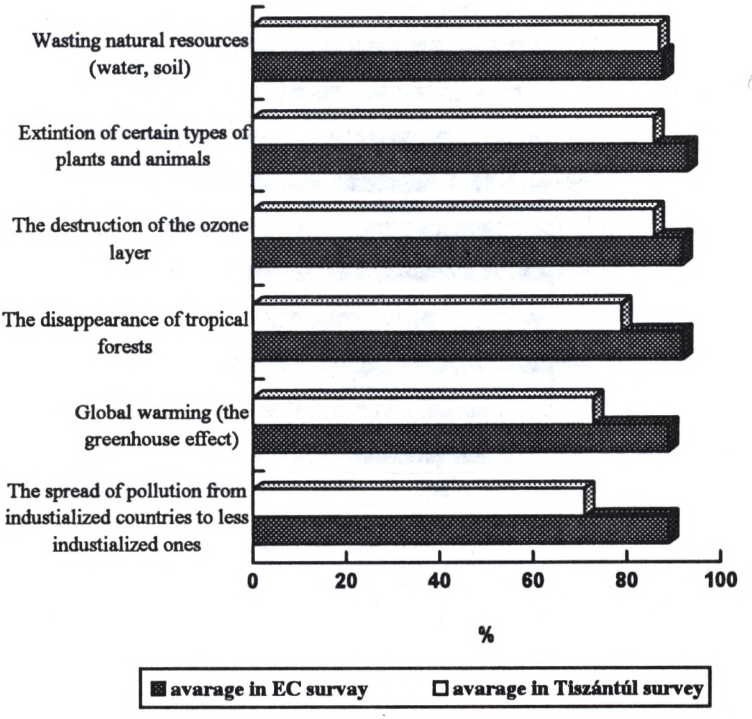
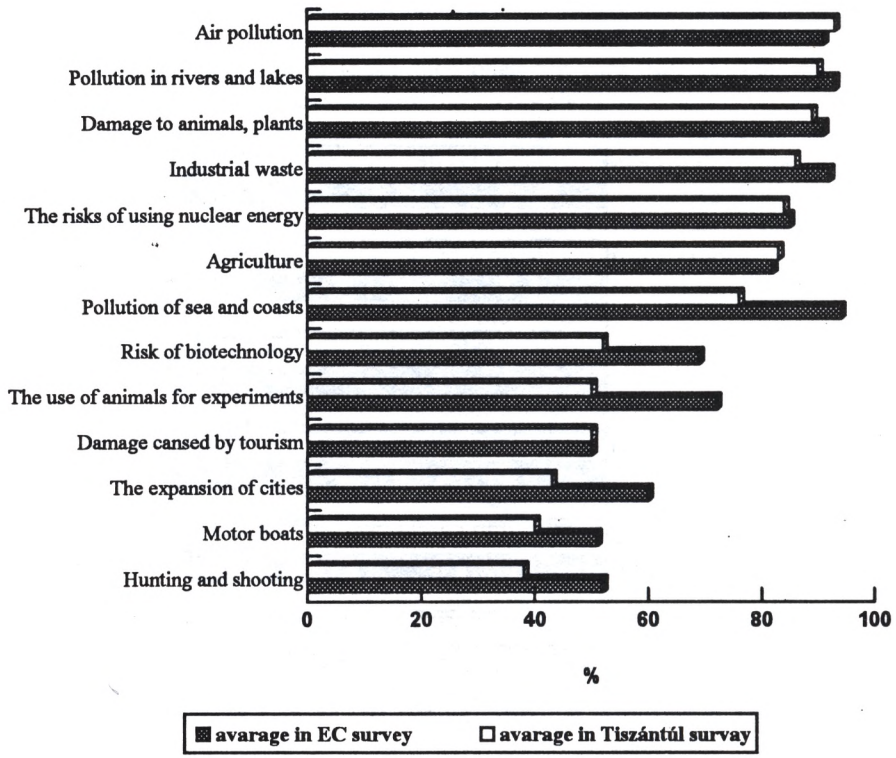


Diagram 3: Comparison of data from the Tiszántúl region and from 12 EC countries about continental environmental problems



Concerns about the local environment

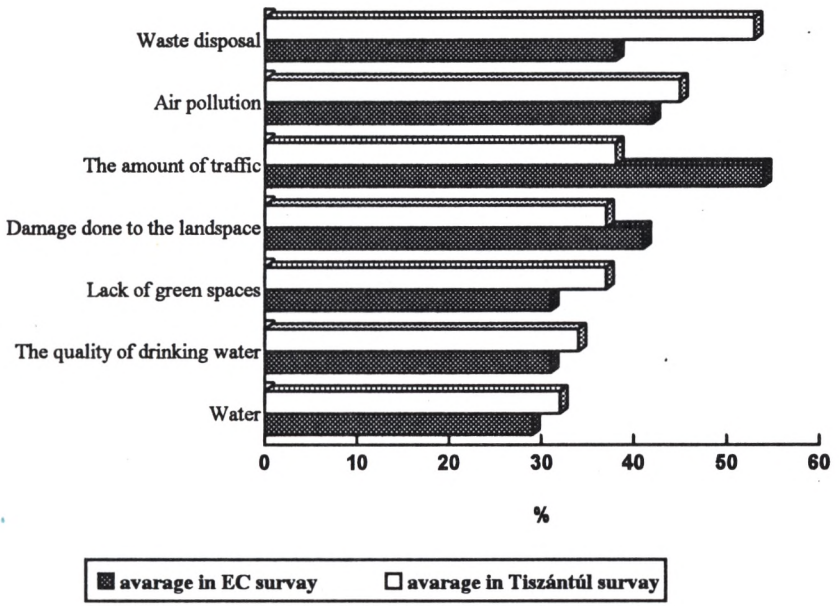
Out of the local problems listed in the survey, 53% of people answering in the Tiszántúl region graded *waste disposal* first. Air pollution must also be very important for them as 45% ticked it. The amount of traffic and the lack of green spaces both achieved 38%. They find the damage done to the landscape (37%) and noise (33%) really significant. There are also problems with the *quality of drinking water* (34%).

As far as the "not very much reason" and "no reason at all" answers are concerned, the order is as follows: for less than half of those answering (45%) waste

disposal is no problem. Even more people (54%) are not or hardly ever affected by damage done to the landscape, and it is the same with air pollution (54%). 59% answered that they are not or hardly ever affected by the amount of traffic and the lack of green spaces. It is a good thing that 66% had nothing to say against the quality of drinking water. 67% claimed noise the least disturbing factor out of the listed seven.

As far as their local environment is concerned, 54% of the EC survey group find the amount of traffic the most disturbing (see Diagram 4). Air pollution reached 42%, while the damage done to the landscape 41% and waste disposal 38%.

Diagram 4: Comparison of data from the Tiszántúl region and from the EC countries about local environmental problems.



Those questioned have "very much" or "quite a lot of" reason to complain about the listed problems, on average 2.7 out of the seven problems. This number is much lower than the rate of the answers given to global environmental problems (which was nine out of ten). The closer the local environment problems are to the individual sphere, the less complaints and worries are expressed. These results show that concerns about the environment are focused on global and basic dangers and not so much on the inconveniences of everyday life. It is promising if in the background there is a view that environment is a whole unit and its protection has

to be carried out globally. It is clear that those who live in big cities complain about 3.6 problems on average out of the seven, while for those living in villages this number is only 1.8. So the problems listed seem to be specifically urban ones.

References

INRA (EUROPE) EUROPEAN COORDINATION OFFICE (1992) Europeans and the Environment in 1992, Report produced for The European Comission Directorate–General "Environment, Nuclear Safety an Civil Protection" Unit XI/C/4.: "Communication and Training".

TAMÁS OROSZ G. (1994) Environmental Attitude of the Population in the Tiszántúl Region. Typescript, Debrecen. Centre for Regional Studies, Hungarian Academy of Sciences Alföld Institute, Debrecen Department.

POPULAR CONCERNS AND THE ENVIRONMENTAL AGENDA: ON INVOLVING WOMEN IN FORMULATING LOCAL RESPONSES TO AGENDA 21

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Summary

This paper will consider the British response to UNEP's Agenda 21 with respect to its specific requirement to fully involve women in environmental decision making at the local level. Research carried out in London explores the appropriateness of categorising women as a single undifferentiated group and recommends a more radical approach to participating in planning if Agenda 21 is to be met.

Introduction

The scope of this paper will be limited to a consideration of the way in which central and local government, in the United Kingdom, is responding to a specific environmental initiative – Agenda 21. Along with European Union legislation, the principles agreed at the United Nations Conference on Environment and Development in 1992 are critical impulses for national environmental policy making. Not only do they set out objectives for attempting to achieve sustainability, but they also specify the processes by which these objectives should be achieved. The paper falls into three parts: the first considers the process of community consultation specified by Agenda 21, with specific reference to the equal inclusion of women in environmental activities and decision making. The second part attempts to establish both the validity and limitations of identifying women as a single social group. Finally, UK policy documents produced by central government, local authorities and advisory bodies are examined for the ways in which it is proposed to consult and involve women in the preparation of local Agendas.

Agenda 21: restructuring decision making to assure public participation

Agenda 21 recognises that, if environmentally sustainable and socially equitable development is to be achieved, the "commitment and genuine involvement of all social groups" is necessary (Earth Summit 92, 1993, p. 191). The major groups that have been identified as being necessary to the consultation process range from employment interests (workers and their trades unions, business and industry, the scientific and technological community and farmers), political interests (non-governmental organisations and local government) to social groups (women, children and youth and indigenous people). To this end the Conference declaration requires signatories to "develop or improve mechanisms to facilitate the involvement of concerned individuals, groups and organisations in decision making at all levels" (ibid, p. 89), a requirement that has the potential to offer a fundamental challenge to the way in which public participation currently operates in the United Kingdom.

This research focuses on 'women' as a social group and explores the extent to which they are being consulted as part of the sustainable development policy making process in the UK, as recommended by Agenda 21. UNEP recognises that women, world wide, need to have their voice heard in the decision making process and objectives for this range from specific inclusion in practical and policy making areas to issues of equality in the formal and informal sectors. Countries are urged to apply the principle of subsidiarity with regard to environmental decision making and implementation, in particular to make provision for "effective and equitable opportunities for participation by women" (ibid, p. 89).

This raises certain questions which need to be addressed for a meaningful assessment of this consultation process to take place. First, is it realistic to assume that 'women' have specific and identifiable needs and concerns with regard to the environment? Whilst there is a considerable literature which argues this case, there has been little empirical evidence collected to support it. This literature contends that women's collective perspective on the environment is a product of her social role within society. This thinking suggests that, since women generally take prime responsibility for childcare, lay care of sick family members, food purchasing, food preparation and other domestic tasks, they are more directly affected by environmental issues, particularly those which affect health. Moreover, the economic position that women, as a whole, hold within most cultures exposes them to a greater range and degree of negative externalities (LeBourdais, 1991; Mellor, 1992). Eco-feminists would take this argument further to suggest that these roles (and for some commentators such as Collard (1989), roles combine with biological imperatives) enable women to take a more holistic view of 'nature' and 'environment' so that they are more likely to hold a custodial than an exploitative perspective on the world (Mies and Shiva, 1993). Increasingly, however, feminist writers consider the difficulties inherent in considering 'women' as a single, undifferentiated group (Bondi, 1990; McDowell, 1991). Applied to environmental concerns, this challenges the assumption that all women – regardless of where they live, their economic status, marital status, ethnicity, whether or not they have children – share common environmental concerns. If these concerns are mediated by such variables, then it is important, given the objective of full participatory decision making, to ensure that

the women who are involved in environmental policy making reflect the full range of concerns. A third question is raised by the objective to bring women more fully into the decision making arena – that of the nature of decision making itself. Women have low participation rates in formal politics but this is not to say that political activity is low. Randall (1987), for example, discusses women's relatively high levels of participation in ad hoc organisations compared to their gross under-representation in formal politics. Structural barriers to greater political activity are high (for example, inconvenient hours, lack of childcare facilities) and 'masculine', confrontational debating style persists in discouraging many women from entering politics. Perhaps, in addition to structural changes, greater recognition and support needs to be given to informal political activity – community enterprises and co-operatives, self-help groups and so on, to achieve an environmentally sustainable society which responds to the needs of a wide variety of people.

The first two questions will be addressed through the analysis of a questionnaire administered to women and men in West London in the summer of 1993. The purpose of this questionnaire was to establish whether or not women's environmental concerns and strategies for dealing with these do differ from men's. Secondly, variables such as parenthood, ethnicity, age and education were interrogated to see how far these might affect women's concerns and strategies for reducing environmental impact and whether, therefore, it is meaningful to talk about 'women's' concerns in a universal sense. The third question is much more difficult to address: selected London boroughs representing a range of environmental sensitivity were contacted to see how they were approaching the participation issue and this will be discussed in the final part of the paper along with an analysis of formal UK Government policy.

Women and men's comparative attitudes and behaviour towards environmental problems

In July and August 1993, a random sample of 120 women and 120 men were interviewed at a range of public places in the London boroughs of Hounslow and Richmond. The questionnaire required respondents to identify their feelings towards specified local and wider scale environmental issues. Responses were categorised as 'not a problem', 'a minor problem' or 'a major problem'. Respondents were then asked which of a range of strategies they used to attempt to reduce these problems (from lobbying politicians to purchasing behaviour). A number of personal characteristics (such as age, ethnicity, parenthood and education) were identified to establish their likely effect on attitudes and behaviour.

Tables 1 and 2 show clearly that the concern exhibited by women over local, and, more intensely over wider, issues was greater than that shown by men. This is despite the fact that a greater proportion of men interviewed had higher levels of education (19.5% held a degree compared to 18.5% of women respondees) and higher occupational status (38% of men held professional/managerial jobs compared to 33% of the women interviewed) than the women. Higher educational attainment and occupation status are thought to correlate with greater environmental

awareness, see for example Arcury and Johnson, (1987). Only on the local issue of run down buildings was the response from men ranking it a major problem greater than from women. It may also be noted that neither this issue, nor that of noise, which equal proportions of men and women rated a major problem are, strictly speaking, environmental problems which diminish the earth's sustainability. This suggests that the gap between women's and men's perception is greater on issues of sustainability, as all the wider issues cited fall within this classification, and lends support to arguments such as Mies and Shiva's referred to earlier.

Table 1: Local Environmental Issues Rated as a Major Problem by Women and Men

Issue	Air pollu-tion	Noise	Aircraft noise	Road traffic	Waste dis-posal	Dog litter	Litter	Poor re-cycling	Lack green space	Run down bdgs
%Men	40	52	48	55	13	30	42	12	14	29
%Women	46	52	51	65	18	46	50	17	25	27

Table 2: Wider Environmental Issues Rated as a Major Problem by Women and Men

Issue	Air polln	Water polln	Waste	Use of fertilisers	Deforestn	Global warming	Energy conserva-tion
%Men	59	68	47	47	84	63	52
%Women	69	72	52	48	87	72	57

In the light of the above, it is unsurprising that a marginally lower percentage of women felt that their local council was responding adequately to environmental problems (20% of male respondees felt the council was responding adequately, whilst 17% of female respondees felt this). Despite lower levels of satisfaction with local government performance, women were less likely to lobby politicians or to contact the council (9% and 24% respectively, compared to 11% and 25% of men). However, women were more likely to take 'direct action': 58% of women interviewed recycled regularly compared to 40% of the men and 80% of women regularly bought 'environmentally sensitive' products, compared to 63% of men. Such figures tentatively suggest that women are more likely to participate in limiting environmental damage through their roles as consumer/domestic worker, whilst men are marginally more likely to participate through more formal political channels.

Motherhood and Environmental Concern

Much of the literature on women's attitudes to environmental degradation is predicated on their role as mothers. Even though an increasing number of women in

the North are opting out of motherhood, the potential or capacity to have children is frequently taken as an identifying feature of the relationship between women and 'nature'. Table 3 shows the differential response to the same local issues between mothers and women with no children. In every case a greater proportion of women who had had children were more likely to consider these issues a major problem. This is consistent with the literature cited above linking women's role and her relationship with and concern about the environment.

Table 3: Local Environmental Issues Rated as a Major Problem by Women with and with no children

Issue	Air pollutn	Noise	Aircraft noise	Road traffic	Waste dis-posal	Dog litter	Litter	Poor re-cycling	Lack green space	Run down bdgs
%Women with child	46	62	52	70	24	52	52	18	28	31
%Women no child	45	37	49	57	10	38	47	16	20	22

Table 4, showing the expression of concern over wider problems, however, shows an almost inverse relationship, as women who have not had children are more likely to rate these wider problems as major, with the exception of fertiliser use.

Table 4: Wider Environmental Issues Rated as a Major Problem by Women with and with no children

Issue	Air polln	Water polln	Waste disposal	Use of fertilisers	Deforestn	Global warming	Energy conserva-tion
%Women with child	65	69	46	51	82	68	56
%Women no child	75	75	59	45	94	77	59

An interesting question is raised when men's responses were analysed in this way. On local issues, fathers were generally more likely to consider these to be major problems than women with no children. However, regarding wider issues, fathers were marginally less likely than women with no children to consider the issues major problems. Men with no children were the least likely to cite both local and wider environmental issues as major. The evidence collected indicates that parenthood may be a key factor in influencing the level of people's concern regarding local environmental problems, but that where wider issues are concerned, gender is a more powerful factor. Although the sample is too small to draw firm conclusions, the results do introduce the notion of parenthood as a potentially key factor in local sensitivity to environmental issues. However, it also begs the question as to why parents are less likely than non-parents to express concern over more global issues. This apparent failure to link the local with the global tempts an

interpretation that it is not sustainability or custodianship which is disturbing mothers/parents, but a concern about immediate impacts on the well being of the family. If this is so, it both challenges much of the eco-feminist literature on the proclivity of women to empathise with' the earth' and signals to environmental policy makers that medium and long term environmental sustainability may not be, in itself, a goal which will attract mothers (or fathers) into environmental decision making. It may signal the need for education about the links between the local and the global.

Other factors affecting women's environmental concern

Age and level of education have, over time, been thought to be reliable indicators of environmental concern (Arcury and Johnson, 1987; Van Liere and Dunlap, 1980). Although other indicators such as occupation, income and access to a car may be considered, on the whole, to be related to levels of education, the latter three variables were not considered since in the case of women, their occupational status may not reflect their level of education. In addition to the age and education variables (and to the motherhood variable analysed above), ethnicity was considered to see whether women of different ethnic groups might perceive the magnitude of environmental problems differently.

Age

Contrary to the (non-gender specific) research referred to above which has found a strong negative correlation between age and environmental concern, young women interviewed for this research were the least likely to consider specific environmental issues to be a major problem. Regarding local issues, 45 to 60 year olds were most likely to do so, followed by women over 60. However, women between 25 and 44 were most likely to be concerned about wider issues, with the under 25 year olds the most likely to be concerned about deforestation. This diversity of responses makes it impossible to link a specific environmental attitude with age.

Education

The magnitude of environmental concern expressed by levels of education are more consistent with non-gender specific research in that those women with a degree are, on the whole, more likely to consider environmental issues a major problem than others, see Table 5 for the detail. Table 6 shows a similar reaction to wider issues, which women with 'O' levels only are least likely of all respondents to consider major. Caution needs to be exercised in interpreting these tables, however, because of the very small number of post graduate respondents (three). Respondents with a degree were also the most likely to take action regarding an environmental issue and most likely to engage in a formal dialogue with policy makers. This has implications for the nature of the consultation process as it highlights the need to devise a process which is equally responsive to women of all educational backgrounds.

Table 5: Local Environmental Problems Rated as a Major Problem by Women by level of education

Issue	Air pollutn	Noise	Aircraft noise	Road traffic	Waste dis-posal	Dog litter	Litter	Poor re-cycling	Lack green space	Run down bdgs
'O'Level	43	46	48	54	17	51	49	11	24	28
'A'Level	42	50	54	83	17	29	42	12	21	28
Degree	68	68	68	74	16	53	58	31	26	26
Post-Graduate	100	100	100	100	67	67	67	67	67	67
Technical	20	50	10	60	20	30	50	20	30	10

Table 6: Wider Environmental Issues Rated as a Major Problem by Women by level of education

Issue	Air polln	Water polln	Waste disposal	Use of fertilisers	Deforestn	Global warming	Energy conserva-tion
'O'Level	57	58	38	40	82	60	44
'A'Level	71	83	50	54	92	83	58
Degree	100	95	84	63	100	95	89
Post-Graduate	100	100	100	67	67	67	100
Technical	70	80	60	60	90	70	60

Ethnicity

The interpretation of these data is problematic because of the very small number of Afro-Caribbean and 'other' women interviewed. Whilst these two groups express the greatest amount of environmental concern, they only represent a small number of women (seven and three respectively). Nevertheless, the fact that only one issue was considered by proportionately more white women than non-white women to be a major problem (aircraft noise) suggests that it is important not to 'read off' the views of all women from a single ethnic group.

Circulated advice for formulating Agenda 21

Despite Agenda 21's entreaties to governments to involve concerned individuals, groups and organisations in decision making at all levels (Earth Summit 92, p89) and specifically to "increase the proportion of women decision makers, planners, technical advisors, managers and extension workers in environment and development fields" (ibid, p191), the UK central government response (HMSO, 1994) makes only one mention of women. (Section 28.48 suggests that non-governmental organisations work particularly well in responding to the "needs of women".) The Government may consider that such invitations are directed to developing countries, but this approach is not appropriate in a country in which

only 18% of planning professionals and 10% of planning related surveyors (and members of Parliament) are women (Greed, 1988).

Whilst Agenda 21's focus on community involvement in decision making offers a real challenge to the traditional process of public participation which many commentators believe to be highly limited (see Cullingworth and Nadin, 1994, for a summary), nowhere in the UK Strategy is this addressed. "Local authorities *can* (my italics) co-ordinate interests to develop a local strategy" (Section 30.8), whilst the creation of local partnerships will particularly involve business and voluntary sectors. The role of citizen involvement is consigned to taking personal responsibility by 'Helping the Earth Begins at Home' (Section 32.29).

Although the involvement of the voluntary sector is a welcome (though not innovative) strategy, the exclusion of informal groups and individuals in the decision making process is not. The document "Sustainable Development: the UK Strategy" makes no gesture towards involving women (as a single sector of the population or in all her diversity) in a decision making role. Indeed, the very language used is heavily gendered – from the first word of the Secretary of State for the Environment's introduction. ("Man has grown used to living as conqueror." Somehow I am not convinced that the writer intends to exonerate women from this and subsequent expression of man-made and mankind.) The absence of any discussion of women's roles (either critically or uncritically) in household management when discussing green consumerism is also notable. (Section 32.)

The guidance issued by umbrella organisations such as the Local Government Management Board (1993) and the London Ecology Forum (1993) is much more concerned with the involvement of the full range of community groups and individuals, but still make no specific reference to 'women' with regard to their inclusion in the planning and consultation process. Given the problems that women have faced in public participation and consultation in the past, this omission is significant (see, for example, the GLC, 1986 for criticisms of the planning process in excluding women).

London borough's response

Of the 32 London boroughs, a number have been selected for a scrutiny of their mechanisms for involving their communities in the process of formulating local Agenda 21. Raemaker's et al (1991) Index of Local Authority Green Plans was used to ascertain a commitment to 'greening' the borough. This index records the environmental activity by four indicators: an active charter, an action plan or strategy, an internal audit and a 'state of the environment' report. The boroughs researched represent a range of 'greenness' by these indicators; the sample was also selected to represent both inner and outer London boroughs. It should be pointed out that, in the absence of a London-wide strategic body, city-wide discussions have been initiated by the London Ecology Forum.

Only two of the six boroughs contacted had made significant steps towards creating local Agenda 21, by appointing dedicated staff members and by holding borough wide fora. Two others had prepared consultation documents and the

remaining two had not yet reached this point. In boroughs without dedicated staff, co-ordinators of local Agenda 21 were having to divide their time between various responsibilities which ranged from being the 'Environment Officer' to producing the Unitary Development Plan (a strategic plan for the borough).

Although the Local Government Management Board's advice to local authorities is to consider a range of techniques to establish community participation and not to rely on what they consider to be close to becoming a standard authority response, a forum, all boroughs contacted appeared to be focusing their efforts on this. In part this may be because one of the leading boroughs in devising a local agenda has done so and this has been used as an example at London-wide conferences. It may be instructive to remember that 'community forums' were recommended by the Skeffington Report on Public Participation in Planning (1969) to secure "...the involvement of those people who do not join organisations", although their subsequent use has not secured this to date (Cullingworth and Nadin, 1994). For many years it has been argued that consultation which involved women going to the council rather than the council going to the women was destined to exclude large numbers of women from public participation (Booth, 1982).

A number of boroughs have expressed concern that some groups may be excluded. Those causing most concern are disabled people and ethnic minorities (neither specifically referred to in UNEP's Agenda 21) whilst women as a specific group to be involved was identified, so far, by only one of the six boroughs as one of nine 'stakeholders'.

Conclusion

The United Nation's Environment and Development's 'Agenda 21' requires public participation to be a widespread and dynamic activity which fully integrates women at all levels if it is to achieve the aim of sustainable development. That women are more aware of and concerned about environmental problems than men can tentatively be generalised by the foregoing evidence. Whilst women are more likely to react to this concern in ways seen as more relevant to their social and economic role, they are also less likely than men to engage in direct political dialogue with policy makers.

Central Government has shown a reluctance, in its official response, to embrace this and fails to refer to women at all. Some local authorities appear to acknowledge the need to include women but the strategies so far being developed to draft local Agenda 21s are conventional and are therefore unlikely to achieve wider participation. If this is true in London, where authorities have a recent tradition of being more receptive to broader participation, then the approach nationwide is likely to be even less successful.

References

ARCURY T. A. and JOHNSON T. P. (1987) Public Environmental Knowledge: a statewide survey. Journal of Environmental Education 14,4. 31–37.

BONDI L. (1990) Feminism, Postmodernism and Geography: space for women? Antipode 22.2. 156-167.

BOOTH C. (1982) Public Participation and Women in POLYTECHNIC OF CENTRAL LONDON PLANNING UNIT (ed) Women and the Planned Environment (Proceedings of Conference) pp. 39–45.

COLLARD A. (with CONTRUCCI J.) (1988) The Rape of the Wild (The Women's Press, London).

CULLINGWORTH J. J. and NADIN V. (1994, 11th ed) Town and Country Planning in Britain (Routledge, London).

GLC (1986) Changing Places: positive action on women and planning (GLC, London).

GREED C. (1994) Woman and Planning – Creating Gendered Realities (Routledge, London).

HMSO (1994) Sustainable Development : the UK Strategy (HMSO, London)

LE BOURDAIS L. (1991) Women and environmental activity. Women and Environments. 13,2 4-5.

LOCAL GOVERNMENT MANAGEMENT BOARD (1993) A Framework for Local Sustainability: a response by UK Local Government to the UK Government's first strategy for sustainable development (LGMB, Luton).

LOCAL GOVERNMENT MANAGEMENT BOARD (1994) Roundtable Guidance: Community Participation in Local Agenda 21 (LGMB, Luton).

LONDON ECOLOGY FORUM (1993) Local Agenda 21 in London. Workshop Reports and Summary Papers.

MCDOWELL L. (1991) The baby and the bathwater: diversity, deconstruction and feminist theory in Geography. Geoforum 22,2. 123–133.

MELLOR M. (1992) Breaking the Boundaries: towards a feminist green socialism (Virago Press, London).

MIES M. and SHIVA V. (1993) Ecofeminism (Zed Books, London).

RAEMAKERS J., COWIE L. and WILSON E. (1991) An Index of Local Authority Green Plans. Research Paper No. 37, Edinburgh College of Art/Heriot-Watt University, Department of Planning and Housing.

RANDALL V. (1987, 2nd ed) Women and Politics (Macmillan, London).

UNITED NATIONS CONFERENCE ON ENVIRONMENT AND DEVELOPMENT (1993) Earth Summit'92 (Regency Press, London).

VAN LIERE K. and DUNLAP R. E. (1980) The Social Bases of Environmental Concern: a review of hypotheses, explanations and empirical evidence. Public Opinion Quarterly 44. 181-197.

CONSUMING ENVIRONMENTAL POLICY

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Summary

Many analyses of environmental policies neglect the active role of consumers in the assessment of their success or failure. Policies can be 'consumed' in many different, often apparently inconsistent, ways, as they are translated into people's everyday lives. 'Green', and its many inconsistencies, provides an important and topical opportunity for research into these relations between policy formulation and everyday life. Drawing on emerging debates in geography around questions of identity and consumption the research, based in the old industrial City of Sheffield, employs a qualitative methodology. I suggest that, by engaging with individual consumers, this approach can offer important insights into the general formulation, implementation and assessment of more effective environmental policies.

This paper is based on research which is exploring attitudes to 'green' and to the environment. In my initial pilot study work the role of the government and the individual and their effectiveness in environmental matters has emerged as a common theme. In this paper I shall argue that the intensive methodology employed in this project has accessed attitudes and concepts that should be crucial to policy makers, planners and proponents of 'green' in general.

Policy?

Being new to this field a good starting point, I thought, was to wonder what policy actually is. I went to the dictionary – a fairly safe starting point one might hope – where it was defined as cunning statecraft; estates of country houses; and has its root in politeness (*New English Dictionary*, 1932). I then began to wonder whether it is a safe, or 'polite', cover-up for that dreadful thing which many politicians hope never affects, or even confronts, them – ideology. I'm aware of the diversity of meanings which ideology holds. I am talking of ideology in terms of a set of ideas

relating to possibly hidden material interests which would be in the politicians' best interests to obscure, or certainly not make explicit. Following these lines, I want to note that policies and, particularly, 'policy statements' are often only very superficially disguised ideological statements. I want to acknowledge this by 'defining' policies as being the result of a messy, contested and, obviously, political process. But I realise that policy isn't only a discursive device – it is also a means of institutionalising and operationalising ideology.

Consumption as process

Policy, then, is not produced in a political/ideological or social vacuum. It is part of a contested and negotiated process. I want to go on to discuss why it should not be assumed to be 'consumed' in a vacuum either, and that this 'consumption' is also a contested process. And I'm using *consume* here intentionally. This is 'consume' which the likes of Miller (1987), and in Geography more latterly the likes of Clarke (1991), Jackson (1993) and Sack (1988), are working with, which takes consumption to be a *process* not an act. Usually, and most easily understood, it is taken to be an artefact which is considered. To exemplify this Jackson

> ...treat[s] consumption as a process by which artefacts are not simply bought and 'consumed', but given meaning through their active incorporation in people's lives. How many times can we listen to a cassette tape or compact disk before it is fully 'consumed'? And how many different 'readings' is it capable of in the hands of different audiences or for the same listener in different times and places? Rather than limiting the discussion to the point of purchase, [consider] the many acts of appropriation and transformation that may be performed on any single artefact before it is discarded sometimes only to be reincorporated in new cycles of use.
> (Jackson, 1993:208–9)

This example can be extended to other material examples – clothes and fashions or whatever – but I want to extend this to incorporate *ideas.* Green is a set of values which have been appropriated and defined in many arenas of late: in the supermarkets, in the media, by industry and by the government. I would argue that these are all part of a process of production and consumption of a set of ideas, and the process is very similar to that outlined by Jackson above.

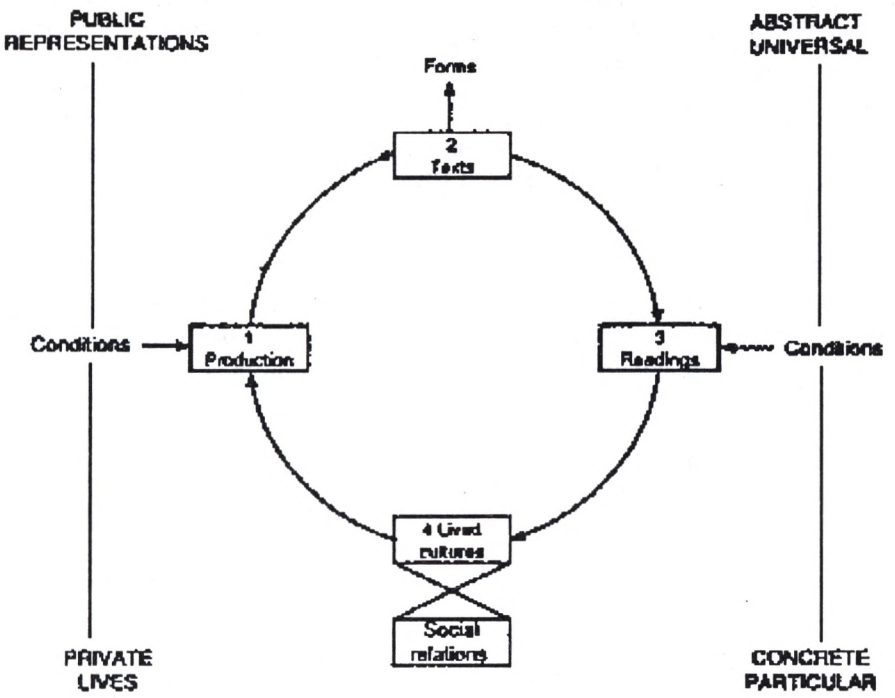

Figure 1 (Burgess 1990:145, after Johnson, 1986)

Burgess' (drawing on Johnson's) circuit of culture outlines this process of consumption in diagrammatic form and situates it in the broader cycle of production-consumption (figure one). But note first that the relationship between identity and consumerism is an interactive one, with identity formation being the key 'go-between' – what we consume says something about the artefact, or set of ideas, and we say something about it. Furthermore, producers make decisions with what they perceive to be consumers' attitudes in mind.

Going back to Burgess, production and consumption can be seen to be part of a process – they do not operate in isolation. The process of production and the process of consumption are linked, Burgess suggests, through 'lived cultures' (in other words, identity formation). This provides a reminder (as well as making a theoretical point of course) that it is real people who make decisions and "encode' or produce texts, buildings or whatever. Indeed, we can think of the producers as equally being consumers – let's not forget that people who run businesses and industry are real people too. The producers of policy, or the media, or our records/ CDs, the 'circuit of culture' diagram reminds us, are equally its consumers. They are one of us, and I would hope that we are one of them! But there are, of course, issues of power involved here. Whilst producers have the power to consume it is not

the case that all consumers 'produce' in the classical sense. However, I would argue that all people should be allowed to have an input to the policy process, to be its producers in a sense, as Agenda 21 is forcing governments to consider now. I do not have the space, unfortunately, to consider and debate questions of identity formation and its relations to subjectivity, but I have found Teresa de Lauretis' work very helpful in this respect, and would suggest it as a starting point for those who wish to explore this further (1984 and 1990).

Assessing Policy

To summarise the very brief dart around a number of theoretical debates, above, consumerism is a *process*. This process is one of *interaction* between the artefact being 'consumed' and *identity*. I have argued that this can be broadened to include *ideas*, or concepts (such as green). Johnson's cycle of production/consumption provides a graphic means to portray 'lived cultures' interacting with the consumption process, and I have mentioned de Lauretis' explanation of *subjectivity* – the process of gaining these 'lived cultures'. I want to reiterate that policies are a production *process*. They are an *apparently* consensual set of ideas, or directives, but are *actually* the result of a messy, to some extent idiosyncratic business, and, as I have argued, are *consumed* in much the same way and should be assessed with this in mind.

But how does this theoretical approach help to assess policy? If for no other reason, Agenda 21 talks of public participation. Policy in the past may well have been more effective had these ideas, which Agenda 21 is now imposing upon governments, been take on board previously. Members of the public have to somehow have an input to policy and planning decisions. But how? In this paper, I want to argue that to get away from discussions which end up branding the public as either ignorant of policy and planning matters, or disinterested in the whole sordid (well it might be, who are WE to know) process we must engage with the consumers of this policy, and understand that process of consumption. We, and I will go on to detail how I have done this, must listen to their interpretations of policy before we begin to formulate ways in which they can be involved.

Methodology

I do not have time to discuss the methodology of the project in any detail here, but, if nothing else, it is important to bear in mind whilst reading this paper that this intensive research style does not lend itself to making generalisable conclusions. What it does offer, however, and I would argue it is as, if not more, valuable than survey type work in this respect, is a chance to discuss meaning and attitude, both crucial in the preceding theory discussion. As O'Riordan wrote, back in 1973, note:

"Over the past five years or so [i.e. c.1968!], geographers in company with other social scientists have been interviewing variously chosen samples of the general public in order to ascertain their views about environmental issues... Such surveys... only monitor the expression of concern; they provide little or no indication of

commitment on the part of the individual to accept some measure of sacrifice to bring about improved environmental quality. In other words, public opinion surveys do not necessarily bring to light the full connection between verbal statements and overt actions." (O'Riordan, 1973:17)

And he goes on to argue that:

"Most if not all environmental issues involve ambiguity, uncertain outcomes and limitless streams of information. Individuals and groups attach a variety of meanings and to these complex components and a multitude of situations are offered in which they can act. Conflicting environmental attitudes and inconsistent environmental behaviour are therefore quite probable; the extent to which these conflicts are irreconcilable is as yet largely unexplored." (O'Riordan, 1973:21)

My research will be exploring these ambiguities employing the qualitative methodology which O'Riordan 'recommends'. The discussion that follows shows a range of interpretations which people make – it is not the only interpretation, but it shows a range of possibilities. As Kitzinger stated in her *Social Construction of Lesbianism*, it will not give *the* definitive definition, but gives us access to the wealth of possibilities which we should, as should policy makers, be aware of – in other words, we shouldn't generalise and make up public views, but listen to and explore them.

The interviewees have been, and further interviewee will be, chosen from the 'privileged' group in this country, broadly defined as middle class. This reflects Sally Eden's comments that "privilege is enabling" (1993:1749). This is by no means to say that if one is middle class one will automatically be green, but simply to note that the potential barriers of a lack of education and finance are not so apparent. The two interviewees which I will be discussing in this paper are both professional and both white. Interviewee 1 (I1) is a man, a chartered surveyor working in the centre of Sheffield. Interviewee 2 (I2) is a woman working in the University in a non-academic post. It is difficult to know what information it is necessary and appropriate to give (and still remain within the bounds of the promised confidentiality) at this stage of the research – I may find that age, for example, is important as the project progresses so in future I may well add age to the list of identifying labels. With so few interviewees at this stage I do not want to give the impression of making inferences or generalisations about a larger group, so I shall restrict myself to these indicators of status and identity.

It should also be noted that I am restricting the subject matter to only one topic. Each of the interviews, and indeed virtually all the quotations below, lend themselves to being studied along many different avenues and topics. I have, again, restricted myself to stay within the remit of this paper.

Environmental Policy: its perceived remit

On the most fundamental level we must talk of definition. All words don't mean the same thing to all people. The environment (as well as solutions) is by no means a term with a universal meaning. To take just a few responses from my research:

M: Have I asked you what the environment means? [...]

I2: Well we talked initially didn't we? Mmmm. Making the world a... or preserving the world for generations to come, and looking after it, because we're custodians really aren't we?

Here the environment is couched in terms of our relationship to the world. We are the "custodians" and must live to the standards of inter-generational justice. And note our relationship to the world. We are its 'custodians' – it is in our custody. We are 'keeping' and 'controlling' it. It is not that we must look after the world for its own sake, it is that we are controlling and keeping the world, implying that this is for our own ends. It is our property and we are 'keeping' and managing it. This view justifies, of course, human activity and extracting resources and so forth. But at this definition's base, though, is that the environment is social in meaning rather than the physical environment which is mentioned below:

M: ...in terms of the word environment what would you understand in your... what sort of picture you have when you use those kind of terms.

I1: Er. Basically everything that surrounds us. The air, ground [...] buildings [...] every part of everyday life, really.

Here the interviewee sees the environment as primarily a physical entity, and the 'social' environment is only alluded to by the end of the description as it interacts with our 'everyday life'. Of course this description of the physical environment does mention human intervention ('buildings'), but the tenor of the definition is much more abstract from the individual. The environment is something out there – it 'surrounds' us, rather than us being part of it. This is a very brief introduction at this stage to these definitional disputes, but if we are to talk of environmental policy we must understand what people interpret as being encompassed by the term, I would argue. In these two cases there is a meaning of the environment as being a set of social relations, in the first example, and, in the second, a much more abstract physical entity.

This becomes important, if not crucial, as we can begin to realise what we, or policy makers, might regard as being within the remit of environmental policy is actually outside the definitional boundary of many people. Talk of holistic approaches to environmental problems becomes very problematic as these boundaries must be delimited and negotiated. What should be covered by environmental policy, then, is contested. By the first definition, which encompasses inter-generational justice, any action which may prejudice the state of the world for future generations should be under its remit, whereas for the second the physical environment, almost only the aesthetic environment, is being included. But the first is still not *all*-encompassing, for the language is still couched in instrumental value of the environment. There is still a sense in which the only reason we must act as 'custodians' is in order to protect future humans' well-being. The world is being kept for humans' use – it has no 'intrinsic' value to be kept for its own sake. This deconstruction and discussion could go on, but I wanted to use this as an introduction to what this style of research can offer. It can access and interpret meaning and attitude which more extensive research would be less suited to. What it loses in breadth it by far, I would argue, makes up in depth.

Green Problematised

My research is interested in accessing the inconsistencies and tensions which go to make up green – as a way of life and set of ideological beliefs. Green grew up, or at least came of age, during the Thatcher years in Britain and, as Steward (1990) points out, the political context of Thatcherism in the UK was in tension with the green ideology – the social responsibility of green versus the individualism of Thatcherism seemed very much at odds:

One of the features of the new times (1990s Thatcherite politics in the UK) appears to be the offer of new opportunities for social diversity and individual choice.

Some dimensions of green politics do indeed express aspects of change in which issues of individuality, diversity and choice figure very strongly. Personal responsibility for the consequences of one's actions is a prominent theme on matters ranging from recycling newspapers to the purchase of fur coats.

Yet these issues represent only part of the green picture. In addition, there is a striking renewal of collectivism, universalism and social purpose. The individual is seen in the context of a global identity, the human species.

The power of green politics is that it has responded expressed by the emergence of a new political culture which embraces a notion of individual responsibility along with one of collective strategy.

As well as this individual/collective dualism, green seems to overcome other often posited binaries: public/private, global/local, domestic/political. For example, suddenly what we buy in the supermarket, for the home, is of global significance; we can vote not just by checking the ballot paper, but by buying apples from a particular country, or by not buying Kit Kats (a Nestlé product) – or can we? This is a continuing question for my research, which I intend to explore in more depth as the project progresses. Green, then, can be seen to be inherently inconsistent and this resonates in the approach I am taking to this research project.

In this paper I want to draw on the theory briefly outlined above to focus upon a consideration of what role environmental policy is held to have by my participants. This is based on qualitative research in Sheffield, England. Thus far I have begun my pilot study which has been focusing on questions of green 'action' by the participants. In further interviews I will explore in more depth the questions of identity and subjectivity outlined above. Despite the early stage of the research I am able to discuss emerging themes and points of interest.

The Context: Sheffield, England

First, though, a little context. Sheffield has been described by both of my interviewees as one of Britain's Greenest Cities. It has a steam main which heats a number of civic buildings; the newest tram system in Britain; was the first City to introduce a clean air act; and was one of the pilot areas for a household refuse recycling scheme (in conjunction with Friends of the Earth). Even the University, we are told, is going green (University of Sheffield *Newsletter*, 1st April, 1994).

Furthermore, the beauty of the Peak District National Park is but minutes from the City centre both by car and bus. Yes, all this affects my study, obviously, but only to the same extent as contexts of other places would affect research anywhere. In fact, it provides many avenues for exploration – this is a City where environmental policy has been put into practice at a very local, even domestic, level. This is not just policy which affects business and what little industry is left but it affects the way you throw away your rubbish. Also, the proximity of the Peak District means that people who work in Sheffield are quite able (finances permitting) to live in the Peaks and commute in to the City – indeed, the aesthetic and countryside aspect of green is one in which I am particularly interested.

What I shall now go on to are the ways in which my pilot study interviewees have discussed their and the government's role in environmental management and use this discussion to explore how policy makers can learn from the complexities and inconsistencies of ordinary people's environmental concerns.

The Role of the State and the Individual

A recurring theme in the interviews has been the role of the individual and the state, particularly in the context of from where the impetus for change should originate. This is a theme which Sally Eden has also found to be of interest in her research (1992 and 1993). She discusses the role of the individual in terms of their "perceived efficacy" (1993:1743) and she "suggest[s] in [her] paper that environmental responsibility is but a part of a complex process occurring within specific social contexts" (1993:1756). I have found this complexity to be very much evident. Interviewee 1 when first posed with the question of from where the impetus for change should originate answers thus:

M: How can that be planned to be saved, if you like? The way the kind of ... who does the planning? Where should the impetus come from?

I1: Yes. Good question. The planning [...] It's got to come from everybody...

The planning and responsibility is everyone's concern. Yet later, when talking about the role of business in promoting or adopting environmentally sound measures he begins to change tack. Firstly he begins by saying that economics would be a factor for business, and this would pressure a change amongst people at work's attitudes:

I1: Oh, I'm certainly sure that would make a difference to the likes of commuting, um, there again I think the local authority have got plans for putting a charge on entry to the City centre...

M: What this city centre?

I1: Yes, oh yes...

M: Right...

I1: I mean quite what happens with a business like this I don't know where we're in and out in and out all day. I mean we either stay here and put our costs up to something unrealistic or you leave the town centre and go somewhere where you can... because you see we're general practice surveyors we're out here, there and everywhere all day. Very often, not quite the same myself, but for instance, one of

the partners does a lot of domestic valuations, he might come into town and leave the office three or four times one day.

M: Mmmm. Mmmm.

I1: You know, if you're going to be charged a pound or two a time it soon puts your costs up...

M: Yes, might be cheaper to catch the bus sometimes.

I1: Certainly for shorter journeys where public transport would be available, or you can walk, yes, it makes a difference. Er, longer journeys, such as for instance, take the example I gave you of going to Scunthorpe...

The business would be 'disadvantaged' and possibly have to relocate – certainly it would be a change in the factors influencing decisions in terms of office location and what work could be undertaken. Here the impetus for change is not from 'everybody', which he talked of earlier, but the local authority imposing a charge on entrance to the centre of the City. The response is not, though, necessarily to use the car less (which I would hope was the basis for the policy), rather it is to find ways around it, possibly relocate the office for example and to use public transport instead as a very last (and seemingly impractical) resort. He goes further later in the interview:

M: But what is it, do you think, that made business bother?

I1: Legislation, almost entirely.

M: You don't think...

I1: Legislation and, to a secondary extent, local opinion.

M: Right. Right.

I1: But local opinion is almost always backed up at the end of the day by, er, local authorities' views on planning, that sort of thing, which, at the end of the day, is legislation again, isn't it?

M: Right. So it's a kind of... it's feeding in from the sort of government side rather than from the consumer side?

I1: Yes. I think... obviously you have had through the ages enlightened industrialists who will probably have done something about it but at the end of the day you have got to have legislation, I mean just the same with cars... er, if every car without a catalytic converter cost £500 less... [...] er, and there was no... [compulsion?] to have one I don't think many people would bother quite honestly...

Here, then, he is arguing that individuals, the 'everybodies' of previously, can only be persuaded by legislation in the end. Thus we have an cycle in his logic: on the one hand, people can only be persuaded to change through peer pressure yet on the other hand people can only be persuaded through government legislation. Interestingly, his concept of peer pressure is that there needs to be less pressure to be normal (this was in response to the question of planning, above):

I1: er, this is one of the things I find very difficult, um, I'm sure everybody does, er. Take for instance the issue of car usage. [...] Yes? There are all sorts of times when I can say to myself I don't need the car or I don't need it for such and such a job something like that. But if you do, if your attitude is like that then it instantly puts you at a disadvantage with everybody else and that's the same domestically or

at work. And, whe... thus, when we say it's up to everybody to deal with it, er, it really is because as soon as you're the odd one out you're disadvantaged...

Thus, one is not only financially disadvantaged, but socially also, one becomes "the odd one out". Thus, the planning must come from one's peers, yet they will be influenced to change only by legislation. This inconsistency is played out by interviewee 2 also. This is in response to a question asking her to detail what care for the environment covered:

I2: Um, well immediately one thinks of recycling... [...] and, um, emission of nasties from cars and all that sort of thing [laughingly]...

M: yes [...]

I2: ...and... possibly going a bit deeper, um, how you work the land and, um, what state you leave the soil in and, um, what you do with big, um, industrial, er, um, complexes, and, er, what they do with their waste. [...] but the individual can't do a lot about that. But I suppose if there's enough, enough feeling from enough people, then... the waves get through somewhere to the powers that be.

Here, the individual can do their little bit which will influence "the powers that be". Rather than us being influenced *by* them, we must convince them by doing our little bit. And her view as to what would make people go more green was very different from interviewee 1, who had talked of the state and peers, remember:

M: What, to follow that up a bit more, would make you go more green do you think? What would you look for to...

I2: You mean in the sense that there might be a cr... a world crisis, in that, the, you know, the environment was in very grave state of deterioration.

She wants to know that the world is deteriorating to crisis proportions for herself. This is again very different to interviewee 1 who wished for government to inform him, through his peers. Rather than trust government she would want some reliable "journalists", she goes on to say, to keep her informed. Thus, in her case, environmental policy would not educate or influence her, she seems to be saying, but something outside government. In fact she regards government's role in the whole issue of environmental concerns as highly dubious, it would seem:

M: Um um... In terms of politics more generally. The political parties... how do you think they fare in the, er, in the green stakes? ...if at all...

I2: [pause] I'm a bit inclined to think, um, that many of them, er, jump on the bandwagon in the hope of winning votes if they think it's a good issue for winning votes then they do well.

This answer is highly cynical of any environmental role for government: her trust in such matters lies elsewhere.

Assessment of Policy?

The very brief discussion above of my initial findings has presented a number of interesting and important points to be considered in the assessment of many aspects of policy and, in this context, specifically environmental policy.

Firstly, there are a number of interpretations of what should be within the remit of environmental policy. There are also questions of what education both the public

the government require. The two sides to this argument are that, on the one hand, the government, specifically policy makers, need to be educated to the views of the public but, on the other, the public needs to be knowledgeable and educated in order to be able to make reasoned decisions. Then there are philosophical questions raised by the need to consider whether inter-generational justice and intrinsic value should be a consideration in educating the public in environmental issues. This would involve the government deciding and making explicit its concept of the environment in terms of both what the environment encompasses and solutions to its problems, which I realise is far-fetched and over-optimistic, but, arguably, it is the lack of direction which has led to the cynicism of government. This cynicism is equally evident in the media and business. These have, over recent years, provided another forum in which green is 'produced', or certainly appropriated, and there is cynicism, perhaps unsurprisingly, of these too. What this should tell the government is that it cannot leave such matters to market forces if it does have any commitment to environmental issues at all. This argument of cynicism and education could equally be made in terms of the media, business or pressure groups, but I have not explored that avenue in this paper. Note, though, that these are all key players in the green debate and also all have a role in policy making.

Moving on, there is a fundamental question raised about from where the pressure to change can now originate. Interestingly, when I asked questions on a similar topic for previous research (my undergraduate dissertation) there was far more trust of Non-Government Organisations, particularly the activist groups of *Friends of the Earth* and *Greenpeace*, yet now the cynicism seems to have spilled over to even these previously respected groups. Possibly they have now become professionalised and distanced from the public which once felt represented by them – we now hear of professional activists in local campaigns. So here is another set of groups which need to address how the public is 'consuming' or interpreting their actions. Crucially, policy makers (and the NGOs) must address these problems of trust, initially through the likes of proper labelling schemes, but more fundamentally, questions of who can be trusted to warn us of impending environmental crisis.

Conclusions: The Politics of Identity and Different Politics in the Future

In this paper I have shown that this intensive research does have a role to play in the assessment of environmental policy. In this case I have been working at a very broad scale but this qualitative approach could also be adapted to assessment of local policy and initiatives. Understanding the process by which policy and ideas are 'consumed' in inconsistent ways is crucial to this research. The interaction between identity, context and interpretation is also very important.

This research approach allowed me to critique and question the process of policy formation and to suggest that we listen to people more, but also make an effort to interpret what they are saying, by exploring questions of 'consumption' processes. I would also argue that this can be broadened still further to suggest that we need to explore new conceptions of politics and representation. An example of interesting

research into this is the area which is debating the so called 'Politics of identity' and/or 'Politics of difference'.

Iris Marion Young, and others working in this field of 'politics of difference', have critiqued contemporary political systems for the way in which they assume homogeneity, with this homogeneity based upon an apparently "universal... group-neutral" (1990:165) position. She is writing in the context of under-privileged groups wishing to find ways to be included in our political institutions. I would argue that her stance of questioning the way in which people's views are expressed and voiced in 'modern' politics can be broadened to critique policy at a mundane level also. Indeed, Agenda 21 has begun to do this by demanding more public participation at all levels. It should take into account these differences of interpretation, and not assume that consistency is the norm. Firstly there is the critique of these 'norms' which we take for granted:

"...the ideal of a universal humanity [i.e. assimilation] without social group differences allows privileged groups to ignore their own group specificity. Blindness to difference perpetuates cultural imperialism by allowing norms expressing the point of view of privileged groups to appear neutral and universal. The assimilationist ideal presumes that there is a humanity in general, an unsituated group-neutral human capacity for self-making that left to itself would make individuality flower, thus guaranteeing that each individual will be different. [However,] because there is no such unsituated group-neutral point of view, the situation and experience of dominant groups tend to define the norms of a humanity in general. Against a supposedly neutral humanist ideal, only the oppressed groups come to be marked with particularity: they, and not the privileged groups, are marked, objectified as the Others." (Young, 1990:165)

The next stage in the argument is to question where these norms, this "universal humanity" is employed. She talks of "modern" politics being grounded upon it:

"There was once a time of caste and class, when tradition decreed that each group had its place, and that some are born to rule and others to serve Social inequality was justified by the church and the state on the grounds that people have different natures, and some natures are better than others.

Then one day Enlightenment dawned... All people are equal, the revolutionaries declared, inasmuch as they all have a capacity for reason and moral sense. Law and politics should therefore grant to everyone equal political and civil rights. With these bold ideas the battle lines of modern political struggle were drawn." (1990:156)

She is arguing, then, that current, or "modern", political thought is grounded on the principle of assimilationism whereby we are all granted equal rights and bound by equal policy. Having explored the inconsistencies and differences within green, above, and with us living in these "post-modern" (post-enlightenment) times as some have suggested, it is time, I would argue, to reassess how we formulate, implement and assess policy to account for difference rather than to look for homogeneity and pattern which other, less intensive methods than I have employed, may gloss over or be unable to address as effectively.

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References

BURGESS, J. (1990) The production and consumption of environmental meanings in the mass media: a research agenda for the 1990s, *Trans. Inst. Brit. Geogr*, N. S. 15, 139–161

CLARKE, D. (1991) *Towards a geography of the consumer society* working paper 91/3, School of Geography, University of Leeds, U.K.

DE LAURETIS, T. (1984) *Alice Doesn't: feminism, semiotics and cinema* (Bloomington: Indiana University Press)

De Lauretis, T. (1990) Eccentric subjects: Feminist theory and historical consciousness, *Feminist Studies*, 16:1, 115–150

EDEN, S. (1992) *Individual motives and commercial retailing in green consumerism* unpubl. Ph.D. thesis, School of Geography, University of Leeds, U.K.

EDEN, S. (1993) Individual environmental responsibility and its role in public environmentalism, *Environment and Planning A*, 25, 1743–1758

JACKSON, P. (1993) Towards a cultural politics of consumption in Bird, J., Curtis, B., Putnam, T., Robertson, G. and Tickner, L. (eds.) *Mapping the Futures: local cultures, global change* (London: Routledge) pp. 207–228

JOHNSON, R. (1986) The story so far and other transformations? in Punter, D. (ed.) *Introduction to contemporary cultural studies* (London: Longmans) pp. 277–313.

MILLER, D. (1987) *Material Culture and Mass Consumption* (Oxford: Blackwell)

NEW ENGLISH DICTIONARY (1932) (London: Odhams)

O'RIORDAN, T. (1973) Some reflections on environmental attitudes and environmental behaviour, *Area*, 5:1, 17–21

SACK, R. D. (1988) The consumer's world: place as context, *Annals of the Association of American Geographers*, 78, 642–664

STEWARD, F., (1990) Green Times, in Hall, S. and Jacques, M. (eds.) *New Times: The Changing Face of Politics in the 1990s* (London: Lawrence and Wishart in assoc. with *Marxism Today*) pp. 65–75

YOUNG, I. (1990) *Justice and the Politics of Difference* (Princeton: Princeton University Press)

V Environmental Monitoring and Reporting

RESULTS OF EMISSION REDUCTION IN BACKGROUND AIR POLLUTION MEASUREMENTS

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Introduction

The chemical composition of the atmosphere has been measured by the meteorological services since the beginning of the seventies. The aim of the initiation of measuring programs was to identify atmospheric processes more clearly; the measuring programs were also justified by the fact that the chemical composition of the atmosphere has an influence on the classical meteorological parameters. With the co-ordination of the World Meteorological Organization, the national meteorological services established the so-called BAPMON network and the GAW observing system all over the world. The Hungarian Meteorological Service (HMS) started its air chemistry measuring program in the observatory at Pestlőrinc at the end of the sixties, and another measuring program on the station of the BAPMON network (at K-puszta) was started in 1973. The data series of certain chemical elements reaches or exceeds 20 years, therefore it is possible to use this data in the decision-making process for environmental policy, as well as in the control of the effects and the evaluation of the efficiency of these decisions.

The three main environmental policy decisions of the past decade resulted in the issuing of the following documents: Protocol to the 1979 convention on long-range transboundary air pollution on the reduction of sulphur emissions or their transboundary fluxes by at least 30 per cent (08.07.1985), Protocol to the 1979 convention on long-range transboundary air pollution concerning the control of emissions of nitrogen oxides or their transboundary fluxes (31.10.1988) and the Montreal protocol on substances that deplete the ozone layer (16.09.1987).

The purpose of these protocols was to reduce the emission of atmospheric sulphur and nitrogen compounds and ozone depleting materials, to decrease acidification and to maintain the stratospheric ozone layer.

The basis of these decisions to limit emissions is that the reduction of the regional emissions can be achieved by decreases in global emissions. The reduction of emissions, however, takes place within the physical and chemical

processes of the atmosphere, and it is not certain that the expected results can be reached on regional level.

Therefore, it is an relevant question to ask how the effects of the protocols for emission reduction and other events can be seen in background air pollution measurements in Hungary. Are the emission reduction measures efficient? Do the changes correspond to the efforts of the country?

The Hungarian Meteorological Service can address these questions by evaluating the data series of background air pollution measurements at K-puszta and the ozone measurements in Budapest.

Background air quality measurements

The generalization of the measurements for Hungary is not a simple task. The model calculations of the experts of the Hungarian Meteorological Service (D. Szepesi and K. N rai) – considering the uncertainty of the model calculations (emission estimation, and mathematical simulation of transport) – have however showed that the generalization is possible.

Based on 1987 data, the model calculations concerning sulphur dioxide and sulphate exceed the measured values by 40-70 per cent. Similarly, the calculated values regarding nitrogen dioxide and nitrate aerosols are lower than the recorded values.

Article 2 of the Contract on the decrease of the sulphur dioxide emission signed in Helsinki in July 1985 says: "The Parties shall reduce their national annual sulphur emissions or their transboundary fluxes by at least 30 per cent as soon as possible and at the latest by 1993, using 1980 levels as the basis for calculation of reductions".

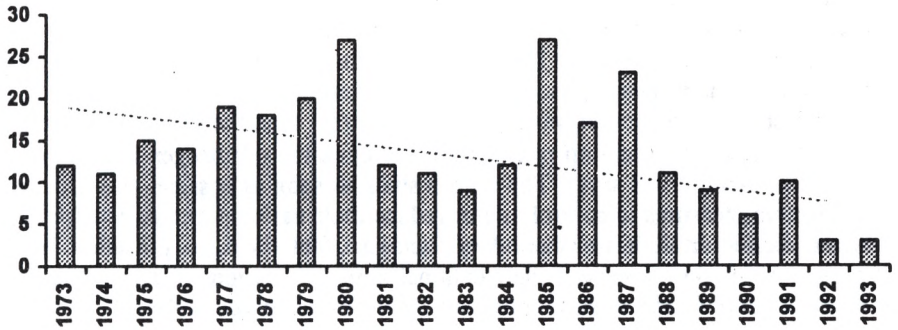
Figure 1 shows the data series for sulphur dioxide and sulphate at K-puszta as well as the estimated reduction of the sulphur dioxide emission indicated over Hungary. The latter data are based on the period since the signature of the Contract (as far as the sulphate measurements are concerned, please note that a new measuring method is being used from 1993, the control of which has not yet been finished; therefore, this annual average should be considered with some care).

It is evident that the annual average values of the sulphur dioxide and sulphate aerosols fluctuate significantly, but their tendency is decreasing; the values have fallen back to the third or fourth of the original value since 1985. In comparison, the national emission decreased by 50 per cent.

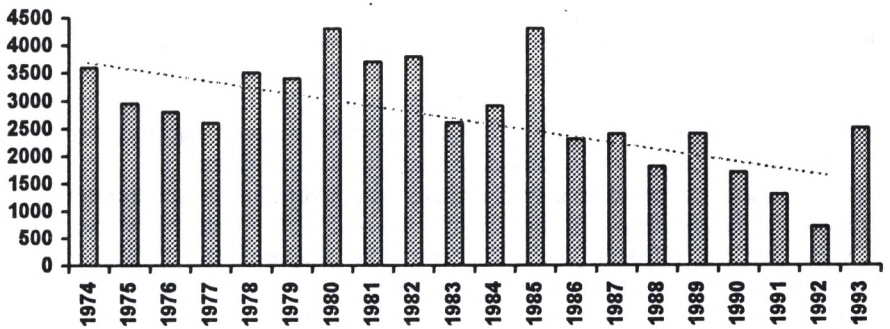
Our first conclusion is, therefore, positive, since the atmospheric sulphur content decreased significantly as a result of the Contract or other independent economic processes. If the processes were governed by the fulfilment of the obligations determined by the Contract, then an efficient method has been found to decrease the atmospheric sulphur content.

Figure 1

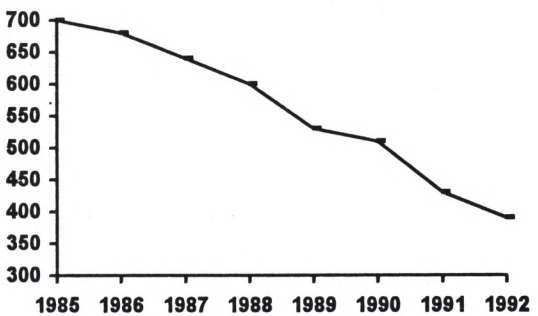
SO2 emission, K-puszta (μg/m³)



SO4 emission, K-puszta (mg/m³)



SO2 emission in Hungary from 1985 to 1992 (kt S/year)



However we need to express some scepticism with our second conclusion. This significant deviation cannot be explained by the emission reductions occuring abroad because based on the EMEP model calculations, only half of the national atmospheric sulphur comes from abroad. On the basis of these calculations, the explanation for the above emission reductions would be a sulphur dioxide emission reduction of the neighbouring countries by 80 per cent.

Analysing the data series we have to come to the conclusion that our knowledge about atmospheric processes, including air chemical processes, is not sufficient, or the actual emission reduction was several times higher than the known reduction.

Article 2 of the protocol on reduction of the emission of nitrogen oxides signed in Sofia in October 1988 says: "The Parties shall, as soon as possible as a first step, take effective measures to control and/or reduce their national annual emissions of nitrogen oxides or their transboundary fluxes so that these, at the latest by 31 December 1994, do not exceed their national annual emissions of nitrogen oxides or transboundary fluxes of such emissions for the calendar year 1987...".

Figure 2 shows the nitrogen dioxide and nitrate measuring series of K-puszta and the estimated national nitrogen oxide emissions.

Comparing the measurements with the estimated emission, an inconsistency can be revealed. The annual average concentration values of the nitrogen oxide – with some fluctuations – showed a constant level in the period from 1984 to 1991 while the national emission decreased a little. In 1992–1993, however, the concentration suddently fell to a sixth or seventh of the original value in a manner that is not explained by emissions. The situation is even more difficult because the nitrate aerosol measurements show an almost constant level of pollution.

The contradiction could be solved if there were a significant emission reduction in the neighbouring countries. In fact, the referred EMEP calculations supported the view that the nitrogen oxide concentration measurements at K-puszta are determined by foreign emissions up to 88–89 per cent. Unfortunately, however, it is not the case. Analysing the measuring series we can again come to the conclusion that our knowledge about the atmospheric processes is insufficient to explain the phenomenon. We think that changes in the meteorological circulation systems might be in the background.

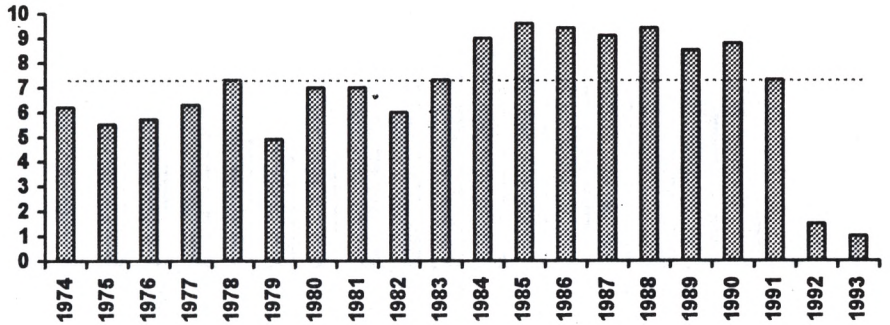
One of the most important aims of the referred protocols referred to was the reduction of acidification. A definite trend cannot be shown in the pH value of the precipitation in the measuring period as highlighted in Figure 3/a.

An important result of the 'nitrogen convention' is the introduction of lead-free petrol. Therefore, the decrease of atmospheric lead can be an interesting additional effect of the 'nitrogen convention'. The lead content of precipitation and its concentration in aerosol are shown in Figure 3/b and 3/c (unfortunately, the measurements were interrupted in 1993 due to financial difficulties.) A decreasing trend with certain fluctuations can be seen in both cases, but it cannot be connected definitely with the decrease in the lead content of petrol.

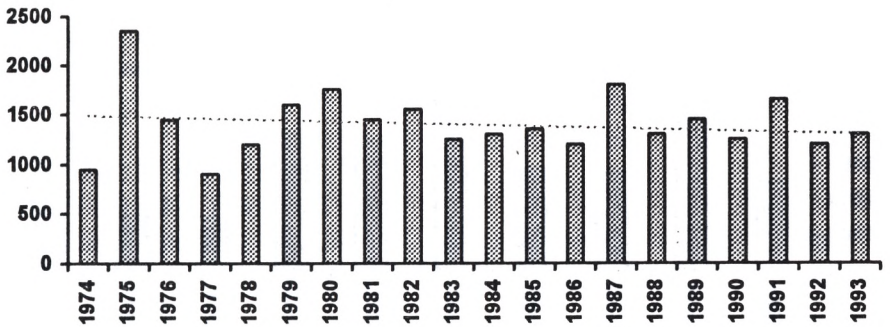
Two documents were issued regarding the reduction of substances that deplete the ozone layer: the Montreal Protocol on substances that deplete the ozone layer and the London Amendment to strengthen the Montreal Protocol.

Figure 2

NO2 emission, K-puszta (μg/m³)



NO3 emission, K-puszta (mg/m²)



NOx emission in Hungary from 1985 to 1992 (kt N/year)

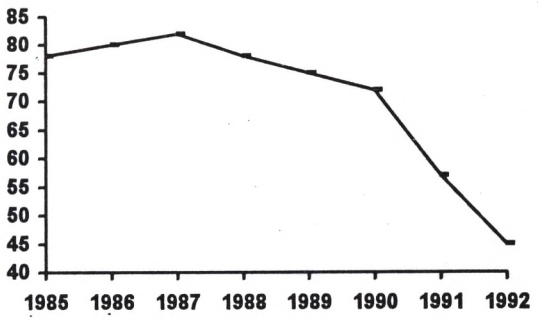
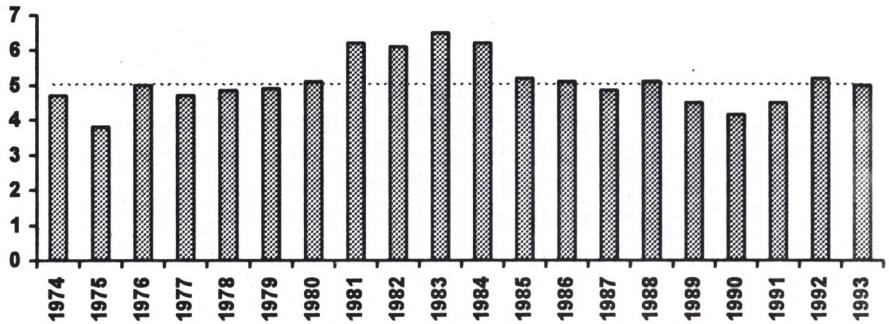
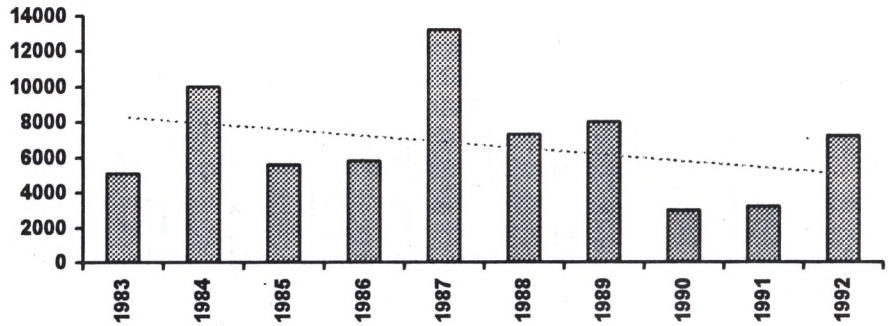


Figure 3

pH, K-puszta



Pb precipitation, K-puszta (μg/m²)



Pb Aerosol, K-puszta (ng/m³)

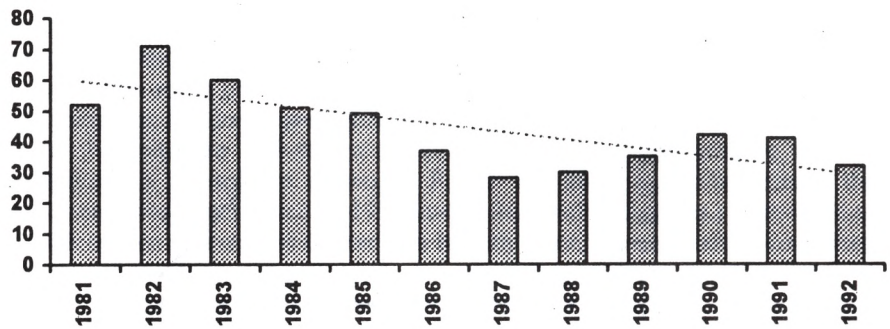


Figure 4: Phase-out schedule

1. Chemicals covered by 1987 Montreal Protocol

CFCs (11, 12, 113, 114, 115)		
Phase down 1986 levels by	20%	1994
	50%	1999

(except fot "essential uses" to be defined by the Parties by 1993)

2. Other chemicals included in the Montreal Protocol

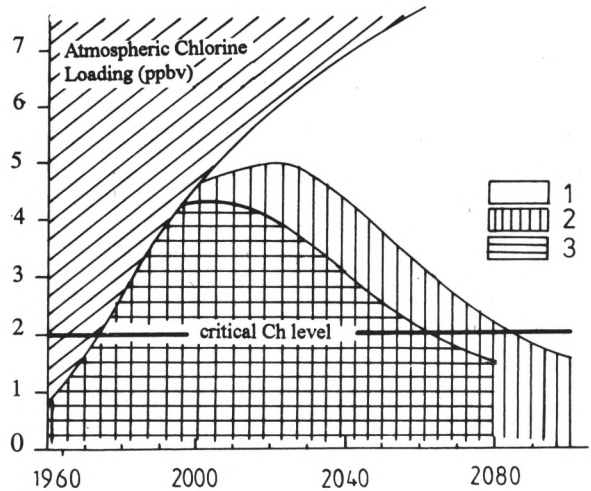
CFCs (13, 111, 112, 211, 212, 213, 214, 215, 216, 217)		
Phase down 1989 levels by	20%	1993
	85%	1997
	100%	2000
Halons (1211, 1301, 2402)		
Freeze in 1992 at 1986 levels		
Phase down after by	50%	1995
	100%	2000
Carbon tetrachloride		
Phase down 1989 levels by	85%	1995
	100%	2000
Methyl chloroform		
Freeze in 1993		
Phase down 1989 levels by	30%	1995
	70%	2000
	100%	2005

(Parties to review the feasibility of a more rapid schedule of reductions in 1992)

3. Chemicals that parties agreed to review

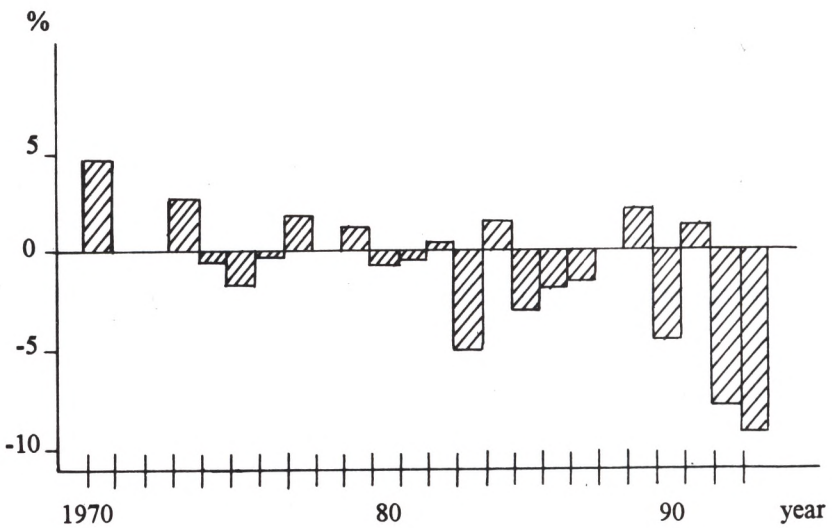
Hydrochlorofluorocarbons (HCFC) or "bridging" chemicals		
Phase down	100%	2020–2040

Figure 5: The measured chlorine loading of the atmosphere (since 1960) and projections according to the various measures proposed to phase out CFCs and other ozone-depleting substances



1 – original Montreal protocol, 1987; 2 – revised London, 1990;
3 – proposed revision Copenhagen, 1992

Deviation of the annual average of the ozone from the many years' average (1969–1991) over Budapest



The fairly complicated limits imposed by these protocols are summarized in Figure 4. Since the decomposition of substances that deplete the ozone layer is a very long process (several decades), the effects of the limits cannot yet be evaluated.

The temporal change of a critical substance, atmospheric chlorine is shown in the upper part of Figure 5, while the deviation of the total ozone data from the average measured at Pestlőrinc is indicated in the lower part of the figure. There is not a definite relationship between the two figures shown in the same time period. Therefore, the fluctuations of the last decade cannot be explained by the known chemical processes of the atmosphere.

Conclusion

In summary, based on the measurements discussed in this paper, there is a contradictory picture of the regional effects of the internatrional protocols regulating the reduction of global emissions. The present situation characterized by ambient air quality measurements in parallel with emission reduction raises several questions. We are not in the position yet to explain the observed changes from physical, chemical and meterological points of view. Therefore questions concerning regional efficiency cannot be answered with further research projects. A knowledge of this efficiency, however, is essential to solve one of the main problems of environmental policy, that is adaptation and/or mitigation in small countries as well as the correct ratio to adopt.

References

KVM (1989) Environment Protection (KVM, Budapest).
WMO (1992) WMO and the Ozone Issue (WMO, Geneva),

THE ESTABLISHMENT OF A MONITORING NETWORK IN HUNGARY TO IMPLEMENT ENVIRONMENTAL POLICY

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Introduction

The Governmental program of the Hungarian Republic regards environmental problems as important issues to be addressed. Keeping sight on the basic principle of sustainable development, they tried to provide a solution to both national and international environmental problems. It was thought that the establishment of an environmental monitoring system would be an important part of this and steps have been taken for the implementation of this program.

The tasks of the environmental monitoring system are to give the basis for authoritive actions, to enable the evaluation of the state of environment and to provide information for the public. The development of the system has been initiated according to the EUNEP and UNECE proposals, including also a measuring/monitoring system for forests, and the development of a measuring system related to the protection of natural resources as a part of the UNESCO program "Man and Biosphere".

The structure and establishment of the system

In its structure, the environment monitoring system consists of a central system and some sub-systems. Information from the sub-systems of each special field is transferred to the centre. It is necessary to establish sub-systems and to improve existing ones in the following special areas: rock-bed, soil, water, air, landscape, nature conservation, environment of settlements, waste disposal, protection against noise and vibration

The main steps in the establishment of the environment monitoring system are:

- the setting up of measuring points, their instrumentation, data collection, evaluation, and construction of the information transfer systems
- instrumentation of the environment protection inspectorates operating as regional centres

- development of the air quality measuring and monitoring system
- modernization and extension of the existing national meteorological and hydrographical observation network
- training of experts for the operation of the system

Of this wide range of tasks, priority has in part been given to the protection of air quality. Outstanding tasks in the protection of air quality are the improvement of air quality in the heavily polluted regions, reduction of emissions according to the international agreements and preventing the further deterioration of air quality.

To solve each problem, we must have knowledge of the present situation, the air quality of the given area, and the existing polluting components and their quality. These data can be determined only by measurement.

The governmental program of the Hungarian Republic states that "a network, which is controlling, measuring and observing air quality and conforms to international requirements, and has a direct relationship with other international systems, must be established".

In Hungary, formation of the basis for a measuring system for the protection of air quality was already initiated in the sixties. However, its development has been accomplished only slowly, mainly because of limited finance.

The main components of air quality protection are the:

- emission monitoring network
- ambient air quality monitoring network
- background ambient air quality monitoring network

Emission monitoring network

Air pollutants can be reduced or even eliminated most efficiently where they emerge, namely in the technological process before emission. The level of emitted air pollutants should be measured by instruments so as to determine the optimal technological changes to be made and investment projects to be pursued. Guarantees are needed that measures adopted centrally are based on authentic measurements.

Thus, the task of the emission measuring network is to supply accurate data, to control adherence to environmental protection measures and to monitor the effects of the measures taken.

In Hungary, the level of emitted air pollutants is measured by 12 environmental inspectorates directed by the Chief Inspectorate for Environmental Protection.

In the laboratories of the inspectorates, the measurement of the basic polluting components is provided for. Five inspectorates have mobile measuring stations.

The vans are suitable for sampling and measuring emitted air pollutants, such as sulphur dioxide, carbon monoxide, carbon dioxide, nitrous gases, hydrocarbons and dust. Its data processing system makes it possible for an analysis to be drawn up on the spot.

The other seven also have up-to-date measuring instruments for the measurement of the above mentioned pollutants, but the installation of all the measuring systems has not yet been completed.

In accordance with the development program, the measuring network located in the industrialised regions must be equipped for the measurement of the complete range of air polluting substances. This means significant investment mainly in large laboratory instruments, gas chromatograph with mass detector, fluid chromatograph, nuclear absorption spectrophotometer, inductively connected plasmaphotometer etc.

To coordinate the work of the measuring network, the establishment of a Methodological Centre has been planned. On the basis of experience and existing infrastructure, the examination of emissions originating from industry and communities has been included in the development plan of the Environmental Protection Institute at the Environmental Management Institution serving as the Methodological Institute.

One member of the Institute for Environmental Management is the Institute for Environmental Protection which was founded on January 1981 by the President of the National Authority for Environmental Protection and Nature Conservation.

One of the main areas of the Institute's activity has been to provide the technical and scientific basis for the decisions of the Ministry for Environment and Regional Policy. The task of the Institute has been to furnish this basis and to prepare the various technological, economic, legislative and controlling activities within the sphere of nature and environmental protection, to examine the methods of protection and prevention, and furthermore to promote the application and diffusion of these methods

The Institute deals with environmental problems in a complex manner. The major fields of its activity have been as follows:

- air pollution abatement,
- water quality control,
- soil protection
- waste management,
- noise and vibration control,
- nature conservation,
- field and laboratory tests,
- standardisation.

The activities of the Institute cover the entire territory of the country and it supplies expertise to foreign investors as well.

The laboratory has been established for the measurement and investigation of various pollutants in each of a number of environmental components, especially for the evaluation of stack emissions. The tested components of the environment are air, surface water, groundwater and soil, with AAS, ICP, HPLC, GC, GC-MS, mobil labcars.

Samples to be processed and measured include the whole spectra found in the field of environment protection, i.e. polluted soil, water, waste water, waste water

sludge, air polluting components within the emission and ambient ranges, gas, steam, aerosol and condensed organic and non organic micro polluting agents, wastes and dangerous wastes.

The tasks of the Methodological Centre will be the registration of fixed air polluting sources as a national level and the data collecting centre for the emission measuring network will also be located here. These data must be transferred to a central environment protection data bank (KTM).

Network for the measurement of (background) ambient air quality outside settlements

This network has been operated by the National Meteorological Service and its task is basically to monitor over large regions and to reveal long term trends. The network has been involved in several international measuring projects.

The network, consisting of ten rainfall sampling stations and four air pollution (SO2, NO/NOx) measuring instruments, is going to be greatly improved. The location of 20 measuring stations, evenly distributed in Hungary, has been planned for the measurement of

- sensitive ecological systems
- industrial areas
- air pollution entering the country's borderline and
- background air pollution.

In these measuring stations, basic parameters of the atmosphere and the standard polluting components (SO_2, NO/NO_x, CO, dust and ozone) must be measured with continuously operated automatic analysing instruments. Other pollutants must be examined by sampling methods.

Network for ambient air quality measurement in settlements

With the supervision of the National Public Health Institutions, a national monitoring network has been operated for the measurement of air pollution at the relevant Governmental Public Health and municipal Health Services and SO_2 and NO_2 polluting components have been measured in nearly 100 settlements and 360 locations. The requirements of the World Health Organization were considered in selecting the location of sampling points. Construction of the measuring network was initiated in the early seventies. This system has now become outdated. Renewal and development of the measuring network are underway. The main tasks of the measuring system to be developed are the following:

- determination of air quality in the settlements
- evaluation of air quality on the basis of given limit values and information supplied on this for the public
- establishment of a data base from the aspect of health and control.

Construction of the measuring system has been accomplished in phases. Results of the recent development are 12 newly located stations and 5 mobile stations. According to the plans, it is still necessary to acquire 60 further fixed and 19 mobile stations, in addition to data collecting centres.

The European Community's PHARE programme for environmental protection has a major role in modernizing the monitoring networks. The other aid programs are for environmental protection for example Japanese JICA.

In some places the air quality monitoring network has been developed by local government but the operating cost of a modern monitoring network is too expensive.

Conclusion

One of the problems to be solved is the provision of a suitable financial background for the undisturbed and reliable operation of the measuring network.

Establishment of the planned Reference Laboratory could largely contribute to the careful and expert operation of the air quality protection measuring network. Among others, the task of this Central Laboratory will be the unification of the methods of measurement, supervision of the accuracy of instruments operated in the measuring network, and participation in the national standardization procedures and their coordination. In addition, it could provide a link between the emission and – urban and rural – ambient air quality measuring networks, that at present are controlled by different supervisory bodies.

In the field of the formation and development of measuring networks there is still a lot of work to do. We believe, that the dynamic improvements recently taking place will be continued.

SMALL-SCALE ENVIRONMENTAL MAPPING AS A TOOL OF ENVIRONMENTAL MANAGEMENT AND POLICY

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Summary

After highlighting in general the capabilities and advantages of maps to store and communicate information related to the geographical space and after underlining the facilities of maps to be a means of environmental research, management and policy the paper deals with different kinds of uses of maps in environmental management and policy. Special emphasis is laid on small-scale international environmental maps of a larger region. Up-to-date examples from the Atlas of Eastern and South-eastern Europe illustrate this chapter.

General Remarks on the Map as a Means of Communication and Decision-Making

Maps are simplified and generalized models of the complex geographic reality. As such and independent from what a user wants to do with them they basically have the function to store spatial information (Töpfer 1970, Papay 1972). They offer the map author's and map composer's conception and knowledge of the real world transformed into cartographic symbols in principal, so that everybody, who is interested in it and has the ability, to derive it from the map.

The map's capability to store spatial information is frequently underestimated. It has been computed that a map is able to store per square inch about 20 times the information of a text intending to describe the same feature (Töpfer 1970). But maps have not only excellent capabilities to store high amounts of information. As models of the geographic space, mathematically projected and reduced, they are able to store types of information, which could not be stored by any other means. These map-specific types of information are indirect issues about the distribution of objects symbolized directly in the map and the spatial relations between them. To

make that clearer I give an example: representing the location of thermoelectric power stations in a map together with the spread of air pollutants reveals spatial relations between power production and air pollution that can never be described by words.

By representing a simplified and generalized extract of a complex reality, maps facilitate access to complicated and difficult topics. For the same reason, however, they are open to manipulation and disinformation. By visualizing notions and conceptions maps can easily and quickly be read. By storing all information on one sheet a near to simultaneous perception of all issues relevant for a context is possible.

All these capabilities make maps a preferable means of communication when conceptions of the geographic space are to be transmitted. Since their language is in principle, and provided the cartographic coding is fairly done, easily and quickly understood they are not only useful to transfer information between experts, but also from experts to receivers, who are less acquainted with the topic or who have little time. For example the wider public, which gets increasingly involved in planning processes on all levels and of all kinds, but especially in the field of environment, and many decision-makers and politicians. But maps are not only transmitters of facts already known. By transforming notions of the reality into map symbols and the two dimensions of a map sheet even the mapmaker himself might have find new spatial relations revealing themselves in the map for the first time. Thus, a map may not only be used as a means of communication, but also as a method of research (Papay 1972, Witt 1976).

The Use of Maps for Environmental Management and Policy

Environmental management and policy are essentially space-related and therefore very much bound to make use of maps. They indeed use it in many ways. Especially large-scale mapping is a frequent tool in environmental management: the compilation of master plans, the cartographic confrontation of natural potentials (landscape units) with actual land use and economic demands, soil maps, maps of groundwater, maps of hydroeconomics, maps for landscape evaluation, cartographic inventories of biotops, protected zones and other areas of a special environmental value, forest inventories, maps for waste management, maps of zones exposed to special environmental dangers, maps of environmental hazards a.s.o.

Environmental maps in large scales are mainly tools of public planning at the local and communal level. Very often they are case-related and sometimes even used as an evidence against emitters and polluters. Their cartographic design is mostly analytical and tries to be straightforward to enable a wide public participation in planning processes.

Also at medium and smaller scales, maps are widely used in environmental management and policy. Maps of these scales are not so much part of basic planning processes, but means of defining the priorities of environmental policy and of controlling the effects of measures implemented, mainly by comparative surveys on regional and national levels. In some fields of environmental studies

(esp. air pollution, damages to woods) comparative surveys on the national level are already a difficult undertaking, especially in countries with a federal structure like Austria, where methods of monitoring and classifications vary to considerable extents between federal provinces.

Maps on water quality, air pollution, damages to woods, on the distribution of waste deposits are among the most frequent at medium and smaller scales. Some of them are included into national atlases (see Tomasi 1993). In some countries even comprehensive environmental atlases have been published (Viturka 1992, Environmental Review and Environmental Strategy Studies 1992) serving as an important basis of environmental policy.

At the international level and at small scales environmental mapping still meets a lot of obstacles. Most of them are related to data collection. Since it is a basic principle of map design to treat all parts of the areal section of a map in a homogeneous way, variations in data quality and data homogeneity are a serious problem. The most frequent and most important of the difficulties arising with data collection on the international level are:

- Essential characteristics are not monitored in some countries.
- The networks of monitoring have different densities; as a consequence the accuracy of a map based on data from different monitoring networks varies from country to country.
- Key-dates of monitored data differ.
- The meaning of one and the same key-date can vary in different regions (water quality with high water levels in one river basin versus medium or low water levels in the other at the same point in time)
- Classifications offered by national institutions and statistics vary.
- There is a lack of comparable data for synoptic and synthetic issues.

On the other hand environmental maps of larger regions could be a valuable tool of environmental management and policy. A good example in this context are the former socialist countries of Europe – countries with an environment extremely damaged by a more than 40 year's predominance of planned economy and autocratic rule. For international and western national funds, financiers and programs created to reduce damage and to initiate improvements, it is a basic need to achieve a comparative survey of the overall situation, to find a rank-order of priorities, to learn where the most urgent tasks are waiting and where investments into environment as protection would have the quickest and strongest effects.

Three Examples for Small-Scale Environmental Mapping from the Atlas of Eastern and South-eastern Europe

The atlas, from which the examples are taken

The Austrian Institute of East and Southeast European Studies has since its foundation in 1958 been concerned with map making, i.e. with the production of

international atlases. After the Atlas of the Danubian Countries, a comparative regional geography in maps, was completed in 1989 the Institute started a new map series, the Atlas of Eastern and South-eastern Europe. Its intention is to highlight topical developments and critical zones in Central, Eastern and South-eastern Europe in the manner of a cartographic quarterly. Regions and topics represented as well as scales vary within a certain framework according to developments taking place, results of research and data available. There exists no definite catalogue of topics, planned topics may be exchanged suddenly in favour of more topical ones. Since 1989 14 issues have been published. The languages of the legends and accompanying text booklets are English and German.

A main topic is the environment. Up to now four issues on environmental topics have been published. Three of them might serve as examples in this context and will be discussed as regards their uses in environmental management and policy.

Map "Use of the Environment and Resultant Problems in Central and Eastern Europe"

The topic "State of Environment in Central and Eastern Europe", elaborated by an international team of authors from all countries represented (East-Central Europe, South-eastern Europe without Albania, Greece and Turkey as well as parts of Eastern Europe up to Odessa, Kiev and Vilnius) under the direction of Tatjana NEFEDOVA of the Russian Academy of Sciences in Moscow, comprises on two map sheets at the 1:3 million scale "nature consumption" by agricultural, industrial and touristic use, as well as the areal distribution of pollution and impacts (air, waters, soils, woods and forests, nuclear). The elaboration of the manuscripts started already in 1985, thus containing data as of the late 1980s and representing essentially the state of environment as it was left by the communist regimes of this region. The issue was published in 1992. The heterogeneity of source data made the compilation of this issue extremely difficult and forced the authors to define value classes not by quantitative thresholds but qualitatively. Synthetic issues like nature consumption by agriculture had to be derived only from a couple of statistical indicators available for administrative units of a comparable size. Thus, this issue may be regarded as nothing more than a rough approximation to the real situation, a first attempt to survey the environment of this region.

This issue might nevertheless be helpful with the definition of hot spots, with compiling a rank-order and setting priorities for environmental activities and investments by actors from outside the region.

Map A focuses on the use of the environment by agriculture and forestry, industries, power production and mining, settlements and tourism.

The areal colours of this map refer to the intensity of agricultural use, the intensity of nature consumption by agriculture. The representation is based on criteria like the degree of specialization in agriculture, share of arable land, density of livestock, consumption of artificial fertilizers and productivity. Out of these criteria a synthetic parameter indicating the overall intensity of agricultural use was computed through the means of statistical standardization.

Columns indicate the impact of industrial and energy production on the environment by main industrial centres. The height of the column corresponds to the amount of this impact computed by multiplying the number of employed persons of an industrial branch with an ecological coefficient for each industrial branch (e.g. chemical industry = 15, engineering = 1). By this method it is not possible to specify the environmental impact of a definite industrial centre, but it provides a rough survey of the overall situation.

Circles indicate the environmental impact of settlements of more than 50 000 inhabitants according to their number of inhabitants.

Triangles of two sizes represent the major sources of environmental impacts caused by the extraction of mineral deposits.

Small rectangles indicate the position of nuclear power stations as at least potential sources of environmental problems.

A red line screen covers areas with a high intensity of touristic and recreational activities.

Map B represents the different types of environmental problems and their spatial distribution.

Large-scale diffusion of air pollutants is shown by a yellowish range of areal colours. Due to a lack of comparable data throughout this region the representation had to be based mainly on the indicator sulphur dioxide, only regionally and locally other pollutants like dust or nitrogen-oxides could be used for further specification. 4 levels of concentration are discerned: low concentration, increased, high and very high concentration.

Since air pollution in larger settlements does not necessarily correspond to large-scale pollution, but depends on a variety of local, i.e. industrial, household and traffic emissions as well as on the local meteorological situation, it is indicated separately by colouring the circles. Red stands for very heavy pollution.

Water pollution is another feature of this map. It is indicated for rivers, lakes and coastal waters in 3 and 4 categories with a range from no or minimal pollution indicated by a clean blue to very heavy pollution indicated by red. Here especially the data base was very heterogeneous. Some measurements are based on chemical, others on biological indicators. Thus, the classification shown in the map is the result of a troublesome and risky comparison.

As regards damage to forests the map discerns between damages caused by air pollution and acid rain on the one hand and damage caused by a careless industrial use on the other resulting in a distorted age structure and composition of species. The latter type of damage is represented by green line screens of different width, the less dense indicating a near critical stage, the denser a critical stage. The near critical stage signifies diminished quality and productivity of resources. In the critical stage the extent of damage no longer allows the use of the resource in the way it has hitherto been done.

Soil degradation, represented by brown line screens, is similarly subdivided into near critical and critical stages. Letters indicate whether it is mainly caused by water erosion, wind erosion or unskilled methods of drainage and irrigation.

A blue screen for water scarcity identifies areas with limited availability of water caused either by natural and/or anthropogenic factors. It refers to both the quantity and the quality of the water as well as to surface and groundwater.

As a synopsis of all these features the map highlights larger areas of massive environmental devastation, represented by grey contours. These areas are considerably damaged by at least heavy air and water pollution caused by mining and industry. In these areas the health of the population is exposed to serious risks and the economy cannot be run as it has been done before. Areas of massive environmental devastation are therefore crisis regions not only in an ecological sense. They must be considered also as regions of economic and social crises, where industrial production has to be reduced, plants must be closed down, unemployment rises, agricultural cultivation has to be modified and from where the better qualified and more active part of the population tries to escape.

The area contaminated by the Chernobyl nuclear disaster (1986) is in the same class with areas of massive environmental devastation, for the one accident only. Representation is based on measurements of caesium-137, the chief contaminant outside the 30-kilometre zone.

The following general issues can be derived from these two maps:

1. There is a distinct gradient in the intensity of agricultural and silvicultural use from West to East of the area represented.
2. The industrial damage to the environment is most distinct in large cities, mining zones and in centres of chemical, metallurgic and thermoelectric power industry. A zone of the most intensive industrial impact on the environment extends from the southern parts of the former GDR via the Northwest of Bohemjia, the South of Poland, the West of Hungary to Slovenia and Croatia, the most polluted capitals being Prague and Budapest.
3. Rivers remained clean in Central and South-eastern Europe mainly in mountainous regions, in the part of Eastern Europe shown on the maps they remained clean only in comparatively backward areas like in Belorussia.
4. Problems of soil degradation are apparent foremost in the main agricultural regions of Belorussia, the Ukraine and Moldavia due to a low standard of environmental consciousness and agricultural techniques.
5. While intensity and efficiency of environmental use are declining from West to East the careless and unskilled handling with natural resources grows in the same direction causing unnecessarily serious damage and degradation.

Map "Power Industry of Eastern and South-eastern Europe"

This map, compiled by Karl Schappelwein of the Austrian Institute of East and Southeast European Studies is based on data as of 1988 and has been published in 1990. It represents at the scale of 1:3 million the same region as the maps mentioned before. Its three groups of features are the extraction of raw materials for energy production (crude oil, natural gas, black coal, brown coal, lignite, uranium according to the actual amount of extraction), energy production by power stations (thermoelectric power stations, hydroelectric power stations, nuclear power stations

according to installed capacity and state of construction) and energy transport (international high tension transmission lines, transformer stations, oil and gas pipelines).

The difficulties with the compilation of this map arose not so much from data heterogeneity, since most technical terms of power industry are internationally standardized, but from the reluctance of some national authorities and enterprises to release up to date data.

The environmental relevance of this map is especially due to its representation of thermoelectric power complexes. They are one of the main sources of air pollution in this region, especially when burning brown coal or lignite with a high content of sulphur. This is underlined by a comparison between the location of thermoelectric power complexes and the large-scale spread of air pollutants. As a source of ashe disposed mostly in their vicinity, thermoelectric power plants are also a source of many dangers connected with waste deposits, especially for groundwater.

In the map four complexes of thermoelectric power production are prominent: Lusatia and the Halle-Leipzig region on the territory of the former GDR, based on local brown coal fields; Northern Bohemia, based partly on local, partly on brown coal fields in Eastern Bohemia; Upper Silesia and the adjacent Ostrava-Karvina region, based mainly on local black coal mines. Thermoelectric power centres of a second rank, but of a nonetheless detrimental environmental impact are located in the vicinty of Belgrade (in the basin of Kolubara with local brown coal) and in the Romanian central Jiu valley, based mainly on local lignites.

The map might suggest ideas, where to look for applications of environmental technologies in thermoelectric power stations like filters, steam-gas mixed cycle, coal combustion in fluidized bed, flue gas desulphuration etc...

Map "Air Pollution in Southern Poland"

The map sheet on air pollution in southern Poland, compiled by Kazimierz Trafas of the Cracow University, is composed of 5 parts representing in scales of 1:500 000 and 1:1 000 000 the same regional section, i.e. the Upper Silesian Industrial District in Southern Poland, the Ostrava-Karvina industrial agglomeration in Northern Moravia and the urban-industrial agglomeration of Cracow in the upper Vistula valley in Poland. These regions suffered at the time to which the map refers (late 1980s) from the heaviest air pollution in Central Europe and perhaps in Europe in total. Since this time pollution has declined due to reduced production of just the biggest and most polluting enterprises.

Part 1 shows smoke trails of thermoelectric power stations and industrial plants during the three weather situations most typical for the region, i.e. situations without wind, winds from Southwest, winds from Southeast. Smoke trails were defined by the use of LANDSAT III images. The most interesting phenomena highlighted by the map are the surprising extension of many smoke trails as well as the impact of the relief on the spread of smoke. The Moravian Gate south of the Ostrava-Karvina industrial agglomeration, e.g., accelerates the winds and directs

them to the North, thus exporting polluted air from the Ostrava-Karvina region to Southern Poland, especially to the Odra valley.

The other four maps of this map sheet represent the spread of the most important indicators for air pollution (dust concentration in the air, dust fallout, concentration of sulphur dioxide, concentration of nitrogen compounds) according to measurements.

Case studies like this can be helpful to determine the origin of emissions and to support action on the national and international level.

References

BREU, J (ed.) (1970–1989) Atlas of the Danubian Countries (Austrian institute of East and Southeast-European Studies, Vienna).

Environmental Review and Environmental Strategy Studies (1992) (The World Bank, Government of Albania, s.l.).

JORDAN, P. (ed.) (since 1989) Atlas of Eastern and South-eastern Europe (Austrian Institute of East and Southeast-European Studies, Vienna).

NEFEDOVA, T. et al. (1992) Use of the Environment and Resultant Problems in Central and Eastern Europe [1:3 000 000]. Atlas of Eastern and South-eastern Europe. 1.2-G4.

PAPAY, G. (1972) Definition

STATE-OF-THE-ENVIRONMENT REPORTING AND PLANNING FOR SUSTAINABLE DEVELOPMENT

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Abstract

To attempt to plan for sustainable development from a scientific perspective requires knowing a lot about the state of the environment. State-of-the-environment reports have some potential as an information source for such planning. However, both the environmental monitoring which these reports derive their data from and the way in which they are attempting to use this data, present significant constraints on their potential usefulness as an information source for planning for sustainable development.

The Positivist/Scientific Approaches to Conceiving the Environment in Literature on Sustainable Development

Perhaps the dominant approach to sustainable development is from the perspective of economists and environmental scientists who come from positivist research traditions who are used to measuring in some way the phenomena they deal with. Blowers (1993) interpretation of the aims of sustainable development reflects this approach. Pearce et al (1989) popularised this approach to sustainability from the perspective of economics with their demands for environmental data to be incorporated into national economic accounting, with the book, "Blueprint for a green economy".

Probably the central issue in the way that Pearce et al (1989) tackle sustainability is in trying to find a means to make the ideal of intergenerational equity operational. In essence the approach they support requires appraising and knowing about the state of the environment, our environmental assets, and then seeking to ensure that the total stock of these is not diminished between generations. The two main approaches to measuring the environmental assets involve ensuring that either;

a) the total stock of natural and manmade assets, or
b) the total stock of natural assets is not diminished.

The former approach assumes that there may be substitution between man made and natural assets. Whilst this may well be held to be true to some extent Pearce et al (1989) come down on the side of the second approach on the grounds of the level of uncertainty we face in managing for multiple possibilities in the future arguing that, "Each generation should at least inherit a similar natural environment." Pearce et al (1989, p37)

This approach is a form of 'constant stock rule' (Pearce et al, 1989). Thus the environment may be,

> "likened to a stock of natural capital yielding a flow of services to the economic system (i.e. its essential economic functions), then sustainable development of that system involves maximising the net benefits of economic development, subject to maintaining the services and quality of the stock of natural resources." (Pearce et al, 1989, p42)

In practice trade-offs will be sought with depletion in one area to be compensated for by gains elsewhere although the extent to which this may be achieved by man-made capital is debatable. However one interprets this approach, it implies knowing a lot about the stocks, flows and balances of environmental assets, to be implemented meaningfully. Recent interest in identifying 'sustainability indicators' of the natural environment to ensure that minimum stocks are kept and that critical thresholds are identified and not crossed arises from this rationale, (Steer and Lutz, 1993). A key weakness in Pearce et al's (1989) work is the lack of attention to the issue of whether such indicators and an information base on the environment of utility to planning for sustainability can in fact be found.

It is this positivist / scientific body of work on sustainable development that will be drawn on most in this analysis. The definitions of the central concepts of sustainable development quoted above from Blowers (1993) and Jacobs (1991) are examples of this approach. The environmental advocate and green political strands are considered less since it is within a positivist approach to knowing about and managing the environment that it is argued that state-of-the-environment reporting has come about.

The main characteristics of the positivist / scientific approach

What then are the main characteristics of what is being termed here a positivist approach to conceiving the environment being employed by the new environmental managers? The primary characteristic, as already noted, is that much information about the environment is sought to inform policy and decision making. A central characteristic to casting one's conception of the environment and approach to sustainable development within a positivist framework is the assumption that the environment is objectively measurable and that measurement will enable modelling of its processes, which must be understood if the environment is to be managed. Thus measurement is meaningful and the issue of what to measure and how becomes central. In terms of modelling the environment, systems theory has had a major impact with talk of stocks and flows by Blowers (1993) implicitly recognising

this analytical approach. Measurement and modelling of the environment may potentially establish the present state of the environment and allow change from that baseline to be measured. This is essentially a form of the scientific method variously termed positivism or the hypothetico-deductive method (Simmie, 1993).

It might seem unusual to take the discussion of the theoretical context of sustainable development and state-of-the-environment reporting back to such a fundamental level. This is done however, because the literature on state-of-the-environment reporting discussed later does not explicitly identify the theoretical context that it has occurred within and hence the constraints on it. Yet, such constraints may be fundamental to the ultimate usefulness of the whole enterprise of SoE reporting. The scientific approach to conceiving the environment as employed by the 'new environmental managers' or 'cautious reformers' (O'Riordan and Turner, 1983) is taken here and explored in detail. It is not necessarily the case that different conceptual approaches to sustainable development will result in different methodological approaches. However, a methodology which stresses measurement and monitoring of the environment and which thus may find use for state-of-the-environment reporting is considered here to be most appropriately pursued within a scientific framework.

The whole approach of measuring environmental parameters to inform environmental and economic policy and planning is likely to come up against the perennial problem of the scientific enterprise: namely that science has had a consistent thrust away from a single integrated body of knowledge to an apparently ever increasing fragmentation of our understanding of the world about us. Science has resulted in our knowing more and more about more and more highly specialised areas, whilst the integration of this knowledge remains a growing challenge (see Chalmers, 1978). This trend is reflected in post-modern philosophy talking about the fragmentation of consciousness, (see Lyotard, 1982). To apply the concept to environmental monitoring, by analogy, one may think of science as having yielded a very large number of jigsaw puzzle pieces, with varying amounts of detail on each, whereby one has no idea what the overall pattern should look like when the pieces are assembled. The matter is not helped by the fact that different people suggest putting the same pieces together in different patterns. The problem here for planning for sustainability is that if it is pursued in the way outlined by Pearce et al (1989) and others, then we need to integrate disparate aspects of knowledge about the environment in some way so as to allow an overall assessment of our impacts on it, which is implicit in the concept of ensuring a constant stock of environment assets. One of the key weaknesses of much discussion about sustainability as already outlined has been the implicit assumption that this information and understanding gap can be bridged.

There is the danger that sustainable developed may be sidelined from affecting the fundamental change its advocates want unless clear analyses can be made of environmental degradation and potential ameliorative actions within the positivist/scientific epistemology which has dominated environmental management in the developed countries to date. It is thus an important research issue to identify the dimensions of such an approach and to establish whether the environment in its

entirety can be conceived in a way which makes this managerial approach feasible. It is within this context that state-of-the-environment reporting is evaluated here.

Expressed in its simplest form, a report that considers "the state of the environment" is implicitly attempting to take an overview of the total environment, rather than a fragmented approach to a parts of it. It is argued here that SoE reporting implicitly represents an attempt to develop an overview of the environment. It may be pushing the point too far to suggest that SOERs have been compiled with the belief that a clear picture of the overall environment will automatically emerge. However, if an overview was central to their preparation then one might reasonably expect the various environmental data they contain to remain in separate source documents. Further, the act of reporting would seem to imply that the environmental phenomena reported on may be understood and presumably be managed to some extent by man's activities; otherwise such a report becomes merely a compendium of 'facts', which is interesting purely for its own sake. Without some form of scientific conception of how the environment may be measured and later modelled, SOERs would be unlikely to be produced. How valuable they are in such a pursuit is an important question.

Given the information needs outlined above which result from a scientific/ positivist approach to implementing sustainability the main potential contribution of SOERs would appear to be in providing an information base which is integrated across environmental media, to inform sustainability policy development. This could include identifying key environmental problems, critical stocks of environmental resources and the impacts of environmental and economic policies on the environment.

State-of-the-environment reporting

The development and nature of state-of-the-environment (SoE) reporting are now reviewed. It is important to understand how such reporting has come about, examining the reasons for undertaking it and comparing the published criticisms to date. This is to enable a thorough assessment later of the quality of information state-of-the-environment reports (SOERs) may offer to planning for sustainable development.

State-of-the-environment reports (SOERs) are essentially collections of environmental data presented so as to constitute information on the environment. Reports on single aspects of the environment such as water quality are excluded from this analysis since they do not aim at comprehensiveness. This necessitates often some contextual and interpretative background, although the extent of this varies considerably and there is great variety in the styles of presentation and approaches taken within the genre. Healy (1987) in a review of SOERs describes them to be,

> "documents purporting to be an authoritative and comprehensive analysis, usually statistically based, of environmental conditions and trends, within a specified geographic territory" (Healy, 1987, p263).

Many SOERs contain additional material on topics such as environmental policy, public opinion and projected future environmental trends. Some reports of

environmental indicators comprising almost purely tables and graphs of data are produced (e.g. UNEP, 1989), but most also include text and interpretation (Healy, 1987).

SOERs have been undertaken at a wide range of spatial scales from that of the city, through region, country and international to global. The reports consulted for this study are listed in appendix 1. This is not meant to be an exhaustive listing of all published SoE reports. The papers by Healy (1987), Elkin (1990), Comolet (1992) and Parker and Hope (1992) are the main published reviews of SOERs to date. They consider a large number of reports and the lists of SOERs they consulted show a high degree of overlap.

Comprehensive SOERs are a phenomena of the last 25 years with Japan and the USA starting annual reporting at the national scale in 1969 and 1970 respectively (Healy, 1987). The UK published the highly selective and data biased 'Digest of Environmental Protection and Water Statistics' from 1974 but only produced a comprehensive cross-media SOER in 1992, (DoE, 1992). Today most developed countries have produced a SOER at some time, and whilst not necessarily continuing to do so on a regular basis, they appear by doing so to have recognised the potential value and/or need for such reporting (Healy, 1987).

At an international scale international organisations such as OECD (1991) have undertaken SoE reporting as have campaigning groups such as the Earthwatch (Healy, 1987).

In the UK following the Friends of the Earth Charter for Local Government in 1989 (FoE, 1989) which recommended what was termed internal and external environmental auditing (in practice external auditing was state-of-the-environment reporting of the local authority's area), a large number of local authorities have produced SOERs. The first was by Kirklees Metropolitan Borough Council (Kirklees, 1989). Lancashire County Council have probably allocated the largest budget to SoE reporting in Britain to date, committing £120 000 for the first two years and produced a very comprehensive report in 1992 (Personal communication). In a survey of local authority environmental auditing and associated activity in 1991 30% of County Councils were found to have begun or completed SoE reports (Raemaker et al, 1991).

The imputus for SoE reporting has been continued by an EU commitment to producing a Europe-wide SOER by 1996 (Commission of the EC, 1994) and by a call for SOERs to inform environmental policy at the UNCED conference in Rio (1991). The construction of the EU SOER is likely to depend considerably on drawing the SOERs produced by member countries. Potentially SOERs may be nested at various spatial scales, allowing environmental issues to be reported on at the appropriate spatial scale. Obvious examples of the scale dependence of reporting are the phenomena of global warming on the one hand being best reported on at a global scale and low level ozone on the other, being best reported on at a local scale (Elsom, 1987).

Evaluating State-of-the-Environment Reports

Perhaps surprisingly, many SoE reports do not state the *reasons* driving their publication (Healy, 1987). Whether they are explicitly stated or not, they may be inferred to commonly have some basic goals such as assisting access to environmental information. The variety of goals attributed to SOERs are considered here.

Healy (1987) identifies five implicit aims and objectives. First, to provide information to policy makers and the public about whether progress is being made in environmental protection and whether the environment is being safeguarded. Second, to report comprehensively on environmental quality. Third, to serve as reference volume for those studying and writing about the environment. Fourth, to identify important environmental problems and to motivate readers to address them. Some reports are particularly concerned with educating readers about environmental issues and trends (Elkin, 1990). Fifth, to serve as policy analyses of environmental protection and management policies in particular.

Elkin (1990) also suggests that SoE reporting can play an important role in developing and monitoring a national conservation strategy and that regular reporting can enable monitoring of progress towards "sustainable communities". The potential role of helping to manage for sustainability in effect combines several of the above functions and will be returned to later. One may also add to the list of potential roles of SoE reporting, that of acting as a baseline against which change may be assessed whether in subsequent reports or elsewhere.

For SoE reporting to fulfil most of these roles it must be part of a wider approach to environmental management, including the development of environmental data gathering, data processing and handling and information derivation as well as a co-ordinated approach to managing the impacts of economic activity. It is the derivation of meaningful information on the environment which is focused on in this critique. The broader context of environmental management strategies is not dealt with in detail. However, a comparative analysis between countries of the relationship between SoE reporting and environmental management strategies would be interesting, but would require primary research since no published literature was found specifically addressing this broader context and its linkage to SoE reporting except for in relation to Canada where Environment Canada is attempting to build a national environmental resources inventory reporting system closely linked to national environmental policy making (Crain and Macdonald, 1990).

As observed earlier, many landuse planners have been involved in state-of-the-environment reporting. However, in the short term it is difficult to see what planners are going to get from SOERs. One of the earliest such exercises, in the USA, yielded much data, but was considered to have little impact on the environmental enhancement and economic re-generation policies it was intended to inform (Lang, 1979). General information about the environment in the area of a planning authority's' jurisdiction may prove of limited use if the same authority does not have powers to deal with issues raised. However, there may well be scope for some redirection of planning policies on the basis of an appraisal of local environmental problems. For instance, Stoke-on-Trent City Council following a river corridor survey through the city on the river Trent has developed a co-ordinated strategy to

seek significant environmental improvements including seeking Section 106 agreements from developers and grant aid from central government (Stoke-on-Trent City Council, 1991).

So, the reasons for undertaking SOERs are apparently highly diverse. One might reasonably wonder how any document could meet such diverse roles. This leads on to considering the problems inherent in SOERs beginning with the published criticisms before comparing these to the results of a first hand survey of some SOERs.

Published criticisms of SoE reports

The published literature reviewed for this study identifies various problems and difficulties with SOERs and these were broadly categorised into the following areas of concern; the goals and purposes of reporting; source data quality; data analysis and presentation. Most of the criticisms considered first are to do with SOERs primarily. Some further problems are then discussed which focus more on the process of reporting on the environment than on the end reports themselves.

The goals and purposes of reporting

The general lack of focus as to purpose for the reports is illustrated by the fact that producers of SOERs tend to include all environmental data that they have (Parker and Hope, 1992).

The issue as to what is the intended audience is fundamental to any document if it is to achieve specific aims, but is generally left wide open with SOERs (Healy, 1987). This to some extent understandable given the history of such reporting whereby initially any cross-media reporting was seen to be a step forward in raising awareness about the environment at least. Yet, attempting to satisfy a divergent readership possibly including politicians, scientists, environmental managers (in government and QUANGOs) and the general public with one document is extremely difficult, (Parker and Hope, 1992). In reality the total circulation of most reports is quite small and thus reaching any audience effectively may prove difficult (Healy, 1987).

As regards serving a specific function in environmental management and allowing changes and trends in environmental parameters to be traced, Healy, (1987, p5) notes that,

"Evidence relating specific policy changes to SOERs is purely anecdotal" suggesting that they have along way to go before they could be considered an integrated part of wider environmental management.

Problems of source data quality

Healy (1987) and Comolet (1992) both observe that issues of data quality are rarely discussed in SOERs. This might seem unusual given that there are apparently often significant data problems. Gaps in data are frequently not made explicit or are glossed over (Healy, 1987) and gaps are often disguised by inclusion of general

information on environmental systems and processes or other irrelevant data. (Comolet, 1992). Another way in which the weaknesses in data or issues of data representativeness are glossed over is by aggregation either spatially or temporally. The spatial dimension in particular is often played down, with geographical discontinuities not made explicit, (Comolet, 1992), typically by aggregating to a higher geographical scale. However, there is generally little information on data collection and processing (Healy, 1987, Comolet 1992) such that the reader is left with little upon which to make any judgement about issues of data quality and handling. This leads to the next area of problems with SOERs namely the ways in which data are analysed and presented.

Data analysis and presentation

The level of detail of coverage of topics is uneven and some topics are consistently poorly dealt with including, "toxic substances, wastes, urban environment, soil quality, noise pollution, non point-source pollution", (Comolet, 1992, p9). Such differences in coverage are subsequently poorly explained or not explained at all. This is not helped by a tendency to include very little explanation of the data collection and handling process that leads to the final information presented in SOERs.

Several commentors mention a lack of comparisons geographically. Parker and Hope, (1992) identify a lack of consideration of neighbour effects e.g. on other countries and Comolet, (1992) comments on little effort being made to place environmental issues in their global context, which is increasingly important. However, such comparisons are extremely difficult to make in a valid way given the divergent classification systems used by different countries or reporting bodies (Parker and Hope, 1992). A lack of comparison with other countries by national SOERs criticised by Parker and Hope, (1992) however, shows how even those writing about SoE reporting can accept what is presented to them without much critical thought, since the act of making international comparisons is far more complex than is apparently considered by these authors and is contingent on the monitoring methodologies which provide the base data (Bayliss et al, 1993). These authors do however acknowledge the,

"Lack of an adequate statistical base from which to deduce environmental statistics" (Parker and Hope, 1992, p43). This is part of a wider inadequacy of our ability to model environmental systems.

There are other difficulties with the use and manipulation of environmental data in SOERs not the least of which is that characterising the *whole* environment is difficult given the diverse number of environmental indicators moving in different directions (Healy, 1987; Bayliss and Walker, 1992) Yet a consideration of the whole environment would seem to be one of the key implicit aims of SoE reporting. In attempting to resolve this difficulty one may be tempted to always want more data and there is the tendency that the act of reporting on and analysing the environment generates new data needs (Parker and Hope, 1992) in what may be a self-reinforcing cycle.

A survey of state-of-the-environment reports

Having reviewed the published literature and criticisms of SoE reporting a sample of SOERs were looked to attempt to substantiate the criticisms identified. SOERs compiled at local, national and international level were consulted. A complete list of those consulted is in Table 2.

The survey sought to explore two key issues highlighted from the literature review. First, the reasons for undertaking the SoE reporting and second rigour and consistency with which this was undertaken. A qualitative approach was adopted whereby each of the reports was evaluated against a set of review criteria (see appendix). Not all of the criteria applied equally to all of the reports, but were intended to help establish answers to the two key questions outlined above.

Table 1: Criteria for SOER review

- Are the goals explicit?
- Is the report evaluative or descriptive?
- Is much background information included?
- Is the compilation process explained?
- Is data quality addressed?
- How comprehensive is it?

Reasons for undertaking SoE reporting

With none of the reports consulted are the goals driving their publication tightly and precisely defined. With Germany (1992, p1) the report is claimed to be part of a process of making progress through "precautionary environmental protection" to further sustainable development. However, the linkage between the environmental reporting and pursuing sustainable development is not made explicit elsewhere in the document.

The most commonly cited reasons for undertaking SoE reporting in more than half of all cases were to provide a baseline against which to assess change and to raise awareness of the integrated nature of environmental problems.

Evaluative or descriptive?

There is wide variation in approach here. All contain some evaluation and analysis of environmental trends. UNEP (1989) is the most purely descriptive containing mainly data tables. Netherlands (1985) is the most evaluative and describes itself as a survey and environmental data is used to substantiate and illustrate the arguments put forward concerning environmental quality .

With the UK local authorities' SOERs the unevenness of approach within reports is noticeable. Some topics where there is less known are often dealt with descriptively, with evaluation focusing generally on topics such as water quality where there is a more substantial knowledge base.

Data quality issues addressed?

In virtually none of the reports is data quality discussed at length. Comments are made in passing. e.g. UNEP (1989, p1) states that,

"Where gaps have been identified in the information available from international organisations, examples have been taken from national reports and individual scientific studies. In all cases attempts have been made to ensure that the data used are representative and reliable."

Thus, the reader is in effect asked to take the issue of verification of data quality on trust. UNEP (1989, p1) continues to say,

"Information on some subjects is sparse and some data are rejected since they are not representative or have not been collected to agreed methods."

The criteria for decisions are not spelt out more fully in the rest of the document.

UK (1992, p XV) does make evaluative comments on data quality in the explanatory text and admits that,

"Not only does the availability of information vary widely between topics, but also the reliability of the figures given is very variable... the text indicates the likely margins of error."

Kirklees MBC (1989) was the first UK local authority to undertake SoE reporting and set the pattern which many others followed, (LGMB, 1992). Uneven coverage of topics and a lack of consideration of data quality issues in this report is followed by the approach of other local authorities too (e.g. Basildon, 1991). Background material and data from other geographical scales is often included where local scale data is lacking, without much consideration of the meaningfulness of the scale involved. For instance summary ozone data for the whole of England are included despite there being no ozone monitoring in Kirklees and ozone being known to exhibit a very high level of variability at the local scale (Elsom, 1987).

Compilation process explained?

Little or no reference is made to this in more than 3/4 of the reports. UNEP (1989) typical of most of the SOERs dismissed the issue in a few paragraphs of its introduction. UK (1992) provides the most thorough background and explanatory material to assist the reader in interpreting the data for themselves. No doubt this matter is played down in most reports partly because of the sheer volume of information that could usefully be included. A report on environmental monitoring methodologies in four European cities ran to more than 250 pages without including any significant amounts of environmental data or interpretation. (Bayliss et al, 1993)

Summary of the survey of SOERs

The survey of SOERs has accorded with the published criticisms of SOERs in relation to the two key issues investigated. The reasons for undertaking SoE reporting are poorly specified and the rigour with which the reporting is undertaken is at the very least largely not open to cross-examination due to the lack of

information on data quality and compilation. Given this the rigour of the SOERs is completely open to question.

Further observations

Some further problems and issues may be identified of a more conceptual nature than many of the highly pragmatic difficulties outlined so far above, in the literature review and survey of SOERs.

Characterising the environment is problematic yet little consideration is given to how much monitoring and data is actually needed. Instead the tendency seems to be to assume the 'scientific validity' of information obtained from other sources. In addition, there is a continual tension between summarising large amounts of data so as to make them accessible and wanting to include as much data as possible to allow alternative interpretations. To this end, he process of transforming 'raw' data into information on the environment in a form which may be used in SOERs, is more subjective and open ended than existing critiques have allowed. Some significant outstanding conceptual issues remain as regards making inferences from environmental data. The linkage for instance between environmental monitoring and claimed environmental trends for any given issue may be very hard to substantiate. Similarly the linkage between environmental monitoring and environmental quality is often tenuous and any identified trends in environmental parameters may have complex and possibility contradictory effects on environmental quality. As suggested in the discussion of the way in which the environment is conceived in SoE reporting, given environmental data cannot be assumed to automatically yield one obvious picture of environmental quality. The possibility of multiple rationalities for observed environmental quality suggests it is itself a theoretical construct and a product of observation, such that the process of construction should be laid open to critical examination.

The potential nesting of SOERs carries with it a problem that if data is aggregated between reports of different scales then this further complicates the process of making inferences about environmental quality and further complicates the task the reader has of unravelling the analytical and compilation process whereby data is transformed into information on the environment.

A related conceptual problem exists as to whether disparate series of measurements can ever be meaningfully integrated into a conception of the overall environment remains. This however has not prevented discussion of SoE reporting referring to its 'holistic' approach (e.g. Elkin, 1990). This would seem to be a euphemism for comprehensive. The literature on SoE reporting and the reports themselves assume implicitly or actually state that SoE reports are of value in environmental planning in a manner that can only be described as rational and comprehensive, whilst appearing to be unaware of two key factors. First, there is a substantial body of critical work on rational comprehensive approaches in landuse planning which lead to a widespread disillusionment with such an approach. Second, it seems to be largely ignored that if a rational and comprehensive approach to management of the whole environment is possible, the jurisdiction for

management and control is fragmented in varying degrees in the countries who produce the SoE reports, between many agencies and interests, presenting enormous practical problems for co-ordinating action.

Whilst the issue of readership has been noted by other commentors, the process of communicating environmental information seems to be thought of as simply a matter of targeting the appropriate audience, (Schoenfield, 1982). However, analogous work on risk communication, including communication of risks associated with environmental phenomena shows the process of communicating information about the environment to be highly complex. Since SOERs are communication tools, research on how effective they are at reaching and influencing particular audiences would seem well worth undertaking.

From this review two key issues emerge in relation to the ability of SoE reports to provide an information source for lanning for sustainability. They are, the data quality issues raised by the present state of environmental monitoring, and the process by which this data is transformed to characterise the environment. In both these respects there are significant problems picked up on in the literature on SOERs and in a survey of some SOERs. These issues are considered to be fundamental since without adequate data and appropriate means to deal with it, SoE reporting will be unable to adequately fulfil any of the roles it suggested for it. It will be of limited use for informing environmental policy making and will be of limited value for identifying priorities for action in pursuing sustainability.

References

BAYLISS, D. H. and WALKER, G. P. (1992) *'Environmental Index'* Energy Policy, 21, pp 3-4.

BAYLISS, D. H., BELICIC, T., GOURIO, L., PAPPAVASSILIOU, V. (1993) *'Environmental Quality in Thessaloniki, Stoke-on-Trent, Erlangen and Rennes'*, Department of Housing and Health, Stoke-on-Trent City Council, Civic Centre, Stoke-on-Trent.

BLOWERS, A. (1993) *'Planning for a sustainable environment'* A report by the Town and Country Planning Association, Earthscan Publications, London.

CHALMERS, A. F. (1978) *'What is thing called science'* OUP.

CRAIN. I.K. and Macdonald, C.L. (1990) *'The Canada geographic information system for national environmental reporting'*. Proc. Conf. G.I.S. National Conference, Challenge for the 1990s, Ottawa, 1989 53-60

COMMISSION OF THE EUROPEAN COMMUNITIES (1994) *'Background report: The European Environment Agency'* ISEC/B6/94.

COMOLET A (1992) *'How OECD countries respond to State of the Environment reports', International Environmental Affairs*, 4(1), pp 3-17.

ELKIN, T.J. (1990) *'State of the environment reports and national conservation strategies, the linkage'*. Alternatives 16 (4) 52-61.

ELSOM, D. (1987) *'Atmospheric pollution, a global problem'*. Blackwell, Oxford.

FOE (1989) *'Friends of the Earth Environmental Charter for Local Government'* Friends of the Earth, London.

HEALY, R.G. (1987) *'State of the environment reports'*. Journal of Planning Literature (2) 262-272.

JACOBS, M. (1991) *'The green economy'*. Pluto Press, London.

KUHN, T. S. (1970) *'The structure of scientific revolutions'* 2nd Ed., University of Chicago Press, Chicago.

LANG, R. (1979) *'Environmental information in a planning/management context'* in Proc. 2nd Conf. Applications of Classification in Canada pp 285-294.

LOCAL GOVERNMENT MANAGEMENT BOARD (1992) *'Environmental Practice in Local Government'*, 2nd Edition, LGMB, Luton.

LYOTARD, J. F. (1982) *'The post-modern condition'* Manchester University Press, Manchester.

O'RIORDAN, T. and TURNER, R.K. (eds) (1983) *'An annotated reader in environmental planing and management'* Pergamon Press, Oxford.

PARKER, J. and HOPE, C. (1992) *'The state of the environment a survey of reports from around the world'* Environment 34 (1) 19-44.

PEARCE, D., MARKANDYA, A. and BARBIER, E. B. (1989) *'Blueprint for a green economy'*. Earthcan Publications Ltd., London.

RAEMAKER, J., COWIE, L . and WILSON, E. (1991) *'An index of local authority green plans'*, Research Paper No 37, Department of Planning and Housing, Edinburgh College of Art/Heriott Watt University.

SCHOENFIELD, A.C. and GRIFFIN, R.J. (1982) *'Pitfallls and possibilities in environmental education'*. Environmental Education and Information 2 (1) 3-17.

SIMMIE, J. (1993) *'Planning at the crossroads'* UCL Press Ltd., London.

STEER, A. and LUTZ, E. (1993) *'Measuring environmentally sustainable development'*. Finance and Development, December 1993 pp 20-23.

STOKE-ON-TRENT CITY COUNCIL (1991) *'Green rivers strategy'*, Planning Committee, March 1991, Stoke-on-Trent City Council.

APPENDIX: STATE-OF-THE-ENVIRONMENT REPORTS ANALYSED

UK Local scale reports

(All are published directly by the council concerned and available only direct from them)

Avon County Council (1992)
Basildon District Council (1991)
Bassetlaw District Council (1992)
Durham County Council (1992)
Humberside County Council (1992)
Kirklees Metropolitan Borough Council (1989)
Lancashire Council (1991)
Welwyn and Hatfield District Council (1992).

National scale reports

Canada. Environment Canada (1986) *'State of the environment report for Canada'*, Ministry of supply and services, Ottawa.

Germany. Federal Minister for the Environment (ed) (1992) 'Environmental Protection in Germany' Federal Ministry for the Environment, Public Relations division, Bonn.

Hungary. Bulla, M. (ed) (1990) *'State of the environment in Hungary'* Institute for Environmental Management, Budapest, Hungary.

Netherlands. Langeweg, Ir., F., (ed) (1989) *'A National environmental survey 1985-2010'* National Institute of Public Health and Environmental Protection, Bilthoven, Netherlands.

UK. Department of Environment (1992a) *'UK Environment'*, London: HMSO.

International scale reports

Brown L. et al (1992) *'State of the World 1992'*, New York: Norton.

Organisation for Economic Co-operation and Development (1991) *'OECD State of the environment report: Environmental data compendium'*, Paris: OECD.

United Nations (1989) *'United Nations Environment Programme Environmental Data Report'* Blackwell, London.

World Resources Institute (1992) *'World Resources 1992-93. A report by the World Resources Institute'* OUP, Oxford.

ENVIRONMENTAL EDUCATION AND TRAINING IN HUNGARIAN HIGHER EDUCATION

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Paradigms of environmental education

The leading motif of the global and national environmental policies developing in the early nineties is sustainable development. The practice of countries implementing successful environmental policies shows that among the tools of responsible care for the inherited natural and built environments, the role of ethical (voluntary) undertaking of obligations, in addition to the so-called traditional legal-economic regulations is becoming more and more significant is. Environmental policy-makers expect support in this respect from environmental education.

Based on empirical observation several, first of all foreign scientific investigations support the idea that those taking part in organized (school-based) environmental education and training can play the *role of 'multiplicators'* in developing the environmental consciousness of other groups and generations in society.

The environmental state of Hungary and the need to modernize education set the wider context for intellectuals sensitive to environmental values. Consciously undertaking environmental protection alongside development and performing it with responsibility is a pressing demand and a real possibility. In this process higher education and training should have a function of transmission and diffusion of knowledge and ideas.

The possibilities for the direction of further development of environmental education and training in higher education are determined by numerous factors. Whilst not intending an exhaustive list, the following factors are considered as significant.

Combined functions

As there has not existed in Hungary a comprehensive environmental educational program for all generations of school leavers, the following combined functions have to be taken into consideration in the programs and syllabuses to be created in the future: *On the one hand* the present generation in today's higher education entered the colleges and universities for the most part without even a minimum of environmental knowledge, therefore higher education has to 'undertake' the task of

the recognition of environmental problems and their individual evaluation. In compiling this syllabus, narrow professional viewpoints should not be enforced. As a first step the 'key words' of this basic syllabus should be defined (e.g. revealing the complex reasons for and the effect mechanisms of the environmental issues; its global character; priorities in environment protection and environment management). The most effective way of achieving such a syllabus seems to be through competitions.

Teaching material differentiated according to training directions

Higher education spans the widest spectrum of training intellectuals and experts. Therefore it is obvious that environmental education and training does not play the same role in all types of professional training. The basic syllabus material has to be integrated in all specializations as an individual subject or as an integration of professional basic subjects – according to local institutional opportunities. The determination of specific approaches to professional training is in the competence of the institutional autonomy of higher education. Professional education and training motivated by the natural, social and economic environment should be performed with the mutual professional and financial participation of those interested in this training (professional managing institutions, economic organizations, scientific bodies etc.). The requirement of complexity can naturally be differentiated or 'divided' according to the basic type of training. Institutions of higher education dealing with basic training in natural sciences will teach the scientific-ecological aspect of environmental issues in the framework of basic professional subjects, whereas the social and engineering components will be taught in the framework of general basic subjects or of individual subjects. The same can be said with regard to basic engineering training and the institutions dealing with basic social-economic training – naturally with the replacement of "complex components".

Teacher training and post-graduate training

The limited opportunities for expanding up-to-date environmental education are characterized by the lack of means and the lack of educators and teachers undertaking this task, and the inadequacy of their preparation, which can be improved by strengthening environment-oriented teacher training and post-graduate training. Accordingly, starting in the academic year of 1992/93 environmental teacher training started and in the new system of post-graduate teacher training the Ministry of Education gives priority to environmental material. Steps have also been taken in post-graduate education to establish environment-oriented professional training. Similarly significant is the fact that the first steps have been taken in engineer-teacher training to integrate environmental viewpoints and knowledge.

Due to the reluctance of the public education system, environmental teacher training can be taken up only as a supplementary subject. Careful consideration is needed as to whether the restriction that this subject can be taken up only in a pair with another natural science subject should be kept. This can be explained organizationally but the logic of a complex environmental view does not justify it.

Anomalies arising from competition

It has become clear that environmental education has a number of roots in Hungary. On the one hand pressure has been put on the education system by society demanding more effective environmental education as a response to the ever increasing burden on the natural environment. On the other hand – as already mentioned – scientific self-respect in all probability is also present among the motivating factors. It is also fact that several institutions of higher education are trying to get rid of their manifest structural and educational difficulties by undertaking environmental education and training. The fashionable nature of the topic cannot be neglected either.

In the light of these pressures and motivations it is indisputable that environmental education has become a matter of competition, both with some recognized positive results but also some difficulties. The conceptual unclearness already discussed is accompanied by professional jealousy, which eventually serves to obstruct the real needs of scientific and environmental education.

Environmental science in the spirit of our up-to-date interpretation, cannot be identified solely with natural sciences and with teaching them, although clearly within the system of environmental science ecological and scientific research should be considered fundamental.

The enforcement of the above mentioned paradigms of environmental education and training can greatly contribute to the elimination of the anomalies arising from competition.

Links between environmental education and training and the general modernization of higher education

The present circumstances and directions in the modernization of higher education create favourable conditions for undertaking a new, integrated approach to environmental education. Moreover environmental education and training can be considered an innovative component of and link in wider modernization processes. In the general process of modernization there are factors (e.g. spreading of institutional autonomy, strengthening of the 'universitas'-feature, reconsideration of professional specification), which unambiguously strengthen the place of environmental education and training in higher education in providing opportunities; and there are other factors (e.g. ensuring the international equivalency of degrees, preparing international accreditation, spreading of credit system), which do the same from the aspect of necessity.

It has to be accepted that the above-mentioned factors in the process of general modernization of higher education, can motivate measures taken to expand environmental education and training in terms of both content and organization. Among others:

Institutional autonomy enables the individual elaboration of environmental professional specifications so that they can be appropriate to the training profile envisaged and also achieve integrative factual knowledge.

The *creation of universities and associations* based on actual co-operation of colleges, universities and research institutes provide good opportunity for the technical and conceptual realization of such "minimum criteria" of environmental education and training as complex approach, interdisciplinary material, part-time training at another institute (see the project of Budapest University Association for environmental engineer training granting a second degree).

Having given up the to-date widespread feature of specialization, the environmental subjects have a good chance *to create of new professional specifications* adjusted to the scientific and practical requirements (see the new environmental subjects established in the autumn of 1992).

The *international equivalency of degrees*, presumes the regulation of the content of the degree (factual knowledge) in terms of output. The fulfilment of this demand requires that the degree-awarding Hungarian institutions of higher education take the Western-European university training, which is standard in the case of the given degree, into more consideration. And at Western universities the assertion of the aspects of environment protection and environment management is generally ahead of our practice. Similar links can be assumed in *professional and institutional international accreditation* as well. The evaluation of the work of students in a *credit system* can also bring the environmental disciplines to a high professional organizational standard, backed by an appropriate training-scientific base.

Having analyzed the Hungarian experiences of environmental education and training it can be stated that in most fields (especially in the scientific, agrarian and technical ones and to a lesser extent in the educational one) the scientific and institutional background is available, which through further development can be turned into 'reference centres' in the framework of the above discussed university and college associations. We can by no means give up this opportunity.

Greater efforts are required in the fields of higher education that have undertaken the integration of the environmental approach and knowledge into the educational process to a lesser extent (arts, economics, medicine). But even in this case the creation of the conditions of environmental education and training in the framework of a university of a town (Pécs, Szeged, Debrecen, Budapest) seems to be obvious and given.

"Scanning" international trends traceable in the field of environmental education and training and taking these into consideration, is made necessary by the fact that the pronounced objective of the whole Hungarian higher education is to achieve an up-to-date Western-European orientation. Appropriate orientation can be achieved in the fields of general environmental view-shaping and environmental professional training by joining the international educational and environmental programmes. In addition to direct institutional relations first of all FEFA, TEMPUS and PHARE programmes seem to be effective in this field, but the environmental educational and training subprogramme of the ALPS-ADRIATIC programme introduced in the regions of Pécs and Western Hungary seems promising as well.

The forms of instruction spreading in higher education nowadays are the *module-structures* (or blocks). Each module constitutes part of the basic and specific subjects of a given professional training. The comprehensive, complex character of

environmental sciences make it possible that the factual knowledge of the parts representing the whole (ecology, environmental chemistry, environment technology, environment economics etc.) be present in the module of any professional training. A great advantage of the module structure is flexibility, and the opportunities for keeping information up-to-date.

The factual knowledge ensuring the acquisition of environment-oriented positive skills, can be transmitted through specific and basic subject integration or within an individual subject. Which form can be applied to which specific training is determined by the specific direction of training. The excessive specialization of Hungarian higher education and the requirement of complexity demanded of environmental knowledge, presumes the differentiated application of environmental information integrated into special subjects taking the shape of individual subjects. Therefore the elaboration of generally applicable patterns of teaching material does not seem appropriate.

In Hungary higher education training takes place – more or less – in three forms with different training content: basic training, further education training courses and post-graduate training. The oldest form of training environmental experts is post-graduate environmental engineer training. In the framework of a two-year training specialized for tasks of environment protection a second degree can be achieved, independently whether the basic training included information on the environment or not. In our opinion this form of training has become out of date – primarily in terms of its content – and needs renewal.

Basically, environmental engineer training for undergraduates was launched as a criticism of this being out of date and environmental teacher training started as the dissolution of the narrow possibilities of environmental view-shaping. All this is to be welcome because the five-year environmental engineer training, inevitably provides greater possibilities for acquiring classical environmental knowledge as a specific skill and for receiving the general factual knowledge forming the complex environmental approach.

Summary

The external and internal conditions for developing environmental education and training at colleges and universities in Hungary are for the most part given. To be able to make the best of these conditions and to reduce existing anomalies, a common determination of those participating in the training is essential: the *initiatives* of colleges and universities *should be supported* and *incentives for actions should to be created and operated* by both the public administration responsible for training and by companies and institutions interested in employing qualified specialists.

VI Economic Instruments and Environmental Management Techniques

THE INTEGRATION OF ENVIRONMENTAL AND ECONOMIC POLICY: ENVIRONMENTAL AND ECONOMIC ASPECTS OF SUSTAINABLE DEVELOPMENT

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Summary

This chapter reviews some ethical aspects of sustainable development. A short overview is then given of externalities pointing out: that the fundamental aim will be to internalize all external environmental costs incurred during the whole life-cycle of products from source through production, distribution, use and final disposal. Finally analysing interrelationships between environmental impacts and the national accounts it is concluded that finding a solution for the unified evaluation of the natural resources used for economic purposes in economic terms is the most important challenge for experts *(this study is supported by National Scientific Research Fund. Theme T. No. 013378)*

Introduction

It is first necessary to define some terms appearing in the title of this chapter. *Sustainable development* is a new type of social-economic development model which, while protecting, restoring and developing natural and built-up environment, takes into deepest consideration the interests of future generations.

Environmental economics, is a new discipline, which by linking up ecological and economic aspects, tries to objectively reveal the correlation between social-economic conditions and environmental quality.

Environmental management (environmental policy) is based on the *theoretical findings* of this new branch of science which includes the planning, economic (and legal) regulative and organizational-institutional sub-systems concerned with the protection, restoration, development and optimal exploitation of natural and built-up environment.

Environmental economics consists of *two* major *sub-systems:*

– the economics of natural resources
– the economics of the built environment.

Besides being interrelated with economics, environmental economics is closely related to a number of other social sciences. From this point of view it should primarily rely upon the findings of *futurology, law, economic ethics* and *political science.*

As far as natural sciences are concerned it is very important to emphasize the close connection with *biological sciences,* and collaboration with *chemical, technical, geographical* and *earth sciences* is also indispensable.

If the *normative economic* nature of environmental economics is to be changed in the direction of *positive economics,* in other words fact-finding is to be emphasized over value judgement, then the development and the continuous operation of a reliable *environmentally relevant statistical system* is of paramount importance.(Bulla 1993, Commission of the European Communities 1992, Yohe and Segerson 1992)

In the rest of the chapter, I will first discuss distortions of the sense of responsibility towards future generations, then the interpretation of externalities and finally the relationship between the state of natural environment and the annual value of production of the national economy as well as the estimate of national wealth.

"We did not inherit the Earth from our parents, rather our grandchildren lent it to us"

The principle of *"Providing each generation with equal rights"* is infringed more or less in every society because of the devastation of the environment.

These infringements are sometimes striking, sometimes hidden and finally there are such *"abuses"* which do not cause the slightest guilty conscience either to economic and political decision makers or to the wide masses of citizens.

I can provide three examples.

Although the level of Hungary's *foreign debts,* accumulated in the past decades, is widely known, society still does not feel its moral burden on future generations.

Hardly any citizens low rents while living in flats owned by former town councils have thought about the problems caused by dilapidating flats. These problems must certainly be solved by our children and grandchildren.

The recently held election campaign also reflected unanimously that damage to the natural environment is completely ignored by the general public. I do not belong to those who hold an extremely anthropomorphic view of environmental protection and nature conservation.

Nonetheless, I am strongly convinced that the reason behind the indifference of the whole society towards this issue can only partly be explained by the increase in the daily problems of existence resulting from general economic recession. An overall and detailed survey of the effects of environmental damage on public health as well as the disclosure of the results of this to the public has failed to yet happen, although this question – especially in seriously burdened areas – would interest citizens even under their present economic conditions.

According to the calculations and/or estimations of *István Fodor* et alia: *"health damages caused by environmental pollution reached 110 billion forints by 1992."* (Fodor 1992, p 85)

Even fewer people think about either the possible costs that should be paid by the present and future generations or what sort of values they will be deprived of both by the environmental pollution caused by the liquid manure of industrialized pig farming and by the use of protected natural areas for productive purposes.

This way of thinking can only be changed by strong collaboration between experts of natural sciences and social sciences. Economists have a lot to contribute in this field too, and I have been trying to participate in this now for two decades.

About externalities

In today's Hungary, only within narrow professional bounds has it been realized yet, that the *"invisible hand"* or in other words the *market,* with its traditional devices and systems fails in some areas even in the most highly developed market economies.

Externalities exist, as defined by authors *Samuelson-Nordhaus* as follows: *"externality is an effect caused by the behaviour of one person, involved in economy, on the wealth of another which does not appear in dollar so to say market transactions. Externalities have a number of various forms. Some of them are positive (external economies), whilst others are negative (external diseconomies)."* (Samuelson and Nordhaus 1987, p 1014)

Externalities causing the deterioration of environmental quality appear as external diseconomies so that the system of the *"invisible hand"* does not provide society with a satisfactory solution.

That is why these externalities need to be internalized: "The fundamental aim will be to internalize all external environmental costs incurred over the whole life-cycle of products from source through production, distribution, use and final disposal, so that environmentally-friendly products will not be at a competitive disadvantage in the market place vis-á-vis products which cause pollution and waste". (Commission of the European Communities 1992, p105)

To make my definition complete I would like to mention that external economies leading to the improvement of environmental quality should certainly be internalized as well. An approach aiming at the examination of only disadvantageous changes and impacts is oversimplified and wrong.

International sources widely agree on the fact that the protection of natural environment can primarily be realized through *"right prices"*. (Bulla 1993, Commission of the European Communities 1992)

Naturally, these prices do not coincide with classic market prices, since according to the above mentioned these do not take into consideration so called externalities.

It is important to acknowledge, however, that in countries with economies in transition, like in Hungary, the establishment of market prices in the traditional

sense encourages increased material and energy saving and thus environmentally friendly behaviour.

Under the present circumstances in Hungary, within a reasonable time and only in exceptional cases and in a trifling degree can the prices of certain products and services be raised by effluent charges, the so called *"green taxes"*.

The 80-fillér per litre *fee,* built in the price of petrol on the other hand, can undoubtedly be considered reasonable.

Refundable deposits (in case of tyres, packing materials, batteries) could likewise be a quick and significant step forward.

The need for so called *rents on natural resources levied by the state* is beyond all question, some of which e.g. rents on agricultural lands, water and mineral resources already function in Hungary, still the theoretical and methodological basis of these rents is not yet made clear (Tóth 1994).

In addition to the above mentioned, subsidies coming from central sources urging environmentally friendly behaviour, others coming from regional sources, also various tax allowances and duty concessions and credit provided at low interest rates etc. are all important elements among the market-based instruments.

Environmental impacts and national accounts

It is well known that the Gross National Product (GNP) is used to measure the total production of national economies.

Gross national product refers to the value of all *goods* and services at a current market price, produced during a certain period of time. Nevertheless, the idea that this indicator is in need of some correction so that: "we could get to the more meaningful indicator of *'net economic welfare'*" (Samuelson and Nordhaus, p183), has become more and more widely accepted.

This notion came into existence as a result of the works of *Nordhaus* and *Tobin*, who used the expression "Measure of Economic Welfare" (NEW) to be more appropriate (ibid).

Basically their point is that in the opinion of the famous American economists, while calculating NEW, some items should be added to GNP – for example the value of spare time, the value of the services of housewives, the value of the so-called *"black economy"* –, and some items should be deducted at the same time, for instance the costs of environmental pollution.

In the special literature of economics in Hungary we can hardly find any opinions on this topic.

In fact only the annual balance of the changes in the state of environment can be the standard which should be taken into account as a modifying factor of GNP from the aspect of environmental economics.

Since if we consider the natural environment as natural capital, then theoretically we can define its monetary value or the increase and decrease of it.

In case of renewable natural resources supplies can be increased, while in case of non-renewable natural resources the ad valorem registration of the loss of value

would be a requisite to manage a reasonable economy of this part of the national wealth in harmony with the principles of sustainable development.

I absolutely agree with *László Drechsler,* who writes the following: "*the exploration of new natural resources, the change of the value of the existing natural resources and the decrease of the supplies of natural resources all belong to the side of so called revaluation in the balance sheet of the national wealth*" (Drechsler 1985, p 39).

The documents of the 1992 Earth Summit in Rio go far to support the the above. According to this the incorporation of sustainability into management requires the establishment of such a system which allows to measure the role of environment as a natural capital and a place for waste deposit.

Hence the main aim is: "*to enlarge the existing accounting systems of the national economy in each member state, so that social areas and the area of environmental protection would incorporate into the accounting system, which should contain at least one sub-accounting system on natural resources.*" (Bulla 1993, p 80)

If we fail to count *human capital* in the national wealth, then I find the costs of decreasing the health damaging effects of environmental pollution to be the other item by which the GNP should be decreased.

Finding a solution for the unified evaluation of natural resources used for economic purposes in economic terms is the most important challenge for experts dealing with environmental economics as well as natural resource economics.

As well as being coordinated by the Hungarian Academy of Sciences I find it very important for such research to be revived and complete what was as they started in the '70-s and '80-s under the guidance of *Miklós Tóth.*

Establishing the speculative value of *protected species of plants and animals,* and landscape values is not an economic question as far as I am concerned, although it does not exclude making some economic calculations (e.g. concerning the personal and material expenditure of maintaining protected natural areas).

Conclusion

To sum up my argument I would like to propose that – beside the coordination of the Hungarian Academy of Sciences, – an inter-departmental research programme should be launched. Within the framework of this, we should focus on the theoretical and methodological development of an integrated environmental and economic accounting system.

References

BULLA, M. et al. (ed.) (1993): Agenda 21 (Documents of Earth Summit Conference). (Earth Day Foundation, Budapest).

DRECHSLER, L. (1985) Some issues of accounting of economic results. Studies on guidance and organization of the economy. No. 4. (Economic Institute of the Hungarian Academy of Sciences. Budapest).

OECD (1991) Environmental Policy: How to Apply Economic Instruments (OECD Paris).

THE ENVIRONMENT IN EUROPE AND NORTH-AMERICA: Annotated Statistics 1992.

FODOR, I. (1992) What does the human health cost? Environment and Development, No. 4-5.

KINDLER, J. and ZSOLNAI, L. (ed.) (1993) Ethics in economy. (Keraban Könyvkiadó, Budapest).

PERSÁNYI, M. (1988) Our common future. (Mezőgazdasági Kiadó, Budapest).

SAMUELSON, P. A. – NORDHAUS, W. D.(1987): Economics Volume I. (Közgazdaságtan I.) (Közgazdasági és Jogi Könyvkiadó, Budapest).

Social and ethical concerns of economics. Vatican City 1992-Budapest, 1993.

SZABÓ, G. (1988) Who should stop the degradation of natural environment? Journal of Economics, No. 1.

SZABÓ, G. (1990) Some special issues of environmental economics with special regard to agriculture. (Academic D.Sc. thesis) (Budapest).

TISDELL, C. A. (1991) Ecological economics and future. Journal of Economics, No. 1.

TÓTH, M. (1994) Coordinated accounts of value and rents of natural resources. (Manuscript).

Commission of the European Communities (1992) Towards Sustaniability (A fenntarthatóság felé). A European Community Programme of Policy and Action in Relation to the Environment and Sustainable Development Commission of the European Communities 1992.

YOHE, G. – SEGERSON, K. (1992): Economic Data and the Human Dimensions of Global Environmental Change: Creating a Data Support Process for an Evolving Long Term Research Program. HDP Report 4.

"POLLUTER PAYS" PRINCIPLES IN CROATIA

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Summary

The "polluter pays" principle was introduced in Croatia for the first time in 1984, by a provision of the Water Act. This provision has considerably influenced the payers of waste water compensation (polluters) resulting in more responsible and more rational behaviour in the discharging of waste water, in respect of both its quantity and quality. The method of assessment of the level of compensation for water pollution control is defined by a separate act, based on the data the polluter has to collect regularly and submit to the Public Water Management Enterprise "Hrvatska vodoprivreda". The method of data collection and submitting to "Hrvatska vodoprivreda" is defined by corresponding regulations.

In practice there are problems concerning compensation assessment, and solutions are sought in the improvement of existing laws and regulations, as well as in passing new ones in accordance with worldwide, particularly European, practice.

Introduction

In Croatia, the "polluter pays" principle was introduced for the first time by the Water Act of 1984, and its implementation was started by application of the Decree on the Level of Compensation for Water Pollution Control in 1985. The Water Act of 1984 requires that the compensation for water pollution control is paid in proportion to the quantity of waste water, or other waste material discharged, and to the degree of pollution, and that the compensation cannot be lower than the costs of water treatment. As soon as the principle was introduced, in particular in relation to consistent application of the Decree on the Level of Compensation, visible change was noticed in the field of water pollution control, mainly as regards the attitude of polluters towards waste water discharge, and interest in construction of treatment plants. It is important to note that this interest was expressed more by individual

polluters (who had to construct the pre-treatment plants), than by municipal polluters in construction of sewage treatment plants.

In the period from 1985 to 1990, the high inflation rate resulted in large oscillations of the actual value of the national currency (dinar), and the compensation was constantly depreciated. Only in 1990, its level became realistic again, equalling DEM 1.20; however, due to well-known developments on the territory of former Yugoslavia, this value has dropped again. This was unavoidably reflected in the opportunities for utilizing compensation for the specified purposes provided for by the Water Act, i.e.:

- water quality monitoring,
- implementation of water pollution control measures, as defined by pollution control plans, and
- participation in financing of construction of central municipal water treatment plants.

The establishment of the independent Republic of Croatia, and the passing of the new Water Act in 1990, resulted in little change to the legal regulations, and the level of compensation was corrected by the Decree of 1993 to the amount of HRD 160, and related to the exchange rate of DEM. This is by no means a satisfactory level, but it was a step forward to prevent further depreciation of the compensation level and to determine its real value.

It is important to note that, on the territory of former Yugoslavia, the "polluter pays" principle was applied only in Croatia, and this practice was continued after proclaiming of the independence.

The Decree on the Level of Compensation, base on the Water Act, may be expressed by the following formula:

$$N = N_0 \times V \times k_1 \times k_2 \times k_3 \times k_4 \tag{1}$$

where:

N	=	annual compensation in Croatian Dinars (HRD)
N_0	=	basic compensation per 1 cu.m. of discharged waste water which, at the moment, equals DEM 0.23
V	=	quantity of discharged waste water, cu.m. per annum
k_1	=	correction factor of increased pollution and noxiousness of discharged waste water
k_2	=	correction factor of prescribed category of the receiving water
k_3	=	correction factor of gradual increase of compensation
k_4	=	correction factor for treated waste water

The compensation is paid also by plants discharging water or other matter causing a change of temperature of the receiving water, and it is calculated according to the following formula:

$$N_{\bullet} = A \times V \times \mathrm{d}T \tag{2}$$

where:

N = annual compensation in HRD

A = compensation for temperature increase of 1 cu.m. of water by 1°K

V = annual quantity of water with increased temperature, cu.m. per anum

dT = average annual temperature increase in the process, in °K

In determining the level of compensation according to the formula (1), the correction factors k_1, k_2, k_3 and k_4 are particularly important.

The correction factor k_1 is dependent on increased pollution and noxiousness of discharged waste water; it is calculated according to the following equation:

$$k_1 = [0.15 \times ST_a/80 + 0.85 \times OT \times B/250 + \Sigma (TT/TT_0)]^{0.5} \quad (3)$$

where:

ST_a = average concentration of suspended matter in waste water, mg/l

OT = average concentration of BOD_5 in waste water, mg O_2/l

B = $T_{COD}/(2.5 \times OT)$ – correction factor, introduced only if > 1

T_{COD} = average concentration of chemical oxygen demand (COD) in waste water, mg/l

TT = average concentration of typical hazardous and harmful substances in waste water, mg/l

TT_0 = allowable concentration of typical hazardous and harmful substances in waste water, mg/l

The correction factor k_2 is dependent on the category of the receiving water into which waste water is discharged, and its values are 1.3 for the receiving water of the first category, 1.0 for the second category, 0.9 for the third category and 0.8 for the receiving water of fourth category.

The correction factor k_3 reflects gradual application of the annual compensation (basic unit price). In the period from 1991 to 1995 it was 0.25 for the first year, 0.35 for the second, 0.50 for the third, 0.70 for the fourth (which means at present), and 1 in the fifth year.

The correction factor k_4 is dependent on the degree of treatment in the central (municipal) treatment plant, or in the individual treatment plant if waste water is discharged directly into the receiving water. In accordance with the actual degree of treatment and depending on the completion of the treatment plant and solution of sludge disposal, the correction factor may be 0.7, 0.60, 0.30, or 0.15, respectively, and application of this factor is possible only under defined conditions.

Waste Water Quality Monitoring

The correction factor k_1 is, in any case, the factor showing maximum influence on the level of compensation, as it depends on the degree of pollution and hazard

presented by discharged waste water. The data for calculation of the k_1 – factor are founded on the legal obligation of the polluter to analyze and monitor the quality of waste water, which is regulated by a separate Instruction on Recording of Frequency of Discharging Hazardous and Harmful Substances, Quantity and Composition of Such Substances, and Methods of Submitting the Data to Public Water Management Enterprises.

According to the above, it is the duty of each polluter to carry out waste water analysis at least four times a year, by composite sampling for 24 hours or less, depending on the polluter's working hours, and the analysis has to be concentrated to the basic indices (suspended matter, BOD_5 and COD).

Each polluter must have a water management licence; such licence specifies the conditions under which waste water may be discharged, frequency of sampling as well as the analysis of specific indices (typical hazardous and harmful substances in waste water – *TT*), but it may also contain other provisions regarding waste water analysis related to factors other than those specified by the instructions. Each polluter submits the data to the Public Water Management Enterprise "Hrvatska vodoprivreda" for determining of the level of compensation.

Analysis of waste water may be carried out only by licenced laboratories appointed by the Department of Water Management of the Ministry of Agriculture and Forestry of the Republic of Croatia. The licence is issued to laboratories by the Ministry in accordance with the "Regulations on the conditions to be met by laboratories performing water quality analysis". The regulations include provisions on checking the quality of performance of the laboratories, including intercalibration, which is carried out by the reference laboratory (Institute "Ruđer Bošković" Zagreb). Licenced laboratories started to function in 1991, and before that analyses were carried out exclusively by the laboratories of public health institutions.

Problems in calculating compensation

Practical problems occurring in the calculation of compensation indicate a number of issues which still have to be resolved, i.e.:

(a) how to determine the relevant result of waste water analysis to be applied in calculating of the k_1 factor; at present, the mean value of the results is taken, which is often unacceptable with respect to large differences between individual results, largely due to the lack of discipline in technological processes, frequent changes of technology, etc;
(b) water management licences, which are the basis for calculation of the compensation, seldom define all elements required for calculation;
(c) in Croatia, the recipient standards are still in force, and effluent standards are being gradually introduced, which will considerably facilitate and standardize the calculation of compensation (this refers to the data on TT_D, allowable concentrations of individual indices in calculation of compensation);

(d) supervision over results and quality of laboratory performance will have to be improved and strengthened; however, this will require establishing water analysis standards which the Republic of Croatia has not had so far, using international standards instead (the present intercalibration was carried out according to the EPA standards).

The "polluter pays" principle is certainly one of the most important measures in protection of water resources from pollution, and protection of the environment is general. Departure from this principle is unavoidably reflected on the status of the environment, as well as on the principle of sustainable development.

CAN EMISSIONS TRADING WORK IN HUNGARY?

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Summary

Tradable emission permit systems are being applied in the USA in order to reduce the industry's costs of complying with environmental regulations. The most recent scheme aims to reduce Sulphur Dioxide emissions to 40% below 1980 levels by the year 2000 through awarding permits to firms and then allowing their sale and purchase in an unrestricted market. This approach offers large potential savings for Hungarian power and industrial sectors in meeting emissions standards. The paper examines potential savings and the feasibility of establishing a tradable permit scheme under the current institutional arrangements in Hungary. (This work was conducted with the aid of a grant from the Directorate General for economic and Financial Affairs of the EU under the ACE programs.)

Introduction

Economists for a long time have suggested that both environmental quality improvement and significant monetary savings can be obtained by allowing firms to trade emissions rights rather than have a strict regulatory approach to controlling pollution(Vickrey, 1992). The only country with any significant experience in using this approach is the USA where the Clean Air Act of 1970 (and Amendments of 1977) has enabled the Environmental Protection Agency (EPA) to adopt emissions trading programmes to control a variety of air pollutants. Most recently Title IV of the Clean Air Act Amendments of 1990, aimed at reducing the impact of acid rain, has led to the creation of a system of marketable permits for controlling sulphur

dioxide emissions from stationary sources. The paper will focus on this recent development in the use of marketable pollution permits which is presently being implemented in the USA and examine the feasibility of establishing a market permit system to control Sulphur Dioxide (SO2) emissions in Hungary.

Economic theory states that if charges are imposed by a regulatory authority on the emissions of a pollutant individual firms will reduce their emissions until the marginal cost of reduction is equal to the emission charge.(Tietenberg, 1992) Assuming firms are profit maximizers each individual firm will control its pollution where it proves cheaper to do so resulting in an overall minimisation of the costs of controlling pollution. When costs of control begin to exceed that of the penalty for emitting a pollutant then it becomes cheaper to pay the emission charge. The difficulty for the regulatory authority is deciding where to set the emissions charge in order to achieve a desired reduction in emissions. Without significant expenditure in collecting information and experimenting with different levels of charges it is almost impossible to establish the emission charge that will result in a given level of pollution reduction.

One solution to this dilemma is the creation of transferable emission permits. All firms are given a set number of permits which together add up to the desired total level of emissions. Firms are able to buy and sell the permits in an unrestricted market, each permit being exactly the same in terms of amount of emissions permitted. Now all the regulatory authority needs to know is the overall level of pollutant emitted and it can set a desired maximum level of emissions, issuing exactly enough permits to achieve that level. Each firm now has a number of permits which may or may not equal its actual level of emissions. Assuming the firm has fewer permits than it requires it has several choices; it can either reduce its emissions through purchase of pollution control technology until they match the number of permits it holds, or, it can purchase permits from other firms that might have more than they require, or, it can do any combination of the two. Thus each firm will compare the costs of investing in control technology, the costs of buying permits, and select the mix which minimises total costs of meeting the regulatory requirements. Economists have pointed out the potential monetary gains to firms as each firm is now able to select the cost minimising route to compliance. Thus if firm (A) is faced with low costs of reducing emissions it may choose to invest in new technology and sell its excess permits to firm (B) which might be facing very high costs of reducing emissions. Both firms gain as (A) is able to partly finance its new investment through sale of permits and (B) is able to comply with the regulations by buying permits rather than investing in much more expensive control technology. Environmental quality is not degraded because the overall desired level of emissions has not been exceeded and the permit system provides much more flexibility to industry in meeting the regulatory requirements.

This system of transferable, or marketable permits, for reducing emissions has only really been tried in the USA in relation to controlling air pollution. The early experience from a number of programmes, which were not however pure market systems but also relied to a large extent on a regulatory approach, has revealed that the implementation and performance of marketable permit systems is not as

straightforward as economic theory suggests. The Clean Air Act set ambient air quality standards with maximum concentration levels for individual pollutants. In order to attain these ambient standards, emissions limits were placed on a large number of stationary sources. The emission standards were based on choosing a particular control technology and calculating the emission reduction achievable by that technology. If a firm decides to reduce its emissions from one discharge point below that required by its emission standard, it can then apply to the regulatory authority for an 'emission reduction credit' (ERC) which is essentially a certificate for a certain level of emissions of a particular pollutant. This ERC can then be transferred to other discharge points within the same firm (which may be harder or more expensive to control), or it can be sold to other firms (Tietenberg, 1989).

The ERC's can be used in one of several ways, offsets, bubbles, banking, and netting which make the trading system more flexible. These are described below:

Offsets Under the Clean Air Act new sources (in certain 'non-attainment areas') must offset the increased level of emissions by buying an equal number or more of ERC's for the same pollutant so that the air is no dirtier than before the new source moved in. These ERC's can be traded either internally within a firm or from external sources.

Bubbles A bubble allows a firm to treat one plant (which may consist of a multitude of separate sources) as one source. An imaginary line is drawn over the entire facility and the regulatory authority is concerned only with total emissions from the bubble. Firms are thus enabled to treat individual sources in the most cost-effective manner.

Banking ERC's are given a certain lifetime and firms are allowed to hold them for future use or sale.

Netting A firm that wants to increase emissions at one source can do it by reducing emissions at other sources without going through a stringent review process required for major new sources as long as the increase is below a certain limit. This techniques can actually allow a small increase in emissions to take place.

An analysis of the use of these techniques since the late 1970's (Hahn and Hester, 1989) has revealed that netting is the most frequent activity and banking is the least used. They also show that most trading taking place is internal within the firm. There is little external trading for a number of reasons, in particular the existence of separate state programmes, the high transaction costs in finding buyers and sellers, and the unclear nature of the property rights in ERC's. They conclude that while this market based approach has led to $ billions in savings to industry it has had little or no impact on environmental quality.

On the basis of this experience the Title IV of the Clean Air Act Amendments of 1990, The Acid Rain Control Programme, mandated a market permit system approach to controlling SO2 emissions. The EPA estimate that to implement the market system will cost $0.9 billion to $1.5 billion per year (a savings in costs of $0.7 to $1 billion per year compared to a strict regulatory approach) over the time period 1993 – 2010, and increase the annual costs of generating electricity by 0.5 to 1.2%. (Federal Register, 11th January, 1993)

The US Tradable Permit System for SO2

Title IV of the Clean Air Act as amended by The Clean Air Act Amendments of 1990 (P.L. 101-549) establishes the Acid Rain Control Programme which provides the authority for the Administrator of the Environmental Protection Agency (EPA) to promulgate regulations to control emissions of Sulphur dioxide (SO2) and nitrogen oxides (NOx). The aim of the programme is to reduce the emission of SO2 by 10 million tonnes per year from the 1980 emission levels beginning in the year 2000. This amounts to a 40% reduction in total SO2 emissions and effectively sets a cap on SO2 emissions of 8.95 million tonnes/year. The Act also requires a 2 million tonne reduction in NOx emissions by the year 2000.

The SO2 reduction will occur in two phases:

Phase I Starts in 1995. Affects 110 large (>100 MW capacity) coal fired electricity generating plants located in 21 states in the Eastern half of the USA. These plants, the highest SO2 emitters, are all named in the statute itself.

Phase II Starts in 2000. Affects almost all existing electrical generating units with a capacity of >25 MW output capacity (an estimated additional 800 utilities on top of the Phase I units) and new units of any size. (Source: Federal Register, January 11, 1993)

There are three main elements of the Acid Rain Control Programme: the Sulphur Dioxide Allowance System, the Acid Rain Permit Programme and the Continuous Emission Monitoring system. Each of these will be explored in further detail below.

1. The Sulphur Dioxide Allowance System

The emissions reduction programme is based on a marketable permit system which enables utilities to buy and sell SO2 allowances at prices determined in the free market. Each existing utility is allocated a number of allowances each of which authorises the emission of up to one tonne of SO2. The number of allowances allocated to each utility is based upon the historic fuel use along with emission limits established in the Act. The marketable permit system is backed up by a strong regulatory permit system which strictly controls the level of SO2 emissions from individual sources through federal or state ambient air quality programmes.

Under Phase I of the Acid Rain programme the EPA has established accounts for each affected unit at the 110 affected sources. Allowances have then been allocated to each unit's account for the year's 1995-1999. Approximately 2.8% of each affected unit's allowances go into an annual auction reserve. This amounts to 150,000 allowances per year for auction between 1995 and 1999. The allowances that are auctioned off each year provide market signals on prices and enable affected sources to buy allowances in order to be in compliance with their emissions limits. The money from sales is distributed back to the 110 utilities in direct proportion to the number of allowances that were withheld from each unit.

In Phase I the EPA will also withhold a certain number of allowances each year in order to make direct sales to affected sources and new sources. This is called the

Phase I extension reserve and consists initially of 3.5 million allowances which will be sold at $1 500 per allowance (adjusted annually by the Consumer Price Index). In addition, 300 000 allowances from the Phase I Extension Reserve have been put into the Conservation and Renewable Energy Reserve. These allowances will be allocated based on verified kilowatt hours saved through the use of (named) energy conservation measures implemented after January 1, 1992, or through generation of electricity from qualified renewable sources. Allowances are allocated on a first come first served basis for sources that are operational on or after January 1, 1993. Acceptable energy conservation measures include:

Biomass resources – wood, plant residues, biological wastes, landfill gas, energy crops, and eligible components of municipal solid waste.

Solar resources – solar thermal systems, grid and non-grid connected photo voltaic systems

Geothermal resources

Wind resources – grid and non-grid connected wind farms, individual wind driven turbines

Only utilities that have units affected by Phase I or Phase II of the Acid Rain Programme can apply for allowances from this reserve. The application must be accompanied by certification demonstrating that the applicant is paying in whole or part for one or more energy conservation measures or a qualified method of renewable energy generation, the applicant has implemented the energy conservation measures or used the renewable energy generation specified, during the period of applicability, the extent to which the energy conservation measures have achieved actual energy savings, and the extent to which the implementation of energy conservation measures and/or the use of renewable energy generation has reduced SO2 emissions from the utility.

The EPA has established an Allowance Tracking System to control the movement of allowances held by each affected unit and to ensure that each unit has sufficient allowances at the end of each calendar year to meet its total SO2 emissions. If an affected unit exceeds its emission limit in any calendar year the owners/operators will be liable to offset the excess emissions by an equal amount of allowances from the unit's Allowance Tracking System compliance subaccount. The designated representative for the unit must submit an offset plan to the EPA within 60 days of the end of the calendar year which identifies the unit, explains how and why the excess emissions occurred, describes measures taken to prevent excess emissions in future, and states the amount of excess emissions for the calendar year and the number of allowances to be deducted from the units compliance subaccount.

If there are insufficient allowances in a unit's compliance subaccount to cover excess emissions of SO2, the owners/operators will pay an excess emissions penalty which is approximately $2 000/tonne SO2 emitted above the limit.

2. The Acid Rain Permit Programme

Each unit or source of SO2 at a plant that is affected by the legislation must obtain a permit that specifies the level of emissions. The permits specify the SO2 allowance allocation and the NOx limits. Each unit must develop a compliance plan which shows how the plant will meet its emissions limits and states that for each affected unit included in the application the designated representative will hold allowances in the unit's compliance sub-account equal to or greater than the total annual emissions of SO2 from the unit.

Designated representatives for affected unit's can apply for a two year extension to the deadline for meeting Phase I SO2 emissions reduction requirements by applying for allowances from the Phase I extension reserve. This can be done by submitting a Phase I extension Plan with the Acid Rain permit application which must provide information on the annual tonnage of SO2 emissions averaged over 1988 and 1989 and the projected annual emissions of SO2 in tonnes resulting from 90% control after installing the qualifying Phase I technology. There must also be evidence that qualifying technology is being designed or under construction and assurance that the technology will achieve the required reduction in emissions.

Phase II will be implemented largely by state permitting procedures in accordance with federal procedures. A major concern was that state programme might restrict the transfer of allowances thus there is a requirement that state programmes be approved by the EPA and the regulations are explicit that state operating programmes "shall not include or implement any measures that would interfere with the Acid Rain program. In particular the State program shall not restrict or interfere with allowance trading..." (40 CFR s.72.72)

3. Continuous Emission Monitoring

The purpose of the Continuous Emission Monitoring (CEM) system is to provide information on SO2, NOx, and Carbon Dioxide (CO2) emissions, volumetric flow, and opacity data from units affected by the Acid Rain Programme. The regulations cover monitoring requirements, and specifications for installation and performance of CEM systems, record keeping requirements, certification tests and procedures, statistical estimation procedures for missing data, and quality assurance tests. There is a formal certification approval process laid down in the regulations for CEM and COM systems. The regulations make it an offence to operate an affected unit without both CEM and COM systems in place.

CEM systems must be capable of completing one cycle of operation (sampling, analysing and recording) every 15 minutes (i.e. for SO2, NOx, CO2). The owner/ operator is to reduce all data collected to one hour averages. A one hour average must be determined from four equally spaced collection times. Failure to acquire four data points results in the loss of data for the entire hour and the missing hourly average must be determined by statistical techniques listed in the regulations.

The owner/operator must also install a COM system with an automated data acquisition and handling system capable of measuring and recording the opacity of emissions (in percent opacity). COM systems must be capable of completing one

cycle of sampling and analysing for each successive 10 second period and complete a recording cycle every 6 minutes. All opacity data are to be reduced to 6 minute averages.

Owners/operators are required to measure and record the heat input to each affected unit for every hour or part of an hour the unit is in operation. Records on all data collected must be kept on each affected unit for at least three years. Data must be reported electronically to the EPA on a quarterly basis (i.e. every three months).

Overview of the US System

The tradable permit system for SO2 is highly centralised and regulated by the EPA. The regulations to implement this system took approximately three years to write and were developed from the position of decades of experience with emissions charges and several years experience with other forms of market permit system, such as the lead phase down programme, and emissions reduction credits for controlling certain pollutants..

Application of the Tradable Permits Approach to Control SO2 Emissions in Hungary

The situation in Hungary today and in the recent past has been one where emission charges have been used but frequently set too low (typically in the range 0.01 – 0.2 HUF/kwh) so that it is cheaper for individual firms to pay the fines rather than install control equipment. Emission charges have simply become a 'cost of doing business' and environmental quality declines. In the past there was neither the political will not the institutional arrangements to permit exploration of the charging system for controlling emissions. Table 1 reveals that SO2 emissions have declined over the past ten years due largely to economic recession which has resulted in a decrease in energy consumption. Emissions have been reduced to 46% below the 1980 level. In 1991 total emissions of SO2 amounted to 892 kt, the majority of which has been through reductions in the industrial sector with relatively less reduction in emissions from the power sector.

Table 1: SO2 Emissions from Electrical Generation (kt/year)

	1980	*1985*	*1988*	*1990*	*1991*
Electrical generation	654.7	504.0	461.6	423.0	416.0
Other Sectors	978.1	899.6	756.4	587.0	476.2
Total	1632.8	1403.6	1218.0	1010.0	892.2

(Source: Kaderjak and Lehoczki, 1994)

Kaderjak and Lehozcki (1994) in a recent study, have suggested that potentially large cost savings exist in reducing SO2 from stationary sources through the imple-

mentation of a system of transferable emission permits. The authors developed a mathematical model to explore the potential for implementing a tradable permit system for controlling SO2 emissions from the electrical generating sector in Hungary. Nine power plants with a total of 32 separate generating units were included in the model. The model does not include transaction costs and treats the entire country as one receptor for SO2 deposition. They examined a variety of alternative scenarios for a 60% reduction in emissions from 1991 levels concluding that a tradable permit system could potentially offer a 50% cost savings (approximately 3 – 3.5 Billion HUF/year) compared to the enforcement of the present regulatory system of control. They also suggest that the advantage of restricting the permit system to the power sector is that it will result in lower administrative costs and most trades are likely to be internal (the US experience with ERC's) resulting in a cost minimised abatement strategy for the whole company.

Description of the Electricity Generating Sector in Hungary

The energy sector is considered to be of strategic importance where the state should maintain a controlling interest. Thus ownership of many energy industries has been transferred to the State Asset Management Company (AVRT) which was established in October 1992.(International Energy Agency, 1993) In the electrical generating industry, 98% of electricity is produced by one company, the Hungarian Power Corporation (HEC) which was reorganised in January 1992. A two tier system has been created with the first tier consisting of eight generating companies grouped regionally and by fuel, operating 14 power stations throughout the country, and 6 regional distribution companies. Some of these plants produce district heating as well as electricity (e.g. Pécs). Nine of the power stations use either lignite or coal as a fuel source though with the decline in coal mining some of these are expected to switch to oil or gas. Restructuring of the mining industry is resulting in the merging of three coal mines with the generating companies that own power stations in close proximity. 46% of the total electricity is produced by one nuclear power station (Paks) which has four reactors. The second tier is a holding company that also owns and operates the transmission grid. The holding company contracts power from generators and sells to the distributors. It also operates a scheme that equalises incomes across regional distribution companies. This is necessary as there is a cross-subsidisation scheme in operation that transfers income from industry to cushion domestic users against the full costs of electrical generation. The proportion of industrial and domestic users varies between regions thus the holding company equalises income. In addition heat prices are now controlled by municipalities and HEC presently makes a loss on the sale of heat (International Energy Agency, 1994).

The holding company owns 45% – 49% of each generating and distribution company, the State Property Agency (SPA) owns approximately 50% and municipalities own 1% – 5%. Thus ownership is effectively split between the State Asset Management Company (through its control of HEC) and the SPA.

Problems with Implementing a Tradable Permit System for SO2

There are three main areas of difficulty that would constrain the efficient operation of a tradable permit system for SO2 in Hungary. These are as follows:

(i) The present institutional arrangements for power production
(ii) The lack of a strong regulatory culture
(iii) The lack of information

The present institutional arrangements for power production

Under present arrangements, with 98% of electrical generation owned by one company, it is doubtful that any kind of permit system would be an efficient means of minimising costs of meeting emissions limits. Developing a whole new system of emission control just so that internal trading can take place between electrical generating units is inefficient from a public administration point of view. Expanding the market to include major industrial sources of SO2 emissions, however, may make the approach more feasible. The industrial sector as a whole emits approximately 54% of SO2. Selecting production units over a minimum size that emit the majority of this pollutant would create a reasonable sized market where one could assume that it would be in the interests of firms to trade.

Secondly, the ownership arrangements within the power sector result in a split in ownership of generators between two government agencies which may hinder actions of the HEC. Thirdly, government subsidies to consumers do not encourage energy efficiency and result in a complicated system of income equalisation across power distributors.

The lack of a strong regulatory culture

The overriding difficulty, which cannot be avoided is the lack of a strong regulatory base on which to build a tradable permit system. Current regulations in the command and control system are not well enforced and until enforcement can be guaranteed then it is not worth developing an alternative approach to emissions control. One of the main lessons to be learned from the US experience is that a transferable permit system cannot work in the absence of regulatory controls and it is a mistake to view command-and-control systems and market based systems as opposite ends of a spectrum. A tradable permit system is merely a different form of regulation. In practice the flexibility of market systems also provides much more scope for cheating and avoiding sanctions thus the regulatory authority must be more vigilant and capable of enforcing the rules that control the use and transfer of permits. Loeb (1990) describes in detail the fraud that took place in the lead phasedown programme in the 1980's in the USA and the regulatory chaos which was only averted because the EPA was able to develop new practices to enforce the market rules. There is a need to have a strong legal authority and an industry that is prepared to comply with the organisation of the emissions market.

The lack of information

There is a lack of good quality data not only on emissions of SO2 from stationary sources, but also on deposition loads and environmental impacts. A first step in a market based system is for the regulatory authority to decide on the maximum level of SO2 which will be permitted. Without some means to determine that level, and without monitoring that can measure actual emissions, the market approach will not work. The EPA has stated that one of the main reasons that they developed a tradable permit system for SO2 was because they had reliable emissions data. They also feel that continuous emissions monitoring is an essential element of their trading system. (EPA, 1994). It is not necessary to have an elaborate electronic monitoring system such as that developed in the USA, but there is the need to be able to measure emissions and check that individual firms are complying with the regulations. This could possibly be done through measuring sulphur content of fuel input and/or periodic auditing.

The Future – Is There Any Hope for a Tradable Permit System?

A market based approach will not work effectively until the following conditions are met:

- full cost pricing of electricity
- improved data collection and monitoring
- a stronger regulatory authority capable of enforcing regulations
- independent ownership of emissions sources

None of these seem likely to occur in the short term (1–2 years). In the medium term, however, some or all of these conditions will be met (3–5 years) which provides some incentive to pursue the idea of a tradable permit system.

Experience in the USA and theoretical models of the Hungarian power sector both suggest that large cost savings exist for a tradable permit system to control SO2 emissions. The advantage of such a system, however, should not just be seen in terms of minimising costs to industry as a market based permit system can be used for more than just providing a means for firms to achieve emissions limits at minimum cost. It has the flexibility to allow government to push the industry towards conservation measures, towards using renewable resources, as well as the most efficient means of energy production. Hungary could use the example of the USA which provides a small number of allowances to firms engaged in energy conservation measures. In Hungary this could become a much more central role in a marketable permit system. Separate allowance reserves could be established for renewable energy generation and for energy conservation measures for example. These reserves could be relatively larger than the Conservation and Renewable Energy Reserve in the US system and used to stimulate the renewable energy generation market. There could even be separate sub-accounts for specific types of generation such as methane from landfill (which may also provide a stimulus in improving waste management), or for solar power. From this point of view alone it

is worth investigating further detail how to design and implement a tradable permit system that could deal with the institutional arrangements found in Hungary.

Table 2: Large Point Source SO2 Emissions in Hungary (tonnes/year) for 1988

	SO2	*NOx*
Ajka	45484	4983
Banhida	29536	1804
Borsod	68917	2527
Dorog	10677	616
Dunamenti (I+II)	22310	6916
Gagarin (Matrai)	94554	1022
Komló	3182	291
November 7th (Inota)	18390	2301
Oroszlány	35351	2123
Pécs	48554	4084
Tatabánya	19990	863
Tisza (I+II)	67405	6403
Angyalföld	18	161
Debrecen	303	140
Győr (I+II)	4845	385
Kelenföld	814	1123
Kispest	378	364
Kőbánya	391	643
Nyíregyháza	100	72
Reveszu.	-	174
Salgótarján	1121	1971
Sopron	205	46
Székesfehérvár	1888	159
Újpest	7	355
Total public power and heat plants	474420	39526

(Source: Klimont et al., 1993)

References

Federal Register. 40 CFR Part 72, et al. Monday 11, January 1993.

HAHN, R. AND HESTER, G. L. (1989) Where Did all the Markets Go? An Analysis of EPA's Emissions Trading Program. Yale Journal on Regulation 6, pp. 109-153.

International Energy Agency. (1993) Energy Policies in Hungary: Update to 1991 Survey. (OECD, Paris).

KADERJAK, P. AND LEHOCZKI, Z. (1993) SO2 Emission Control by Tradable Emission Permits in Hungary: Some Empirical Evidence for the Power Sector. Paper prepared under an ACE Network Project titled Environmental Implications of Economic Transition in Hungary, Budapest.

LOEB, A. P. 1990. Three Misconceptions about Emission Trading. Air and Waste Management Association for presentation at the 83rd Annual Meeting and Exhibition Pittsburgh, Pennsylvania.

Personal Communication (1994) Office of Air and Radiation, (Environmental Protection Agency, Washington, D.C.).

TIETENBERG, T. (1989) Economic Instruments for Environmental Regulation. Oxford Review of Economic Policy 6:1, pp. 17-33

TIETENBERG, T. (1992) Environmental and Natural Resource Economics. (3rd Edition, Harper Collins, New York)

VICKREY, W. S. (1992) Theoretical and Practical Possibilities and Limitations of a Market Mechanism. Approach to Air Pollution Control. Land Economics 68:1, pp. 1-6.

THE WAYS AND MEANS OF REGULATION WITHIN THE NEW ENVIRONMENTAL ACT IN HUNGARY

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Ways and means of regulation

It is well-known, that various forms of regulation can make the members of the economy, and of society in general, feel the effects of their activities on the environment. It is generally accepted that centrally-planned economies and traditional market economies are both insensitive to the environment, which is usually present as an externality. At the same time the actors of these societies, as producers and often as consumers, produce negative external effects. Without environmental regulation their legal, everyday activities harm the profit prospects or well-being of others:

Both direct and indirect (economic) regulators try to reduce private marginal costs, private marginal losses, social marginal costs, and marginal losses in such a way that economic and ecological optima meet. This regulation can only be effective if it is complex and flexible.

As we read in the report which analyzes the possibilities for sustainable development: "Changes are also required in the attitudes and procedures of both public and private-sector enterprises. Moreover, environmental regulation must move beyond the usual menu of safety regulations, zoning laws, and pollution control enactment's; environmental objectives must be built into taxation, prior approval procedures for investment and technology choice, foreign trade incentives, and all components of development policy." (Our Common Future 1987, p. 64)

An important step in environmental regulation is the Act on Environment, which was proposed to the Hungarian Parliament by the Government in 1994.

In this act environmental charges, among other measures, will play an important role, especially charges for loading the environment. This would, break the ex-

clusive reliance of the regulatory system on fines. In addition, this means opening up to economic measures in environmental regulation.

The opening up to environmental charges is in tune with the environmental decisions made by OECD countries more than fifteen years ago. If Hungary follows their example, the role of economic measures should also be increased in environmental regulation.

Both the United States and Western Europe practised direct environmental regulation during the seventies. However, after initial successes, this strict system, which is based on orders and norms, operated with reduced efficiency, both from the ecological and economic points of view.

Economic measures enabling voluntary activities, freer choices, and co-operation, can be more efficient and can better fit into the process of general deregulation. Economic measures positively affect innovation. These measures provide a better set of regulations for preventive environmental protection than direct regulations (which for the most part, are for extensive environment protection).

It should be noted however that although recently the impact and use of economic means have noticeably increased, the dominant role of direct regulation has remained everywhere.

In Hungary the regulatory system of environmental protection can be made more flexible by in addition employing economic means. The rigid dominance of inefficient fine systems can also be broken.

These measures were introduced in OECD countries when there was a recession in their economies. In order to ease the budget-centred, fiscal and political direction of the Keynesian system, they moved towards an economic policy which influenced the market through financial means.

Now in the Central and Eastern European region as well as in Hungary there are many similarities with the period of recession in the West. The state reinforces market measures and tries to reduce the great concentration of the GDP into the central budget (which is about 64 percent in Hungary today, whereas in the OECD countries it is about 40 to 45 percent) thus in principle, all efforts which serve this purpose get the go-ahead.

The situation, however, shows differences as well as similarities. The most important differences are the following:

- the serious international indebtedness of the country, the repayment constraint to which nearly everything else is subordinate
- general economic recession, which means a shortage of business capital, unemployment and high inflation
- weak assertion of the interests of environment protection (for political, economic. and institutional reasons).

These are the dominant reasons which push Hungary, as well as other Central and Eastern European countries, towards, short-term economic and political interests, even though they adversely affect long-term environmental interests.

There is no economic or political consensus to change the regulation of the economy. If there were, the first step would be to develop a new tax system, which

would reduce the centralization of the GDP while at the same time increase financial means for environmental protection. This could be done partly on central and partly on regional and local governmental levels and by leaving more resources to entrepreneurs for environmentally-oriented structural changes. Besides the reduction of all central income, a restructuring of enterprise costs and individual income consumption has to be achieved by new environmental regulations which would make the external effects (as externalities) perceivable according to their magnitude. If this does not happen, a cost and income structure different from those of the developed industrialized countries will further distort capital allocation and income consumption. A move towards the EC, which has greatly progressed due to the collapse to Eastern European markets, will not mean a wasteful consumption of natural values, even if these values have valuable prices. If the tax system remains unchanged, the budgetary policy will not change and centralization can no longer be reduced. However, a reduction must be achieved, even if only very low environmental charges can be applied. The effect of these charges in preventing pollution or on orientating towards clean technologies will be nearly impossible.

Some important trends of development

In further development of the Hungarian regulatory system a significant role is to be played by *emission charges*. These charges have to be paid by the emitter after each unit of pollution emission and can be regarded as the price of pollution. This charge appears as a cost for the enterprise and constitutes a part of individual cost-benefit calculations. The effect of these charges is twofold: partly it is stimulating and partly redistributive. In most cases the sum of the charge is not big enough for the cost-effect to dominate. According to analyses it is the redistributive effect that dominates. A charge in itself cannot be the only solution, even in a cost-sensitive enterprise and market system.

As a charge is to be paid for each unit of emission, it makes free environmental pollution for those within the limits and the synergetic effect due to the addition of emissions under the norm impossible.

Working out the emissions of different technologies is possible by the production of *material balance-sheets* (there have been significant achievements in working out material balance-sheets in Hungary as well.)

In this system of *emission charges* it is very difficult to determine the level of the charge at which private marginal cost nears social marginal cost. It is especially difficult in Hungary as the actual economic evaluation of natural resources is hardly anywhere realistic, owing to former central direct control and simulated markets.

It is important to mention that existing galloping *inflation* (1991: 35%, 1992: 25%) spoils the effect of charges or fines. An inflation similar to that in Hungary softens the system. The stimulating effect is significantly reduced and so is the redistribute effect as the funds are continuously devalued.

Emission charges function in a system with given norms or thresholds. Polluters above the norm pay fines and after a given period of time they are obliged to stop their polluting activity.

In case of exceptional environment pollution, penalty sanctions should be enforceable. That is why those bearing personal responsibility have to be named unambiguously.

From the point of view of positive economic stimulation it is important that those whose emissions are far below the norm are given preferential treatment when paying the charges. It seems expedient to reduce the charge to be paid per unit of emission if possible.

Among other charges we can find *user charges*. These are related to collecting and managing sewage water or collecting solid waste in a given settlement.

Basically, these charges serve the financing of the maintenance and development of collecting and cleaning systems. Their stimulating effect is low.

There are also examples of redistribution in some towns. Enterprises pay relatively high charges that are assigned to assist households. A stimulating effect can be achieved if the charge is linked to the quality and quantity of emission (e.g. differentiated charges seem expedient in stimulating households to collect waste selectively).

A separate group of charges are *product charges*. Product charges are made on products that are harmful to the environment when used in production processes, consumed or disposed. These charges are very important in particular for fuels.

Tax differentiation is closely related to the previous charges. Tax differentiation systems are characterized by two features:

- the combination of the two additional charges added to existing product tax: a positive product tax for a polluting product; – a negative tax for a clean or cleaner alternative
- fixing the level of the tax in a way so that total the financial effect (positive and negative) should be neutral from the point of view of the budget (fiscally neutral).

The fourth group of economic measures are *deposit refund systems*. A deposit (charge) is levied on a potentially polluting product, to be refunded when the product is returned to a storage, treatment or recycling point.

Their specific purposes and advantages are to induce safe disposal, reuse or recycling of products; and their effectiveness in reducing waste stream volume. The relevance of this charge is high for waste management for example beverage containers in many countries and car bodies in some countries.

The use of this charge in Hungary is very limited.

Another important approach is the use of *subsidies*. The following types of subsidies can be found

- grants
- soft loans
- tax reductions.

The sources of subsidies are on the one hand charges and the general budget on the other. In connection with subsidies we have to mention the principle generally accepted in OECD countries, that is the Polluter Pays Principle (PPP), the essence of which is that the polluter should bear the costs of pollution reduction.

As we wish to make our contacts closer with this group of countries it is important to co-ordinate the philosophy of our environment legislation and the practice of regulation.

Granting subsidies and tax reductions is compatible with the Polluter Pays Principle if the following conditions are jointly fulfilled:

- it is related to an industry, a territory or a plant where there are great difficulties
- it is limited to a well-defined transitional period which is connected with the specific socio-economic problems' resulting from the introduction of the environment programme of the country
- it would probably cause serious distortions in international trade and investment.

In Hungary these three conditions exist in many areas, so besides the principle of responsibility for environment pollution subsidies are justified.

In respect of our political, economic and environmental aims Hungary, in the centre of Europe, wishes to join the developed Western European countries. That is why it is important to shape the environmental regulatory system in accordance with that of the West. At the same time Hungary is closely tied to the sub region which comprises the Czech Republic, Slovak Republic, Poland and Hungary. Thus it is important to shape the system of environment protection taking the specific features of this sub region into account.

References

KEREKES, S., KINDLER, J., KOLOSZÁR, M., SZLÁVIK, J. and TÓTH, L. (1992): Study of the environmental protection bill from economic viewpoint. (Manuscript, sponsored by: Environmental Center Bp. 1992)

Hungary's National Report to United Nations Conference on Environmental and Development (1992) The Government of the Hungarian Republic. Dec. 1991.

Environment and Development in Hungary (1992) A blueprint for transition (Budapest/Minneapolis). Published in Hungary by Kerekes S. – Kindler J.

Our Common Future the World Emission on Environment and Development (Oxford University Press 1987)

LORENZ, Konrad (1973) Die acht Todsänden der Ziwilisierten Menscheit (München) Sustainable development and Hungarian economy (Manuscript, in Hungarian: A fenntartható fejlődés és a magyar gazdaság – Compilation by Károly Kiss, Mihály Simai HAS, VGKI 1991 – See in the Research Institute for World Economy of the Hungarian Academy of Sciences)

SZLÁVIK, János (1993): Study on the environmental draft bill from economic-viewpoint Summary, 1993 (Manuscript, sponsored by Ministry for Environmental and Regional Policy – See in Hungarian: A környezetvédelmi törvénytervezet gazdasági szempontú vizsgálata – Összefoglaló).

How to apply economic instruments, OECD Paris, 1990

Taxation and the environment, OECD Paris, 1993

APPLICATIONS OF ENVIRONMENTAL MANAGEMENT SYSTEMS

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Summary

Over the last few years organizations in the UK have started to adopt environmental policies in response to legislative pressures, green marketing opportunities, increased public pressure, public relations, ethical concerns and the commitment of the Government to Agenda 21. This paper discusses the environmental management systems being developed by the EC, the British Standards Institute, and organizations in the private, local government, education and conservation sectors to facilitate the implementation of these policies.

Introduction

Environmental policies have been adopted by a wide range of organizations within the private sector, in local government, in further and higher education and conservation in the UK, for a variety of reasons. However, if the commitments outlined in these policies are to be honoured, all of these organizations will be faced with the same problem of finding a systematic way of implementing commitments to environmental management within their organizational structure. Over the last few years different types of environmental management systems have been developed to facilitate the implementation of environmental policies. This paper aims to briefly outline the type of commitments made in environmental policies and the types of environmental management systems that are being developed.

Organizational Environmental Policy

An Environmental Policy is a written statement of an organization's aims and principles of action with regard to the environment (LGMB 1993c). Typically, an organization's environmental policy may commit it to:

- The minimization of it's impact upon the natural environment

- Compliance with relevant environmental legislation
- Promotion of effective waste management
- Promotion of energy efficiency
- Working with suppliers to minimize impacts
- Reporting environmental performance
- Providing a healthy working environment
- Carrying out product life cycle analysis
- Continuous environmental review of policies and practices
- Environmental training
- Liaising with local communities regarding the environment

However, achieving implementation of these policies may be problematic, especially within those organizations which have not adequately thought of the practicality of implementing these commitments, in terms of the resources required and in terms of their incorporation into the organization's management structure. Ketola (1993) argues that environmental policies are not always drafted in "the best possible way or by the best possible people" and that policies may reflect the concerns of the organization at the time that they were created, but may not lend themselves to day to day environmental management over a period of time.

Environmental Policy and Environmental Management Systems

One way of ensuring that policy will translate into action is by developing the environmental policy alongside an environmental management system (EMS).

An EMS can be described as "the organizational structure, responsibilities, practices, procedures, processes and resources for determining and implementing environmental policy" (European Community 1993). Typically an EMS encompasses the following (see Figure 1):

Once a corporate commitment is made to environmental management, a policy can either be developed either before or after an environmental review is carried out. This review provides a snapshot of the environmental performance of the organization in terms of the following types of issues; legislative requirements; environmental effects; existing environmental management; resource consumption; waste minimization; communications; processes; products; transport; energy; nature conservation; environmental objectives and targets; purchasing; water; investment; suppliers; local communities; accident and emergency planning; noise. The data produced should enable realistic policies to be drafted which a relevant to the particular issues, impacts and objectives of the organization.

Obviously there is a great deal of variation in the content of these environmental reviews depending upon the function, corporate ethics and culture of the organization. Some organization's may introduce the concept of ecological sustainability to this review stage (Body Shop 1992, Callenbach et al 1993), whereas others may concentrate solely upon compliance issues and the way environmental issues affect the organization's economic performance, for example related to energy, water and waste management.

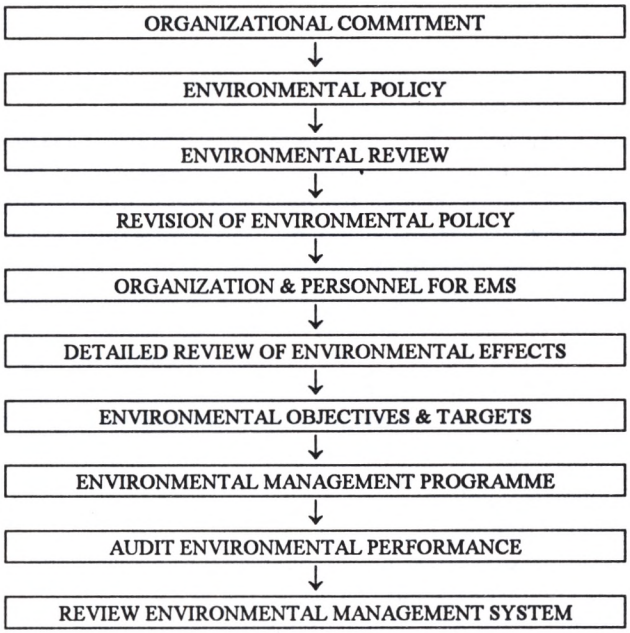

Figure 1. A basic Environmental Management System adapted from BSI (1994) LGMB (1993c) and EC (1993)

The quality of this environmental review may vary between being a comprehensive review of all aspects of the organization's environmental performance with environmental performance indicators identified and targets and objectives suggested, or just a preparatory review of the major significant environmental issues. In terms of environmental policy formulation a preparatory review may be adequate in prioritizing environmental issues for an organization. However, it could also be argued that the deeper and more wide ranging the review, the more accurately, conscientiously and easily an organization will be able to set environmental priorities and objectives, draft a realistic policy, and develop the environmental management system.

The Private Sector – BS7750 and the Eco-Management and Audit Scheme

Over the last decade the number of environmental policies and subsequent environmental management activity has increased within the private sector, resulting in a wide variation in the type and quality of EMS being developed i.e. from simple compliance audits in manufacturing companies to ecological management systems such as the Body Shop (1992) and those advocated by Callenbach et al. (1993).

This proliferation of environmental 'credentials' within the private sector has highlighted a need to ensure some 'quality' standard in environmental manage-

ment. In the last few years two voluntary environmental management schemes have been developed to try and ensure this, one within the UK, the British Standard Specification for Environmental Management Systems BS7750 (1994), and one within the EC, the Eco-Management and Audit Scheme (1993).

The schemes provide a framework for industry and other private sector organizations to begin identifying, quantifying and mitigating their effects on the environment, and to provide a commitment to continuous improvement of environmental performance through the development of an environmental policy and an environmental management system. The schemes are voluntary and are designed to be externally verified by nationally accredited bodies, in a similar way the Quality Standards BS5750 and ISO 9000. It is envisaged that an organizations which register with the schemes, gaining BS7750 certification or the EMAS logo, will experience market advantages, a better relationship with regulatory authorities, investors and insurance companies, as well as experiencing financial benefits in the areas of energy, waste and water management, and management structures.

In general terms BS7750 and EMAS require the following from an organization:

- An Environmental policy
- Environmental training
- Definition of the organization's environmental responsibilities
- A record of compliance requirements
- An assessment of impacts and environmental performance
- Establishment of objectives and targets
- A plan of corrective action to achieve those targets
- The collation of documents into a management manual
- Ensuring a response to non-compliance
- Auditing and reporting in relation to targets
- Auditing the effectiveness of the management programme
- A review the Environmental Management System.

EMAS and BS7750 are compatible. EMAS requires that an organization establishes an environmental protection system and BS7750 would form part of EMAS solely as the management part of that protection system. Therefore organizations registering with BS7750 would only satisfy part of the EMAS regulation (Spedding et al 1993).

Another difference between the schemes is that EMAS requires the communication of the organization's environmental performance to the public through an environmental statement, which is independently verified by an accreditation body; BS7750 has no such requirement. EMAS also requires a much more comprehensive initial environmental review, and is therefore far more demanding in terms of it's depth and scope and the time and resources needed (Spedding et al 1993).

Pilot work has been carried out within the UK and Western Europe on a range of organizations of different sizes in different sectors (Hemming 1993, BSI 1993). Due to these studies and a consultation exercise both of the schemes were redrafted from earlier versions. The pilot work highlighted problems with the procedural requirements of the schemes, and other problems related to resource constraints for

smaller companies especially in terms of providing adequate documentation. Both BS7750 and EMAS were seen as too bureaucratic, and there has also been criticism regarding the benefits of participating in these schemes, and whether they will outweigh the costs (Hemming 1993, Von Ropenack 1993, ENDS 1994b).It remains to be seen whether the redrafting of EMAS and BS7750 mitigate any of these problems. A delay in the appointment of national bodies for accreditation of verifiers to both BS7750 and EMAS means that the schemes will be up and running in the UK in late 1994 or early 1995 (ENDS 1994b).

There are potential problems with the schemes in environmental terms. Neither BS7750 or EMAS set specific limits upon energy or resource consumption, or levels of emissions, or levels of performance, other than those based on national compliance, nor is there a requirement within their framework to tackle all of the organization's environmental effects.

BS7750 is further limited because it only requires commitment to continual environmental improvement and not "environmental protection", therefore. an organization can determine it's own rate of environmental improvement. This self-regulatory set up means that a registering organization also decides for itself what it's significant environmental effects are. Therefore, it theoretically possible under BS7750 for an organization to register, having an appalling record in environmental terms, but satisfying the requirements of the management system and demonstrating a commitment to continuous environmental improvement, however small that may be. With no public accountability and greater subjectivity in it's requirements it would seem that BS7750 is weaker in environmental terms than EMAS.

Despite this criticism, these schemes should be welcomed as a major step forward, as an incentive and framework for private organizations to participate in environmental management, and as a quality standard to ensure that environmental claims made by business and industry have some validity.

Local Authority Environmental Management Systems

Local authorities have environmental responsibilities in managing their own impact as an organization, monitoring the impacts caused through their policies and services to the local community, and in their role of managing the local environment through planning control. Over the past few years a number of environmental initiatives have been developed in UK government to enable authorities to monitor their performance in environmental terms.

In 1989 The Friends of the Earth published a "The Environmental Charter for Local Government" which urged all local authorities in the UK to develop policies to improve environmental information for the public, report on the state of the environment, and monitor their own impacts upon the local, national and global environment. This provided a great stimulus for local government to begin organizational environmental management. By 1992 three quarters of British local authorities had developed cross-departmental plans addressing environmental issues through green charters (i.e. environmental policy), environmental strategies

through internal audits (environmental review) or state of the environment reports (Raemakers & Wilson 1992, 1993).

Agenda 21 resulting from the 1992 Global Forum in Rio, highlighted the need for local authorities to become responsible for a "Local Agenda 21". In 1993 "An Initial Statement by UK Local Government on Agenda 21 UK" was published by the Local Government Management Board as a response to this, and identified the development of EMS within local authorities as one of the five tools of policy making for sustainable development.

Environmental policies in UK local government usually takes the form of an Environmental Charter, consisting of wider reaching environmental goals than policies in the private sector. Many of these Charters contain the following general principles and commitments, which closely reflect some of the key issues identified by Local Agenda 21:

- Achieving a more sustainable future
- A reduction in local and global pollution
- The conservation and sustainable use of natural resources
- The improvement of the quality of the local environment
- The provision of recycling and waste disposal facilities
- An improvement in transport planning
- Conservation management
- Public health
- Planning policy development for the environment
- Internal and external environmental education
- Public information
- Promotion of economic development with regard to the environment

In terms of their own environmental impacts local authorities have generally used Internal Audits (IA's) to implement these policy commitments. Internal audits are similar to environmental reviews, in that they are a systematic and objective evaluation of the environmental performance of local authorities. However IA's also look at both the impact of local government policies and of the management structure used for environmental management. In this respect there are some parallels with BS7750 and EMAS.

In recent years internal audits and environmental initiatives have developed independently within UK local government, with no widely agreed standards or procedures. However, "Environmental Practice in Local Government" LGMB (1992) attempted to assist local authorities in identifying environmental best practice regarding, strategies and management systems, internal audits, education, training, finance, energy, design, planning, transport, landscape, waste, health, purchasing and state of environment reports, through the use of case study material.

Difficulties in implementing environmental management across such large organizations, with large numbers of departments with varying functions has resulted in local government following the suggestion of Local Agenda 21, by turning to BS7750 and EMAS to provide a more strategic methodology for assessing it's environmental impacts, and turning policy into practice.

Hereford City Council (1992) and Kingswood Borough Council have both been involved in the application of BS7750 to local government carrying out initial appraisals of environmental effects and developing environmental policies (Local Government News 1993).

However, far more progress has been made in the adaptation of EMAS to local government within the UK The Local Government Management Board published A Guide to the Eco-Management and Audit Scheme for Local Government (1993) after a pilot project looking at the suitability of the scheme in seven local authorities. It is envisaged that EMAS will be formally adopted by the UK Department of Environment in April 1995, however many councils are already carrying out work towards EMAS.

The main aims of EMAS for local government are:

- Development of environmental policies, programmes and management systems within participating authorities.
- Periodic evaluation of these policies, programmes and management systems.
- Provision of information on environmental performance to the public. (LGMB 1993c).

The local authority scheme follows a similar framework to the original EMAS, but there are far more obligations for the whole authority regarding corporate structures for environmental management. So there is not only a requirement for environmental management in particular sites or units, but there is also a need for a corporate system for the co-ordination of environmental management.

There are also differences in the scope of impacts reviewed by the scheme i.e. the local government EMAS focuses upon *direct effects* (e.g. energy, waste, transport, resource consumption, pollution etc.) which may have been covered already by an Internal Audit, however it also considers *service effects* which have a larger potential effect upon the environment (e.g. planning activities such as development control, transport policy, land use policy, nature conservation and economic development). This review of service effects within EMAS, especially regarding the strategic planning and development responsibilities of some local authority departments, are directly relevant to recent initiatives in the environmental appraisal of development plans (LGMB 1993a).

EMAS for Local Government is also intended to be adaptable, i.e. some authorities will seek formal registration, whereas others will use EMAS as a framework or toolbox for environmental management, enabling different environmental topics to be investigated, and different stages of the environmental management system to be tackled independently.

Lancashire County Council has already carried out an Internal Audit and developed a Better Environmental Practices Strategy (BEPS) for the whole Council. However, activity is confined to certain departments, and the information and procedure for environmental management differs across the departments. LCC is therefore hoping to use EMAS as a basis for a more structured approach to environmental management across the authority. By carrying out a pilot project for EMAS in two operational units of the authority, Planning and Social Services, it is

hoped that information can be gathered on the resource costs of carrying out the EMAS procedure in different types of departments, and the type of information and performance indicators that are needed. They will then use this information to assess the applicability of EMAS registration for the whole authority and the use of EMAS methodology in BEPS (Lancashire County Council 1991–94).

The true relevance and effectiveness of BS7750 and EMAS to local government will only be seen when these types of pilot studies are carried out and the schemes are applied across the whole local authority.

Even though there has been a great deal of activity in environmental management in local authorities, local government re-organization in the UK has meant that many councils are unwilling or unable to allocate resources to EMS initiatives (Netherwood 1994). However, even in these adverse circumstances EMS in local authorities are still being developed. It could be argued that EMS together with other local authority environmental initiatives such as state of environment reports, appraisal of development plans, environmental fora and involvement in green business clubs, mean that the implementation of local authority policy on sustainable development is more likely to be achieved (Lancashire County Council 1991, Lancashire Environmental Forum 1993, LGMB 1992, 1993d).

Environmental Management Systems in Further and Higher Education

The development of environmental policy in Universities and other Higher Education institutions started in 1990 when 26 UK Polytechnics signed a general environmental policy statement: *"This Polytechnic will seek to promote greater awareness of environmental issues through it's curricula and endeavour to reduce the damaging environmental impacts of it's institutional practice"* (Ali Khan 1990, 1994).

Since then a large number of Further and Higher Education institutions (FHE's) i.e. Universities, former Polytechnics and Colleges, have developed environmental polices, included the environment in their mission statements, are active in developing EMS to tackle their institutional impacts and are greening the curriculum [37,43]. This activity has followed environmental management activity in US universities, activity by a number of forward thinking universities in the UK and a recent government publication, the Toyne Report "Environmental Responsibility: an Agenda for Further and Higher Education" (1993) (Eagan & Orr 1992, Mcdonach 1994, University of Northumbria 1993).

Environmental policies in Universities take a number of forms, either as a single commitment to develop EMS and curricula as above, as a number of general commitments to specific environmental issues e.g. energy, waste, resources, campus, awareness, curricula, training and research (University of Central Lancashire, 1993) or as a detailed document on policy objectives and implementation procedures (University of Northumbria, 1993).

Environmental reviews in UK universities tend to concentrate upon the same issues as other sectors, with an added emphasis on the role of environmental curricula, training for staff within the university, environmental awareness,

catering, site maintenance and design, research and transport. Obviously universities are at an advantage over other types of organization in having environmental expertise (academics) and human resources (students) to help with this stage of an EMS.

Therefore implementation of environmental policy in Universities tends to take different approaches depending upon the particular circumstances of the institution. Some universities implement environmental management policy through student projects into areas such as energy or transport (University of Greenwich, University of Sunderland), others employ external consultants to carry out energy audits or environmental reviews (University of Middlesex), others employ environmental officers and develop environment committees to oversee policy implementation by line management and departmental environmental representatives (University of Northumbria, University of Central Lancashire) and others such as the University of Strathclyde have adopted a more formal strategy for EMS development using BS7750 as a framework and are working toward accreditation (Wallis 1994, Local Government News 1993).

One common problem in FHE's (and in other organizations) is the ability to secure resources for EMS initiatives and staff after a policy has been implemented and a review has been carried out. Unfortunately environmental issues have become less of a priority in FHE's recently due to changes in the allocation of government funds, management is reluctant to divert resources away from more important issues such as increasing student numbers and research appraisals.

The Toyne Report (1993) drew upon the experiences of Universities developing EMS and curriculum initiatives and came up with the following proposals regarding EMS and funding. These proposals are currently being considered by Government and carried out by many FHE's:

- Every FHE institution should adopt a comprehensive environmental policy statement by 1994/5.
- An EMS should be developed to implement the policy and achieve environmental targets.
- Students should be involved in project work related to the environmental strategy's development, implementation and monitoring.
- FHE funding councils should reward the adoption of sound environmental practice in institutions which they fund (HMSO 1993).

Toyne (1994) suggested that there had been a positive response on the whole to the EMS recommendations of the report, but that most institutions were concentrating upon developing an environmental policy statement rather than developing a management system. He also suggested that at present there is a stalemate regarding the funding councils and government in providing financial incentives for environmental management initiatives.

Despite this inertia regarding central funding, EMS activity is likely to grow in UK FHE institutions. The FHE sector due to the Toyne report, is aware of the need to promote an environmentally literate society, and to become environmentally responsible, and will also be aware of the potential recruitment and financial

benefits that are likely to occur through environmental management. By developing environmental curricula and EMS involving students, FHE institutions will also be making a positive contribution to Local Agenda 21.

Environmental Management Systems in Conservation

Conservation organizations are also becoming aware of the need to develop EMS. Certainly, as "environmental" organizations they should be demonstrating sound environmental practices, and setting an example to members, the general public, and the organizations that they deal with, in the areas of resource consumption, waste reduction, energy management, and water management. These organizations should be showing a total commitment to Agenda 21, not only in their central roles of managing the countryside, habitats and wildlife, but also in their role as an organization in developing policies and practices that are sustainable.

Larger voluntary conservation organizations such as The National Trust (Jarman 1992) and the Royal Society for the Protection of Birds (Richardson 1994), which own large areas of land and have large memberships, have been very active in environmental management. They have carried out environmental reviews, established objectives and targets and a programmes of management, and are developing environmental policy. Both of these organizations are using BS7750 and EMAS as loose frameworks in developing EMS, whereas the Worldwide Fund for Nature are aiming to eventually register with BS7750 (Netherwood 1994b).

The UK conservation quangos (quasi-autonomous non-government agencies) are also becoming involved with EMS. English Nature, Countryside Council for Wales and the Countryside Commission all have policies aimed at achieving sustainable practices, and have published position statements on sustainable development. In the case of Scottish Natural Heritage the need to develop EMS is fundamental, they have a statutory obligation to make sure that they consider sustainable development in all policy and practices [32]. It should follow that a similar obligation is made in the imminent merger of English Nature and the Countryside Commission [34].

Environmental Reviews and EMS activity in conservation covers issues similar issues to other sectors with greater emphasis on areas such as agriculture, property management, investment, sponsorship and the use of environmental criteria in grant conditions (Netherwood 1994a).

Smaller voluntary nature conservation organizations are also beginning to realise the ethical need to investigate their environmental impacts. Wildlife Trusts which are supported through private donations and sponsorship need to demonstrate that donations have been made in the knowledge that Trust activities minimise damage to the environment, and that sponsorships are ethically sound. Cumbria Wildlife Trust have considered this in carrying out an Environmental Review to highlight potential areas of environmental impact and to develop policies and practices to mitigate them (ibid).

Therefore, conservation organizations which are heavily involved in attempts to deliver local sustainable development, are developing policies and EMS to place their own activities in a wider environmental framework. This should enable them

to work towards local, national and global Agenda 21 targets knowing that their own contribution to environmental problems are being minimised.

Conclusions

Environmental management systems are being used as a tool to implement organizational environmental policy in the private, local government, education and conservation sectors in the UK, and elements of "best" practice can be found in the EMS being developed within all of these sectors. There is no doubt that BS7750 and EMAS will provide a good framework for these organizations to begin to consider their environmental responsibilities. However, there are concerns that externally assessed EMS will be too bureaucratic, and too long term to justify the allocation of human and financial resources necessary in many organizations. It is likely therefore that these EMS schemes will be used as a "toolbox" to develop environmental management practices.

There are many organizational barriers to the development of an effective EMS i.e.; existing pressure of work on staff; resistance to perceived interference; existing pressure on limited resources; bureaucratic management structures; devolved financial management. This means that EMS practice in dependent upon the particular situation of particular organizations. EMS are also very often based upon ad hoc financial and staffing arrangements, and are subject to change due to trends and political and financial factors within and outside the organization.

However, one common factor determining the success of an EMS seems to be the degree of integration of environmental management responsibilities into the existing management structure. In this respect the development of an environmental policy is fundamental in ensuring that resources are allocated to the EMS, staff become environmentally aware, educated and responsible, and that practical improvements are made in an organization's environmental performance.

References

ALI KHAN, S. (1990) *Greening Polytechnics.* Committee of Directors of Polytechnics.

ALI KHAN, S. (1992) *Colleges Going Green.* FHE Council for Environmental Education.

THE BODY SHOP INTERNATIONAL (1992) *The Green Book: The Body Shop Environmental Statement.* The Body Shop International. Littlehampton.

BSI (1993) Quarterly progress reports on BS7750 Pilot Programme 1-4. Unpublished.

BSI (1994) *British Standard for Environmental Management Systems: BS7750.*

CALLENBACH, E., CAPRA, F. and MARBURY, S. (1993) *The Elmwood Guide to Eco-Auditing and Ecologically Conscious Management.* The Elmwood Institute. California USA

EAGAN, D.J. & ORR, D.W (Eds.) (1992) *The Campus and Environmental Responsibility. New Directions for Higher Education.* Jossey Bass. San Francisco.

EUROPEAN COMMUNITY (1993) *Official Journal of the European Communities amended proposal for a council regulation (EEC) allowing voluntary participation by companies in a Community Eco-Management and Audit Scheme.*

ENDS (1994a) Beck and Pollitzer: BS7750 by the back door. 229 . p 21.

ENDS (1994b) BSI completes revamp of BS7750. 229. p 22.

FRIENDS OF THE EARTH (1989) *The Environmental Charter for Local Government.* FoE.

HEMMING, C, Dr (1993) The EC Eco-Management and Audit Regulation: Experiences of the Pilot Exercise. *Eco-Management and Auditing.* Vol. 1. No. 1. p. 3–6.

HEREFORD CITY COUNCIL (1992) *Summary Environmental Statement; Register of Effects and Environmental Audit; Summary of Recommendations* (BS7750).

HMSO (1993) The Toyne Report – *Environmental Responsibility in Further and Higher Education.*

JARMAN, R. (1992) "The National Trust's Environmental Audit" *Ecos* 13 (1) p37-42.

KEATING, M. (1993) *The Earth Summit's Agenda for Change: A plain language version of Agenda 21 and the other Rio Agreements.* Centre for our Common Future. Geneva.

KETOLA, T. (1993) "A comparison of the Environmental Policies of the largest oil corporations in the world" *Business Strategy and the Environment* Vol 2 No 3.

LANCASHIRE COUNTY COUNCIL (1991) *Lancashire: A Green Audit.*

LANCASHIRE COUNTY COUNCIL (1991–1993) Better Environmental Practices Strategy Reports. Unpublished.

LANCASHIRE COUNTY COUNCIL (1994) Better Environmental Practices Strategy Review Proposals. Internal Document.

LANCASHIRE ENVIRONMENTAL FORUM (1993) *Lancashire Environmental Action Programme* . Lancashire County Council.

LOCAL GOVERNMENT MANAGEMENT BOARD (1992) *Environmental Practice in Local Government.* Second Edition. LGMB.

LOCAL GOVERNMENT MANAGEMENT BOARD (1993a) *Environmental Appraisal of Development Plans: A good practice guide.* HMSO.

LOCAL GOVERNMENT MANAGEMENT BOARD (1993b) *The UK's report to the UN Commission on Sustainable Development: An Initial Submission by UK Local Government.* May 1993. LGMB.

LOCAL GOVERNMENT MANAGEMENT BOARD (1993c) *A Guide to the Eco-Management and Audit Scheme for Local Government.* HMSO.

LOCAL GOVERNMENT MANAGEMENT BOARD (1993d) *Greening Economic Development.* HMSO.

LOCAL GOVERNMENT NEWS (1993) "The in-house route to green management." July 1993. p. 8–9.

LOCAL GOVERNMENT NEWS (1993) "Councils and BS7750". April 1993. p.3.

McDONACH, K. (1994) "FHE's and BS7750" Conference Paper from Greening the Campus: Environmental management in Higher Education. Regents College, London 7.3.94.

MERRITT, J. Q. (1992) *University of Central Lancashire Environmental Audit Project. Volume 1 – Project Report, Volume 2 – Baseline Report.* University of Central Lancashire.

MERRITT, J. Q. (1993) *University of Central Lancashire Environmental Management Systems Project.* Final Report. Unpublished.

NATURAL HERITAGE (SCOTLAND) ACT (1991) Section 1.

NETHERWOOD, A. M. (1994a) *Cumbria Wildlife Trust Environmental Review.* CWT, Ambleside, Cumbria, UK Unpublished.

NETHERWOOD, A. M. (1994b) "Environmental Management Systems: Methodologies and Organizational Impacts". PhD Thesis. Pending.

RAEMAKERS, J. & WILSON, E. (1992) *Index to Local Authority Green Plans* Edinburgh College of Art. School of Planning and Housing. Research paper 44.

RAEMAKERS, J, & WILSON, E. (1993) "Local authority green plan machine rolls on". *Planning* 1004.

RICHARDSON, S (1994) Preliminary survey of FHE institutions response to the Toyne report and environmental initiatives. World Wide Fund for Nature. Unpublished.

ROYAL SOCIETY FOR THE PROTECTION OF BIRDS (1991–93) Progress reports on RSPB Environmental Practices Action Plan.

VON ROPENACK, A, Dr (1993) "Piloting the EC Eco-Management and Audit Scheme: The experience of BSB Recycling GMBH, Germany". *Eco-management and Auditing* Vol 1 No1 p 7-9

SPEDDING, L. S, JONES, D. M and DERING, C. J. (1993) *Eco-Management and Eco-Auditing: Environmental Issues in Business.* Chancery Law. London.

TOYNE, P. (1994) "The Toyne Report – a year's progress" Conference Paper from *Green Shoots on Campus* Green College, Oxford 26.4.94.

UNIVERSITY OF NORTHUMBRIA (1993) Environmental Policy Document.

WILLIS, K (1994) Results of a survey of FHE institutions and environmental activities. University of Manchester. Unpublished.

NEW CHALLENGES AND THE VOLUNTARY PARTICIPATION OF COMPANIES IN ENVIRONMENTAL MANAGEMENT AND AUDITING SYSTEMS

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Introduction

The rapid changes in the world economy and in some national economies have shaken the market position of many companies leading in some cases to bankruptcy or liquidation. At the same time these changes have raised new business opportunities. While formerly strong companies are losing strength, others are expanding their market opportunities in the field of existing and new technologies, products and services. Companies which realise and respond quickly to *new opportunities,* not only in existing markets but also in the so far 'undiscovered' fields, strengthen their market positions. The realisation of the so-called *"green opportunity"* coming from environmental protection has been regarded as an undiscovered business opportunity.

According to a British expert dealing with company marketing, market research and the possibility of finding new markets has been the focus of many company managers' attention. Their efforts have, however, been like "looking into the rear view mirror" when one looks at what has already happened. The majority of managers (as they were trained) aim at the maintenance and expansion of businesses, the promotion of efficiency and the solution of problems in their (traditionally narrowly defined) business activities. The concept of *"thinking about opportunities"* represents a totally different approach as the aim is to realise, find and design new opportunities. This requires a new way of thinking as new opportunities may occur at any time. They however *have to be noticed* because until they are realised the given opportunity and the benefits resulting from it are not at the disposal of the company. Recently companies have had the view that environmental issues do not need to be addressed, – they are like old age which will never affect them. However, it is high time to wake up! Even if a company does not want to deal with environmental issues regulations, environmental groups and the media will force them to do so.

Therefore company managers have recently realised ecological problems and "ecological openings", and manifestation of environmental criteria (primarily as a result of external constraint and stimulus) have come to the fore.

The Development of Environmental Auditing

In the late 1970s and early 80s the demand for *company environmental audits* as a means of addressing environmental issues appeared in the United States. Companies had to make proposals to solve the problems revealed during the audit, and their implementation was the way to become a 'green' company. In this way a new *methodology* (eco-auditing) developed as a *self-regulatory tendency.*

A specific reason for of the introduction of the eco-audit in the United States was the increasingly higher costs of environmental problems resulting from breakdowns, accidents and 'ordinary operation' at different companies. Company managers in the USA are personally accountable for damages, that is, financial responsibility falls on the person in charge and not on the company. Also insurance companies were next to 'force' eco-audit, so that they could estimate *environmental risks.* Auditing includes the analysis of compliance with laws, too, to avoid liability claims.

European developments indicate similar features but some fundamental differences. Eco-audit in Europe is interpreted as *part of the management system.* According to this view the operation of the environmental management system will solve environmental problems.

For companies, therefore, environmental protection, is the task of the management including environmental, legal, administrative and organisational aspects.

There are two types of *eco-audit*:

- *audit aimed at results* which looks at how much a given company at a given period meets environmental regulations (a static concept),
- *system oriented audit* which, in addition to the investigation of the environmental state of the company, also looks at the environmental management system (a dynamic concept).

The Directive of the Council of European Communities issued on July 29, 1993 (1836/93/EEC, Voluntary Participation of Industrial Companies in the System of Environmental Management and Eco-Audit), by this analysis proposes a *system audit.* On the basis of the methodology drafted in the Directive, the task is to audit (and periodically to supervise) whether the environmental management system meets the Directive and the regulations in force, the companies objectives and societal expectations.

The Council gave among others the following reasons for the introduction of the Directive:

- industry is liable for handling environmental impacts resulting from its activity, therefore must actively participate in the reduction of environmental problems,

- this responsibility obliges companies to develop and realise their environmental policies and establish their environmental management systems. Companies must pursue environmental policies which ensure not only the compliance with legal regulations but also assumes obligations for continuous improvement of environmental measures and for the establishment and operation of an environmental management system involving the employees,
- the introduction of the environmental management system must have identical conditions in the countries of the European Union as the countries are similar and the relevant international standards are identical. Therefore consistency must be assured amongst the Community, and national, European, and international standards and regulations in the field of environmental management and auditing systems. In drafting this Directive particular care was given to not impose obligations which, taking the international, community and national regulations in force, would compel the companies to meet dual expectations,
- companies should be encouraged to *voluntarily participate* in environmental management and auditing systems.

With the enactment of the Directive voluntary participation of industrial companies in environmental management and auditing systems may take place. The operation of the system is expected to improve the environmental performance of participating companies with periodical evaluation and recommendations for changes in their environmental policies, programs and management systems. An important element of the system is the information available to the public about the environmental performance of the company .

The Directive includes the *conditions* the companies, trying to participate in the system, must meet. These conditions are as follows:

- to produce a company environmental policy. The Directive not only stipulates compliance with the legal requirements and regulations but the environmental policy must include all the goals and measures necessary to reduce the extent of the burden on the environment to the level which is equal to the extent of burden achieved by the best accessible technology (BAT),
- companies should have an environmental assessment carried out. On the basis of the assessment an environmental program must be drafted. Then the operational conditions of the environmental management system should be set up and the system audited. An environmental declaration must be prepared, according to the criteria given by the Directive. Following the approval of the declaration the "competent authority" will receive it and the public will be informed.

Auditing under the European Directive

Either the internal experts of the company or an *external* auditing firm can carry out the *internal* audit. In both cases an essential requirement is to carry out

auditing on the basis of the *criteria* drafted in the supplement of the *Directive.* Auditing usually has to be carried out every three years taking the activity of the company into account. The management has to determine the *frequency* (again only within the limits determined by the Directive). An accredited environmental supervisor enforces the auditing procedure and the drafted (in case of repeated auditing the modified) environmental policy, program, environmental management system and environmental declaration. A precondition of enforcement is that the supervisors following the investigation of the company documentation, on-site inspection and discussions with the employees, draw up their report (for the company management) approving the company declaration. The environmental supervisor can approve the environmental declaration only if it meets the conditions of the Directive.

Environmental declaration

The environmental declaration is drafted following the initial environmental assessment and auditing of the company site. The declaration must be made *public* in a brief, concise form comprehensible even for layment. If there have been former audits and declarations, the current declaration must include the changes that have taken place in the meantime. In the period between two audits the company must make *simplified environmental reports* every year. This report in fact is a summary of the figures for pollution sources, types and quantity of pollution, waste generation, material and energy consumption, water consumption, noise emission and other significant environmental impacts (depending on the decision of the environmental supervisor small subsidiary sites of big and medium-scale companies need not make annual environmental reports).

Task of the environmental supervisor

The Directive enables the individual countries to decide about the authorisation and supervisory systems of environmental supervisors. The member countries however must however set up a body to enforce the regulations within a year of the enactment of the Directive. The composition of this body must guarantee independence and impartiality. The same principle also applies to environmental supervisors:

The task of the environmental supervisors is to examine existing environmental guidelines, programs, the environmental management system, auditing procedures and environmental declarations, as well as the enforcement of the latest environmental declaration. They must check whether the data in the declaration is accurate and whether the declaration covers all important environmental impacts.

Registration of company sites

The body responsible for the compliance with the rules of the Directive following the receipt of the environmental declaration enforced approved by the environmental supervisor, will *register* the company (the site) and provide it with a registration number.

If the site violates the environmental regulation in force the body will suspend the registration of the site (or in case of an ongoing application will reject registration). The body will keep the registration list up to date, will publish it at the end of each calendar year and send it to the Commission of the EC.

In drafting the Directive, the Council of the European Community highlighted the need to achieve the voluntary participation of small and medium-size companies in the system. To this end the Directive calls for the member states to take measures which will help the managers of small and medium-size companies to develop expertise, to have access to information and to meet the rules included in the Directive by the establishment of the environmental management system.

The adoption of the Directive forms a *new direction* in the environmental policy of the European Union, because, as it has become clear above – the Directive is not about one methodology which looks at whether the environmental activity of a company fully meets the regulations, but about *a management technique* which enables the company:

- to supervise its environment policy regularly
- to assess the efficiency of the goals set out in advance
- to determine its environmental program and the means

The EC Directive stipulates, for the company management, the most important and essential requirements for a company to become 'green'. These recommendations may be interpreted as the 12 'commandments' of environmental management:

1. the management (the top management) drafts and continuously updates the environment policy and program of the company,
2. the management – co-operating with managers at lower levels – strengthens environmental awareness of the employees, responsibility for the environment,
3. the management – before the introduction of each new technology, new product or new activity – assesses impacts on the environment (to avoid environmental damage),
4. the management continuously controls and evaluates the environmental impacts of technologies and activities (promoting the improvement of environmental awareness also in this way),
5. the management continuously endeavours to minimise the environmental impacts of its activities; the endeavour of the management is to minimise waste, and to save resources (this attitude is an integral part of company management),
6. the management takes the necessary preventive measures to avoid material and energy emission from accidents (environmental safety),
7. the management (as a means of company management) establishes and operates the eco-control system and uses eco-balances for the continuous ecological assessment of company performances, processes (eco-control with material and energy balances of companies),
8. the management continuously checks the realisation of the objectives,

9. the management establishes good co-operation with local authorities, and ensures information for the public on the environmental state of the company,
10. the management takes the necessary measures to make contractors working at the site company comply with environmental regulations,
11. the management creates and continuously operates the environmental monitoring system to update the registration of environmental impacts, in this way promoting compliance with environmental regulations,
12. the management provides adequate information for consumers about the characteristics of the life cycle of the products from the company (both user and waste phases).

On the basis of the EC Directive the elements of the company environmental management system are the following:

- environmental policy (goals and principles)
- environmental programs (description of specific goals and measures)
- environmental organisation (responsibility, scope, communication),
- environmental education (training, further training),
- eco-control (serves design, regulation and control of material and energy flow),
- environmental company audit, with the task of assessing the environmental management system and the promotion of the establishment, operation and development of the system.

BS7750 in the UK

Of the European Community countries, the UK was the first to standardise environmental management systems which in March 1992 Standard BS7750 (Specification for Environmental Management Systems) was issued.

BS 7750 does not set specific environmental goals, but requires more than compliance with goals determined in law.

The aim of Standard BS 7750 is "to enable any organisation to establish an efficient environmental management system". The structure and methodology of the standard meets BS 5750 (quality) standards.

BS 7750 is a *general* standard, which can be used anywhere. A documented system is a guarantee that the company meet the drafted environmental policy and goals, and the only requirement is that the new system should comply with legal regulations and social expectations.

Comparison of the two regulations

1. The EC regulation refers to sites of industrial companies, primarily small and medium-size private companies, while BS7750 applies also to state-owned companies.

2. The EC regulation is limited to auditing at sites, BS7750 covers the whole company.
3. The EC regulation requires the companies to publish environmental declarations (environmental impacts, numerical values of emissions and the evaluation of impacts) and to publicise the environmental policy, program and management system of the company. BS7750 requires only environmental guidelines and goals to be in place.

A fundamental benefit of both systems is that company environmental management is not 'end of pipe' any more. Both of them highlight *prevention*. The goal in both cases (although BS7750 is more efficient in this respect) is to develop *Total Environmental Management*.

The need to establish *quality systems* and auditing is closely related to environmental management. Hungarian companies can no longer avoid the application of *quality philosophies* (Total Quality Management – TQM) established in market economies. Introduction of quality assurance systems according to ISO 9000 (Hungarian Standard 29000) is an indispensable task of, especially, exporting organisations. The series of standards should be taken as regulatory means, which appear as a self regulatory trend for the company (economic organisation). Without their application market position cannot be obtained, retained or improved.

Enactment of the EC Directive aimed at the establishment of the environmental management system and the performance of environmental audits plays similar, often identical roles as this series of quality standards.

There are however significant methodological differences between the two systems (environmental management and quality). Therefore the simple adoption of the regulations of the standard series ISO 9000 or their possible modification to establish an environmental management system is not the solution. Environmental problems and the tasks to be solved are often different (are beyond quality requirements) and they also influence the establishment of environmental management systems. The adaptation of the regulations of BS7750 provides a better basis and means for the establishment of the environmental management system based on the EC guidelines.

The *challenge* for companies however in both cases is the same: if the company does not establish and audit the environmental management system it will struggle with the same difficulties as a company without quality systems.

The solution may be the "integrated management systems for quality and environment" with the advantage that quality and environmental management systems can be established and audited simultaneously.

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