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# Participation and Environmental Governance: Consensus, Ambivalence and Debate

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### **ABSTRACT**

During the past four decades the governance of environmental problems – the definition of issues and their political and practical resolution - has evolved to include a wider range of stakeholders in more extensive open discussions. In the introduction to this issue of Environmental Values on 'Environment, Policy and Participation', we outline some features of these recent developments in participatory environmental governance, indicate some key questions that arise, and give an overview of the collection of papers in this special issue.

# KEY WORDS

Environmental politics, governance, deliberative forums, participation, stakeholders, consensus

## INTRODUCTION

The involvement of stakeholders and the public in policy making is a recurrent theme of environmental governance. At least since the 1960s, when environmental politics became institutionalised within western developed countries, scientists, interest groups, the media and local protests have been significant in

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shaping the definition and resolution of environmental issues. However, two crucial differences can be identified in the participation and involvement of nonstate actors in the various stages of environmental policy making – from setting the agenda, via formulating policy programmes to their implementation – between the early phase (roughly from the 1960s until the early 1980s) and contemporary practices (since the early 1990s). First, in the main, environmental policy making during this early period was characterised by consensual arrangements between the state and industry, informed by (certain) science, while other stakeholders and publics were left to influence events from 'outside' the policymaking process. Second, in the early phase participation and strong non-state actor involvement were often interpreted as 'deviations' from the formal model or idea of a hierarchical state that developed and implemented environmental programmes independently from market and societal forces. The governance of environmental problems – that is, the definition of issues, the formation of policies and the introduction of measures to mitigate undesirable consequences - has evolved significantly over the past four decades. In a wide range of issues, acceptance of closed processes of decision making has given way to calls for the inclusion of a wider range of stakeholders and publics and for open and more deliberative policy-making forums. Or to put it more strongly: increasingly, nonparticipatory forms of policy making are defined as illegitimate, ineffective and undemocratic, both by politicians and by stakeholders themselves. While the degree and form of participatory processes and the kind of stakeholders involved in them differ from country to country, the general trend seems widespread.

This special issue of *Environmental Values* examines the causes and consequences of this shift in policy style, and the problems and possibilities raised by more participatory forms of environmental governance. In this introduction, we outline some of the key questions in and features of the development of participatory environmental governance, and provide an overview of the collection of papers in this issue.

# FROM 'OUTSIDERS' TO 'INSIDERS': STAKEHOLDER PARTICIPATION IN ENVIRONMENTAL GOVERNANCE

In his classic book on the subject, Albert Weale (1992) argues that the 1980s was a transition period in environmental governance in at least Western Europe, which saw the development of a 'new politics of pollution'. The old assumption that the protection of the environment would necessarily bring economic costs to bear was replaced by the notion that there need be no fundamental contradiction between environmental protection and economic growth. At least three sets of developments are behind this transition. First, the 1980s witnessed a more general debate on the welfare state in which 'strong states' were challenged in their capabilities to protect common interests and goods. In various areas and

countries relations between state and markets were redefined, in some cases resulting in strong neo-liberal programmes of privatisation and deregulation (the USA and the UK), while in other countries neo-corporatists structures were opened. In all cases, the state had to redefine its standard operating procedures to some extent. Second, after the initial phase of successfully constructing a state-dominated environmental protection programme in the 1960s and 1970s, in the 1980s criticism emerged on the failure of the national state to diminish and prevent environmental risks and degradation (cf. Jänicke, 1986). The environmental state was criticised for its ineffectiveness and inefficiency, and for not stimulating technological innovations. This stimulated new experiments in environmental governance, new alliances between state authorities and – as it was called in Orwellian Newspeak - 'target groups', and new ideologies on environment – economy trade off (Jänicke, 1993). Third, the new policy style reflects the changing characteristics of environmental problems during this period. The cross-media, inter-national and inter-generational character of some contemporary environmental concerns escapes the capacities of state authorities to 'react and cure' on a single-issue national basis. The move to a more integrated, 'anticipate and prevent' approach necessarily demands a more precautionary stance towards environmental risks, and justifies this position on the basis that 'pollution prevention pays' (Hajer 1995, 26–28). In so doing, the antagonistic debates between the state, environmental and economic groups that were so characteristic until the 1980s are to some extend reduced through the focus on common interests. This shift in policy approach, towards what some have labelled ecological modernisation (Spaargaren and Mol 1992, Hajer 1995, Mol 1996), 'opens up spaces for, and makes possible, the development of new alliances and new roles for states, market actors, and the environmental movement' (Bostrom 2003, this issue).

As Tatenhove and Leroy (2003, this issue) argue in their paper, the shifting dynamics between state and non-state actors within the environmental policy arena are reflective of broader trends within the relationship between state and society. For some authors, the last two decades have witnessed a transition from government to governance, as the roles of the public, private and voluntary sector are restructured. Peters and Pierre suggest that, in effect, 'political power and institutional capability is less and less derived from formal constitutional powers accorded to the state but more from a capacity to wield and coordinate resources from public and private actors and interests' (2001: 131). In relation to environmental governance, the influential German social theorist Ulrich Beck has argued that politics is increasingly (un)organised around the theme of risk. As environmental risks proliferate, new 'conflicts of accountability' emerge as disputes erupt over how their consequences can be 'distributed, averted, controlled and legitimated' (Beck 1996, 28). In the face of this 'risk society', the conventional political institutions of modernity are increasingly irrelevant, inadequate or impotent as decision-making power, control and legitimacy increasingly locate outside the political system in economic, technological, scientific, community and consumption 'sites which were previously considered unpolitical' (Beck 1999, 93). The importance of 'unpolitical' sites in the governance of contemporary environmental problems is clear. Tatenhove and Leroy (2003, this issue) suggest that there is increasing evidence of the twin trends of the 'marketisation' and 'socialisation' of environmental politics. In the first, economic interest groups, consumers and individual firms are increasingly involved in the creation and implementation of environmental policy. For example, the development of 'partnership' initiatives between businesses and the state are symptomatic of state dependence on the co-operation of industry in order to address environmental problems. In Australia, the USA and several countries in Europe, to name but a few, voluntary reductions of greenhouse gas emissions by industry have formed a key part of government climate change policy (EEA 1997, Öko-Institute 1998). As Bostrom (2003, this issue) details in his paper, environmental groups have a key role in this process of marketisation through the setting and promotion of environmental standards. In a somewhat different setting Aksenova and Nedelkov (2002) analyse a similar recent tendency of what they label economisation in Russian environmental policy, where the diminishing power of the environmental state results in new arrangements and coalitions involving environmental NGOs and economic enterprises in environmental reform. The 'socialisation' of environmental governance involves the inclusion of a broader range of 'publics' in the process of decisionmaking, a trend which is discussed in detail in the following section.

The consequences of these shifts for the stakeholders involved, as well as for the mitigation of environmental problems, is ambiguous. On the one hand, by being on the 'inside' environmental organisations have clearly managed to influence state and economic interests, through, for example, the design of policies and new technologies. On the other hand, the argument is made that those who were on the 'inside' before – primarily influential economic interest groups – retain a privileged access to environmental decision making, and are only interested in taking those actions which have a clear, short-term, economic benefit. By pursuing the line of voluntary and partnership initiatives, it might very well be that less action to mitigate environmental problems is undertaken than would have been the case should regulatory measures have been introduced. In taking part in the processes of environmental governance from the 'inside', environmental groups also find themselves challenged. Bostrom (2003, this issue) suggests that in the case of designing environmental standards, it

both delimits the environmental organisations' repertoire of actions and shapes what it is possible to include in frames. On the other hand, it enables individuals and organisations to change practices in a concrete manner. Moreover, standardisation does not imply the end of power struggles within the environmental field.

Instead, it creates new forms, arenas and instruments for new more diffuse power struggles where competition and co-operation merge. (p. 190)

Finally, the 'participative turn' has also resulted in internal struggles and debate with the environmental movement, for instance between the 'realists' and the 'fundamentalists' in Germany and between the Washington D.C. based national organisations and the local groups calling for environmental justice in the USA. It is clear that there is much to debate on the issue of the role of non-state actors in the process of environmental governance. Some of these issues are tackled in this special issue by Bostrom and Carolan and Bell in their analyses of how non-state actors influenced the development of environmental policy in particular cases.

In identifying the changing relations between the state and non-state actors in the process of environmental governance, there is a danger that the continuities in policy styles and practices is neglected. As Tatenhove and Leroy argue, the 'participative turn' brought about by the politics of late modernity co-exists with other forms of participation and decision making which are already institutionalised. Moreover, we should not assume that increased involvement of stakeholders in the decision-making process is necessarily symptomatic of a loss of state power. As Gandy argues, 'the declining legitimacy of centralised stateled approaches to environmental management' has not led to an unbinding of politics but to new ways in which the state seeks to strengthen 'its interaction and dependence on both the private sector and civil society' (1999, 63). It is vital not to confuse 'a hollowing-out of state forms with a hollowing-out of state power', nor to assume that a linear trend of shifts from government to governance are taking place (Macleod and Goodwin 1999, 522). However, while the state remains a central actor in processes of environmental governance, it is clear that the respective roles and capabilities of state and non-state actors have not remained static.

## DEMOCRATISING ENVIRONMENTAL GOVERNANCE

The argument that the public should be more engaged in debates about environmental risk and sustainability has been well rehearsed during the 1990s. From the international arena, exemplified in documents such as Agenda 21 and the initiatives of the World Bank, to government policy initiatives, local policy and planning systems, scientists and business groups, there is an emerging consensus that the public need to be more involved in the processes of environmental decision making (Owens 2000; Bloomfield et al. 2001; Davies 2001). As Mason suggests, this interest reveals 'aside from any normative commitment to democratising policy making, the pragmatic acceptance of states that participatory

decision making more effectively generates relevant environmental information and democratic legitimacy.' (2000, 78). The growing body of literature on public participation, defined by Macnaghten and Jacobs as 'the involvement of ordinary citizens in both decisions about and the implementations of social and economic change' (1997, 6), has identified two distinct approaches to facilitate this process. The first, labelled the 'information deficit model', sees public education as the way forward for improving participation, while the second, the 'civic model', argues for more inclusive and deliberative modes of decision making (Blake 1999; Burgess et al. 1998; Macnaghten and Jacobs 1997; Owens 2000).

The rationale behind the information-deficit model is instrumental (Macnaghten and Jacobs 1997). Given the changing nature of environmental problems, and of the relations between state and non-state actors, the participation of citizens and consumers is seen as essential if policy measures are to be effective. However, the public are seen as ill equipped to take decisions and actions in the interest of the environment, due to their ignorance about the issues at hand. In persuasive logic, the solution to increasing public participation is therefore to provide further information – about the issues and what actions individuals can undertake - which will in turn lead to the implementation of environmental goals, for example, by increasing rates of recycling or lower use of fossil fuel energy. This approach is evident in public information campaigns, such as the 'Helping the Earth begins at Home' initiative launched by the UK government in the early 1990s to persuade people to improve home energy efficiency, the early 1990s campaign 'A better environment starts with you' of the Dutch government and more recently the 'Are You Doing Your Bit?' UK campaign, aimed more broadly at the sustainable development agenda. In effect, people 'are presented as individual agents acting 'rationally' in response to information made available to them' (Macnaghten and Jacobs 1997, 10) and their 'participation' is restricted to the implementation of predetermined policy initiatives (see also Blake 1999; Burgess et al 1998; Eden 1996; Macnaghten and Urry 1998). This model of participation has been prevalent from the early stages of environmental policy making in the 1960s.

This approach to understanding public environmental values and actions has been subject to a sustained critique. The 'persistent refusal of the public to have their allegedly irrational conceptions of risk 'corrected' by providing them with more information' (Owens 2000, 1142) has led researchers to look elsewhere for explanations of the apparent gap between public environmental values and actions. For example, in their exploration of public understanding of global environmental issues in the Surselva region of Switzerland, Jaeger et al. (1993) conclude that knowledge about climate change is a less important factor in determining behaviour than social networks and rules which sanction and enable mitigating actions. Research also suggests that it is the social and political context of risk and environmental problems, factors such as the trust invested in

institutions, or the perceived responsibilities of governments or industries to 'do their bit' first, as crucial in determining how willing publics are to participate in their resolution (Blake 1999; Bulkeley 2000; Burgess et al. 1998; Thompson and Rayner 1998). If what is important to the public 'is not the magnitude of risk but its meaning, what it suggests about their relationship with their government and their ability to participate in decisions, public and private, that affect their lives' as Sagoff (1988) argues, this model of improving public participation seems unlikely to be effective. Spaargaren (1997) has perhaps been most systematic in analysing the misconceptions that lie behind these 'de-contextualised' approaches in environmental reform through citizen—consumers.

Recognition that late modernity is characterised by a 'loss of faith and confidence in western countries in institutions and processes (political parties, trade unions, local authorities) which formerly enabled people to feel they had social agency (influence)' (Rose 1993, 93), has led other commentators to call for a more inclusive form of public participation in environmental governance; one which would not only enhance environmental decision making, but lead to a renewal of democracy. In this 'civic model', a more deliberative form of public participation is advocated for several reasons. First, new institutions are seen as necessary in order to rebuild relations of trust between publics and experts<sup>2</sup>, and counter the 'popular culture of participatory abstinence' (Davies 2001, 78) seen in many western countries. In their paper, Yearly et al. (2003, this issue) suggest that participatory processes can counter the loss of faith and trust in local government which members of the public frequently articulate. Further, this emphasis on new processes of participation reflects the equity concerns of the sustainable development agenda, a desire to ensure that 'communities of interest and neighbourhood have access to decision-making processes, and that these are not the preserve of the articulate and traditionally influential groups' (Young 1995, 110). Given the apparent failure of current methods of participation – for example, voting turnout is continuing to fall and public inquiries are seldom attended by members of the 'public' - new forums where deliberative participation can be encouraged are seen to be necessary. In their research in Bristol on public participation in air quality management, Yearly et al. (2003, this issue) argue that deliberative forums elicit higher levels of participation than are seen in traditional forms of public consultation. Second, the value of direct participation, in and of itself, is stated. Decisions made through a (local) participative process are regarded as intrinsically more 'good' and more right than others (Macnaghten and Jacobs 1997; Sagoff 1988). Third, and with echoes of the rationale behind the more mainstream 'information deficit model', deliberative participation is seen as a means through which public education, and therefore action, can be encouraged. However, rather than viewing the participation process as a means through which information can be passed to the public, it is heralded as a forum in which public values can be solicited and acted upon. Furthermore, participation and deliberation are seen as processes which can create different forms of rationality and civic virtue, which together can form the basis for better environmental decisions (Pellizzoni 2003, this issue; see also Dryzek 1990; Sagoff 1988).

These arguments have formed the basis for various experiments with public participation in environmental policy processes, including (but not limited to) consensus conferences, citizens' juries, roundtables and focus groups. In his paper, Pellizzoni discusses the implications of radical uncertainty, that is, where 'not only the means, but also the goals and structure of a problem are ill defined' for the development of Participatory Technology Assessment. Similar ideas of radical uncertainty and unstructured problem lie behind two major experiments on participatory climate change policy. The ULYSSES project (De Marchi et al. 1998) experimented with the participation of lay actors in various European cities in designing climate change policy. The COOL project (Metz et al., 2002; Hordijk et al. 2002) consisted of participatory experiments on formulating long terms climate change policies at three interdependent levels: the national level in the Netherlands, the European level and the global level. The issues involved are many and complex, and these experiments showed that such means of participation is no panacea for environmental policy, nor can 'one best participatory way' be formulated. Yearly et al. similarly conclude that the implications for the policy process are ambiguous. Behind the seemingly practical issues of who should be involved in such process of participation and how should they be integrated into existing policy-making processes, lie deeper questions of representation and outcomes (Bloomfield et al. 2001; O'Neill 2001; Owens 2000). Pellizzoni suggests that the conditions of radical uncertainty that characterise many of the risk and environmental issues in which such techniques are brought to bear may in fact undermine their validity. In such problems, the scope for 'deliberation' is limited, as actors come to the table with very different concepts of the problem and possible solutions, concepts which can not be welded into a consensus because of the incommensurability of different positions. Only by 'escaping' to the far future of 2050 did the COOL project manage to reach consensus on various climate change policy issues. This raises the further question as to whether consensus - frequently the goal of deliberative policy instruments – should be the measure of a successful process of participation (Flyvberg 1998, Owens 2000). In turn, this raises the critical issue as to 'whether there can be any direct correlation between a more participative democracy and environmental protection. ... there are no guarantees that procedural democracy will produce substantive environmental benefits if there are competing views of what the environment should be like and what it is valuable for' (Davies 2001, 80). The enthusiasm which has been shown for new modes of participation should be tempered by the recognition of the complex and fundamental questions that these processes raise, not least of which remains how they are to be integrated into processes of policy formation in which the views of a range of stakeholders, expert and public alike, are all considered valid. Yearly et al. (2003, this issue) conclude that the outcomes of public participation exercises are not straightforward, and that their integration into policy processes depends on a range of political factors over which the participants themselves have little influence.

#### **CONCLUDING REMARKS**

The question of participation has become central to contemporary debates about environmental governance. With growing complexities and interdependencies, new roles and positions of environmental states and environmental sciences, and the emergence of unstructured problems on the political agenda, participation is seen as crucial in any programme of environmental governance. The arguments in favour of a more participatory approach can be summarised as follows:

- it helps to bridge the gap between a scientifically-defined environmental problem and the experiences, values and practices of actors who are at the root of both cause and solution of such problems;
- participation helps in clarifying different, often opposite, views and interests regarding a problem, making problem definitions more adequate and broadly supported;
- participation has an important learning component for the participants which is reflected in the enhanced quality of, and the support for, environmental decision making;
- participation may improve the quality of decision making by preventing implementation problems, establishing commitment among stakeholders and increasing the democratic content.

But by the same token, participation also leads to much confusion, as in the practice of day-to-day decision making and implementation these benefits are not always realised. How to organise and institutionalise participation, who should be involved at what points in the decision-making process, how to prevent participation from paralysing policy making, and what is the goal of participation are just a few of the questions and problems encountered. Furthermore, participation is not just a matter of representing people, but of the ideas and values which they carry with them. As Carolan and Bell point out in their paper on the controversy about air pollution in Ames, Iowa, the 'disagreement is not only what the facts are, but which are the relevant facts worth looking for, and how to interpret them once we find them'. Who has participated in the process of environmental decision making is crucial in shaping the answers to these questions, and hence to the interpretation and resolution of environmental

conflict. As Pellizzoni suggests, the crucial question 'is not how much participation, but what kind of participation, by whom, to which purposes'. While broad consensus exists that participation is a key issue in future environmental governance, we witness ambivalence as to the various consequences of increasing participation for the stakeholders and the quality of the decisions. Consequently debates on participation increasingly focus on how to construct participation arrangements for distinct kinds of purposes. We hope this collection of papers will inspire debate on these issues.

#### **NOTES**

- <sup>1</sup> The term only works if 'political' is narrowly defined to the formal political system it would be foolish to suggest that non-governmental environmental and economic interest groups were not 'political' in a broad sense.
- <sup>2</sup> These two terms are contested and vary with context.

#### REFERENCES

- Aksenova, O. and Nedelkov, V. (2002). 'The environmental state in constant transition: Decentralization and economization in Russia', in A.P.J. Mol and F.H. Buttel (eds), *The Environmental State Under Pressure*. London: JAI/Elsevier.
- Beck, U. (1996). 'Risk society and the provident state', in S. Lash, B. Szerszynski and B. Wynne (eds) *Risk, Environment and Modernity: Towards a New Ecology*. London: Sage, pp. 27–43
- Beck, U. (1999). World Risk Society. Cambridge: Polity Press.
- Blake, J. (1999). 'Overcoming the "value–action gap" in environmental policy: Tensions between national policy and local experience', *Local Environment*, **4**(3): 257–78.
- Bloomfield, D., Collins, K., Fry, C. and Munton, R. (2001). 'Deliberation and inclusion: vehicles for increasing trust in UK public governance?' *Environment and Planning C: Government and Policy*, **19**: 501–513
- Bulkeley, H. (2000). 'Common knowledge? Public understanding of climate change in Newcastle, Australia', *Public Understanding of Science*, **9**: 313–33.
- Burgess, J., Harrison, C., and Filius, P. (1998). 'Environmental communication and the cultural politics of environmental citizenship', *Environment and Planning A*, **30**: 1445–60.
- Davies, A. (2001). 'What silence knows planning, public participation and environmental values', *Environmental Values*, **10**: 77–102.
- De Marchi, B., Functowicz, S., Gough, C. et al. (1998). *The ULYSSES Voyage, the ULYSSES Project at the JRC*. Ispra, Joint research Centre, European Commission EUR 17760EN
- Dryzek, J. (1990). *Discursive Democracy: Politics, Policy and Political Science*. Cambridge: Cambridge University Press.

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- Eden, S. (1996). 'Public participation in environmental policy: considering scientific, counter-scientific and non-scientific contributions', *Public Understanding of Science*, 5: 183–204.
- EEA (European Environmental Agency) (1997). Environmental Agreements. Environmental Effectiveness. Copenhagen: EEA
- Flyvberg, B. (1998). *Rationality and Power*. Chicago: The University of Chicago Press. Gandy, M. (1999). 'Rethinking the ecological Leviathan: environmental regulation in an age of risk', *Global Environmental Change*, **9**: 59–69.
- Hajer, M. (1995). The Politics of Environmental Discourse: Ecological Modernization and the Policy Process. Oxford: Clarendon Press
- Jaeger, C., Durrenberger, G., Kastenholz, H. and Truffer, B. (1993). 'Determinants of environmental action with regard to climatic change', *Climatic Change*, 23: 193–211.
- Jänicke, M. (1986). Staatsversagen. Die Ohnmacht der Politik in die Industriegesellschaft. München: Piper.
- Jänicke, M. (1993). 'Über ökologische und politieke Modernisierungen', Zeitschrift für Umweltpolitik und Umweltrecht, 2: 159–75.
- Hordijk, L. et al. (2002). Climate Options for the Long term: Final Report. Wageningen: Wageningen University.
- MacLeod, G. and Goodwin, M. (1999). 'Space, scale and state strategy: rethinking urban and regional governance', *Progress in Human Geography*, **23**(4): 503–27.
- Macnaghten, P. and Jacobs, M. (1997). 'Public identification with sustainable development: investigating cultural barriers to participation', *Global Environmental Change*, 7(1): 5–24.
- Macnaghten, P. and Urry, J. (1998). Contested Natures. London: Sage.
- Mason, M. (2000). 'Evaluating participative capacity-building in environmental policy: provincial fish protection and parks management in British Columbia, Canada', *Policy Studies*, 21(2): 77–98.
- Metz, B. et al. (2002). 'Climate Options for the Long term: possible strategies', in M. Kok, J. Gupta and E. van Ierland (eds), *International Climate Change Policies*. Cheltenham: Edward Elgar.
- Mol, A.P.J. (1996). 'Ecological modernisation and institutional reflexivity: environmental reform in the late modern age', *Environmental Politics*, **5**(2): 302–23.
- Öko-Institut (1998). Instruments for Sustainability. The Contribution of Voluntary Agreements to Environmental Policy. Darmstadt: Öko-Institut.
- O'Neill, J. (2001). 'Representing people, representing nature, representing the world', Environment and Planning C: Government and Policy, 19: 483–500.
- Owens, S. (2000). 'Engaging the public: information and deliberation in environmental policy', *Environment and Planning A*, **32**: 1141–8.
- Peters, G. and Pierre, J. (2001). 'Developments in intergovernmental relations: towards multi-level governance', *Policy and Politics*, 29(2): 131–5.
- Rose, C. (1993). 'Beyond the struggle for proof: Factors changing the environmental movement', Environmental Values, 2(4): 285–98.
- Sagoff, M. (1988). The Economy of the Earth. Cambridge: Cambridge University Press.Spaargaren, G. (1997). The Ecological Modernisation of Production and Consumption.Essays in Environmental Sociology. Wageningen: Wageningen University (dissertation).

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- Spaargaren, G. and Mol, A.P.J. (1992). 'Sociology, environment and modernity. Ecological modernisation as a theory of social change', *Society and Natural Resources*, **5**: 323–44.
- Thompson, M. and Rayner, S. (1998). 'Risk and Governance Part 1: the discourses of climate change', *Governance and Opposition*, **33**(2): 139–66.
- Weale, A. (1992). The New Politics of Pollution. Manchester: Manchester University
- Young, S. (1995). 'Participation out with the old, in with the new?' *Town and Country Planning*, April: 110–12.