

Legitimising Community Regulations Made Under Conditions of Scientific Uncertainty

The ECJ and Comitology

ABSTRACT

The regulation of scientifically uncertain risks to health and the environment requires political decisions. Such decisions considerably test the democratic legitimacy of the non-majoritarian regulatory institutions, which the Community increasingly uses to take them. The ECJ is responsible for reviewing decisions when they are challenged. I will examine how it uses this power of review to promote the democratic legitimacy of Community. In particular I will test the extent to which its jurisprudence promotes two principles of legitimacy, which I have adopted from theories of 'deliberative democracy' - deliberativeness and responsiveness.

In a separate project I will look at the comitology system, which has been mooted as a non-majoritarian institution that is ideally suited to promote the two principles of legitimacy. There are good reasons to suggest that it is deliberative, but I have doubts as to its responsiveness and will test the extent to which it satisfies this principle of legitimacy.

Some Initial Thoughts

When regulatory standards differ from one country to the next they act as barriers to trade because producers must comply with the rules of each country into which they wish to export their products. To prevent these barriers becoming too significant and to ensure adequate health and environmental protection the Community fulfils two distinct regulatory functions - it controls Member State regulation and produces its own harmonised regulation.

The Community has a broad power produce harmonised regulations 'directly affect[ing] the establishment or the functioning of the Common Market.'¹ Significant in this respect is the fact that environmental and health protection are accorded privileged positions in the EC

¹ Article 94 EC Treaty

Treaty, to be taken into account in the development of other policy areas.² The Community is further empowered by Article 95(1) to harmonise national health and environmental measures, taking as a base ‘a high level of protection’. Using Article 175(1) it may also harmonise national measures in order to achieve the environmental policy objectives referred to in Article 174, which include ‘a high level of protection ... based on the precautionary principle’.³

The institutions responsible for producing European regulation are largely non-majoritarian, by which I mean they have little democratic accountability. The delegation of ever more regulatory powers to such institutions has been a continuing trend ever since Member States conferred extensive powers of regulatory implementation on the Commission.⁴ Usually European regulations are broadly defined and the details are left to be filled in by the Commission, as and when necessary. Also, in the recent White Paper on Governance, there were proposals for the increased use of regulatory agencies, some of which are in the process of creation, such as the European Food Agency.

The legitimacy of non-majoritarian regulatory institutions is questionable in the light of what Joerges has described as a ‘rebirth of regulatory politics at the European level’.⁵ Fundamental to the idea of democratic legitimacy is that political power should ultimately be the power of the public. Citizens should not merely be addressees of the law, but also its ultimate authors. On the other hand, the European production of regulation is an on-going, never-ending and increasingly specialised process, which requires the continual involvement of dedicated experts. Consequently, there is a certain inevitability that decision-makers will be situated at some ‘distance’ from the peoples of Europe.

Scharpf theorises that democracy aims at self-determination, which is only achieved when political choices are derived from the public’s ‘authentic preferences’ and there is ‘effective fate control’ to achieve those preferences.⁶ For many regulatory problems Member States lack the effectiveness dimension and therefore European regulatory production becomes acceptable as the only means of fulfilling those preferences. The move towards a more ‘distant’ systems of governance is merely a reflection of the inability of the ‘closer’ system to realise the same benefits.⁷ The Community can prevent market fragmentation through harmonised regulation and simultaneously give those regulations a content that adequately protects health and the environment. The European public tacitly agree to forgo some control over the process of regulatory production in order to reap the benefits of a European response. In conclusion - there are legitimacy concerns about the use of non-majoritarian regulatory institutions, but when considering these concerns one must be careful to take into account the special functions of the Community.

Why is the regulation of scientifically uncertain risks political?

Some theories of the Community suggest that democratic control is unnecessary to legitimise its regulatory production. One theory is that if non-majoritarian regulatory institutions merely

² Articles 2, 6, 152(1), and 174(1) EC Treaty

³ Article 174(2) EC Treaty

⁴ Article 202 EC Treaty

⁵ C. Joerges, *The Market without the State? The Economic Constitution of the European Community and the Rebirth of Regulatory Politics*, in *European Integration online Papers* Vol.1 (1997) No. 19

⁶ F.W. Scharpf, *Economic integration, democracy and the welfare state* in *Journal of European Public Policy* 4:1 March 1997, p18, at p19

⁷ *i.e.* subsidiarity

transpose scientific advice directly into regulatory action, their decision-making is merely a process of rational administration, albeit one requiring considerable technical expertise. The legitimacy of this transposition is derived from the nature of science itself, which is portrayed as a uniquely independent and objective activity, which searches for universal and irrefutable truths about the world that are independent of and prior to any other source of authority, including that of democracy. The public is neither competent to deal with complex science-intensive regulatory matters, nor is its involvement necessary to lend these decisions legitimacy. Ezrahi has termed this the ‘autonomy of truth’,⁸ which encapsulates the idea that the closer a practice is to truth the more distant it is entitled to be from political control. In a similar vein, Majone argues that if the Community concerns itself only with economic integration and the regulatory harmonisation required to effect this, it can avoid re-distributive decision-making. If no re-distribution takes place and a regulation aims only to achieve ‘a solution capable of improving the conditions of all, or almost all, individuals and groups in society’⁹ then it may legitimately be made by non-majoritarian institutions.

The theories suggesting that democratic control is unnecessary to legitimise the European production of regulation are wrong because science-intensive regulatory decisions are inherently political and therefore require political control.¹⁰ Regulatory decisions that involve the balancing of economic efficiency with protection from scientifically uncertain risks to health and the environment are political for three reasons. Firstly, they involve the balancing of incommensurables (economic benefit vs. health and/or environmental protection), which cannot be done without some references to non-objective criteria. Secondly, scientific uncertainty can go to: the probability of damage; the magnitude of the potential consequences; or whether there is a causal link at all, which means that these incommensurables are also unquantifiable. Thirdly, applying Majone’s own criterion, there is a re-distributive element to these regulatory decisions. The chosen level of health or environmental protection affects the costs imposed on industry and consumers - neither of which forms a uniform class throughout the Community. More technologically advanced industries are able to absorb higher social, wage, as well as environmental and health protection costs, whilst remaining competitive through better productivity. More affluent consumers are in a better position to pay a premium for higher regulatory standards than are less affluent consumers.

Regulatory decisions under conditions of scientific uncertainty are therefore intensely political and test to the limit any theory, which aims to legitimise the non-majoritarian institutions involved.¹¹ Borrowing from Habermas, these regulatory decisions are not ‘technical questions’, which admit of an instrumental calculation but are ‘practical questions’ which are ‘posed with a view to the acceptance or rejection of norms, especially norms for action, the claims to validity of which we can support or oppose with reasons.’¹² If the setting of health and environmental standards ultimately requires and incorporates the values of the decision-maker it is only appropriate, in a democratic society, that there should be some mechanism by which the decision-maker is forced to take account of public concerns. One mechanism is periodic elections, but there are other ways.

⁸ Ezrahi, ‘The descent of Icarus: Science and the transformation of contemporary democracy’

⁹ G. Majone, *Regulating Europe*, p5

¹⁰ C. Landfield, *The European Regulation of Biotechnology by Polycratic Governance* in C. Joerges & E. Vos (eds.), *EU Committees: Social Regulation, Law and Politics* and P. Strauss, *From Expertise to Politics: The Transformation of American Rule-Making*, in 31 *Wake Forest Law Review* 761

¹¹ I. Pernice, *Auswirkungen des europäischen Binnenmarktes auf das Umweltrecht - Gemeinschafts(verfassungs-)rechtliche Grundlagen* NVwZ 201-211, at 210 *et seq.*

¹² J. Habermas, *Theory and Practice*, p3

What makes a regulation democratically legitimate?

Deliberative theories of democracy point to ways in which Community regulatory decision-making process could be better legitimised without the need for direct democratic accountability. Deliberative theories holds that legislative procedures should be structured so that the laws produced by them emerge out of a deliberative process in which objective arguments are employed in competition with each other such that the legal solution arrived at is based on the argument which is found to be objectively most persuasive. Whereas, the aggregate conception of democracy holds that democracy is merely a mechanism for aggregating conflicting interests within society in such a way that the legislature is persuaded to issue laws that satisfy the greatest number of people, to the greatest possible extent. Deliberative theories of democracy do not treat individual preferences as given, to be aggregated through the political process, but hold that they are contingent and open to the persuasion of the better argument.¹³ In that case, democracy is about rationally deliberating towards laws that are based on reasons acceptable to *all* those who are affected by them. To argue in favour of a law is not about promoting ones own strategic interests but is about providing reasons for that law, with the aim of convincing all those affected by that law why, in good will, they should rationally deem it to be equally in the interests of all. This form of deliberation must occur both within the political sphere (i.e. the institutions responsible for making the formal legislative decision) and also within the public sphere.¹⁴ Furthermore, the deliberation within the political sphere must be responsive to the parallel deliberation taking place in the public sphere. '[T]he outcomes of the broader public debate must be able to constrain the problem solving within the deliberative units. They have to remain sensitive to, and irritable by, the interventions of society as a whole.'¹⁵ In other words, regulatory institutions must be both *deliberative* (i.e. proceed on the basis of validity claims, rather than strategic bargaining) and *responsive* to the concerns, ideas, and issues emerging in deliberation within the public sphere.

If responsiveness were our only concern we could leave regulatory decision-making to be done at the national level. However, as well as being responsive, the decision-making process must also be deliberative, so that the regulations emerging from it are based on reasons which are acceptable to all those who are affected by them and are not merely the outcome of a battle of strategic interests. Bringing national actors together at the European level to produce common regulatory standards means that they must use the force of the better argument to persuade others of their favoured regulatory solution. They are 'civilised'¹⁶ by their exposure to 'transnational arenas scrutinising the validity of their arguments.'¹⁷ The worst excesses of parochial national decision-making are avoided.

What is the role of the ECJ?

When the Community controls Member State regulation, the ECJ acts as a constitutional court by enforcing a sort of economic constitution that aims at integrating the European market. When the Community produces its own regulation, the ECJ act as an administrative court and reviews the outcomes and procedures of the regulatory institutions involved. It centres its review (both constitutional and administrative) on the need for objective reasons and more

¹³ J. March & J. Olsen, *Rediscovering Institutions, The Organizational Basis of Politics*, p154

¹⁴ J. Habermas, *Between Facts and Norms*

¹⁵ O. Gerstenberg, *Laws Polyarchy: A Comment on Cohen and Sabel*, European Law Journal, Vol. 3, No. 4, December 1997, p343, at 354

¹⁶ Joerges & Neyer, p293

¹⁷ Joerges & Neyer, p298

particularly a requirement of scientific justification. This pivotal role of the ECJ gives it the opportunity, through its jurisprudence, to guide, proceduralise and structure the process of regulatory production at both national and European levels so as to promote deliberativeness and responsiveness. I will test how the ECJ's jurisprudence promotes, or indeed hinders, these two principles, which I have chosen as the two most important indicators of democratic legitimacy in regulatory decision-making.

When considering the extent to which the ECJ promotes responsiveness and deliberativeness through its review of the Community's regulatory process it will be necessary to consider issues such as: what obligations it has imposed on regulatory institutions to disclose the reasoning and scientific-technical criteria behind their decisions; any other transparency requirements; the extent to which it scrutinises the composition of regulatory institutions; whether it reviews the independence and objectivity of the experts appointed; what rights it has granted to affected parties or interest groups to participate in the decision-making process; what sort of interest it requires before it will allow an individual or interest group to challenge a regulatory decision; to what extent it reviews the quality and relevance of the regulatory knowledge used; to what extent it assesses the respect shown to wider social and ethical values; and to what extent it enforces the *Meroni* doctrine to limit the regulatory powers of non-majoritarian institutions to specific, well-defined, technical tasks such as the evaluation of technical and scientific information - preventing them from usurping regulatory powers, which are more appropriately exercised by democratically accountable institutions.

In order to better explain how I intend to analyse the jurisprudence of the ECJ, I describe below some more specific instances in which the ECJ has promoted deliberativeness and responsiveness:

Project 1: Does the ECJ promote deliberativeness?

The ECJ has used Article 253 (which requires that Community measures are accompanied by a statement of reasons) to impose a duty to disclose their reasoning, in a clear and unequivocal fashion, in such a way as to make the persons concerned aware of the reasons and thereby enable them to defend their rights.¹⁸ The ECJ points out that a statement of reasoning allows it to exercise its duty to review of that regulatory institution's decisions. This requirement also shows that the ECJ is interested in the quality of discussions taking place within the regulatory institution and this must indirectly promote their deliberativeness. The same can be said of the ECJ's insistence that if experts are to be consulted on a complex technical matter, the regulatory institution using them must ensure that they are appropriately chosen.¹⁹

The ECJ tests the necessity of national regulations according to the yardstick of scientific evidence. A national regulation that prohibits a product, which is authorised in the Member State in which it is produced, is not permitted if, taking into account the habits or conditions prevailing in the importing Member State, it is not considered harmful by international scientific research and in particular the findings of any relevant Community or United Nations scientific committee.²⁰ At the same time the ECJ has ruled that, whilst Member States must respect the findings of these scientific committees this does not mean that they must

¹⁸ Case 205/85 *Nicolet Instrument v. Hauptzollamt Frankfurt am Main-Flughafen* [1986] ECR 2049

¹⁹ Case C-269/1990 *Technische Universität München v. Hauptzollamt München-Mitte* [1991] ECR I-5469, see also the Advocate General's opinion

²⁰ Case 178/1984 *Reinheitsgebot* [1987] ECR 1227, paragraph 44

automatically follow their advice to the letter,²¹ particularly when there is some scientific uncertainty.²² But, in all cases, a Member State must take account of the scientific findings of these bodies and the onus is on them ‘to show in each case, in the light of national [conditions and] habits and with due regard to the results of international research, that the rules are necessary to give effective protection’.²³

When the ECJ interprets Community law to decide the legitimate modes and objectives of health and environmental regulation and consequently sets limits on non-majoritarian regulatory institutions, it in effect specifies that regulatory decision-making must occur within a particular set of norms and objectives that are not up for grabs, but which constitute the very rules of the game itself. This indirectly promotes deliberation by channelling the discussions taking place within a regulatory institution into a more limited and manageable number of problematic validity claims. An arena is created in which agreement is easier to achieve along deliberative lines, avoiding strategic bargaining.

Project 2: Does the ECJ promote responsiveness?

The requirement to provide reasons makes it more difficult for regulatory institutions to disguise what is genuinely a political matter as a purely technical-scientific one. This indirectly forces regulatory institutions to be responsive to public concerns or at the very least show that they have considered them, even if only to reject them.

In the *BSE* case,²⁴ the ECJ developed a theory of the precautionary principle to be applied when it reviews regulatory decisions taken under conditions of scientific uncertainty. In effect, it created a weighted proportionality test, which involves two steps. Firstly, the precautionary principle must be triggered by the existence of a threshold level of scientific evidence, which the Advocate General described as ‘a real risk..., which ... no-one has been able to rule out’.²⁵ The degree of scientific evidence required to pass the threshold test must vary according to the nature of the risk and the potential magnitude of damage – a mere suspicion of catastrophic consequences might be enough, whereas more concrete evidence of far less significant consequences might not. Secondly, once the threshold test is made out; the ECJ asks whether or not the regulation was ‘manifestly inappropriate’.²⁶ A scientifically uncertain risk therefore functions to de-intensify the ECJ’s normal standard of review and thereby enlarges the margin of discretion available to the regulatory institution, who can use this to respond more sensitively to public concerns in the way they handle scientific knowledge. The ECJ appears in this way to promote responsiveness, or at least the capacity of the regulatory institution to be responsive if they so desire.

Also, civil society contains a whole host of NGOs and other interest groups that have the potential to stimulate and structure deliberation in the public sphere, as well as efficiently transmitting the results into the political sphere. It will be interesting to analyse the extent to which the ECJ has opened up regulatory institutions to inputs from these groups by giving

²¹ See also Case 272/80 *Biologische Produkten* [1981] ECR 3277 at 3292 and Case 2047/84 *Leon Motte* [1985] 3887 at 3904.

²² Case 174/1982 *Sandoz BV* [1983] ECR 2445, paragraphs 10, 16, and 17

²³ Case 304/1984 *Claude Muller* [1986] ECR 1511, paragraph 26

²⁴ Case C-157/1996 *The Queen v Ministry of Agriculture, Fisheries and Food, Commissioners of Customs & Excise, ex parte National Farmers' Union* 1998 ECR I-2211

²⁵ Opinion of the Advocate General Tesouro in Case C-180/96 and C-157/96, paragraph 22

²⁶ Case C-27/95 *Woodspring District Council*, (1997) ECR I-1847, paragraphs 37 and 38

them participation rights in the decision-making process and/or standing to challenge regulatory decisions.

Project 3: Is the Comitology system responsive?

With its Comitology decision²⁷ the Member States signalled their intent to retain some measure of influence over the Commission's exercise of their newly acquired regulatory powers, particularly in what they perceived as important and politically sensitive areas. Comitology is an institutional alternative to full delegation. Joerges and Neyer suggest that it combines the effectiveness of European regulatory solutions with the legitimacy of deliberativeness and responsiveness (although they do not use these terms). They argue that the Comitology system harnesses the responsiveness of national delegates who can act as vehicles for the delivery of national public concerns, reasons and issues into the European regulatory process. In particular, Member State government retain political control over the committees through the representatives they install on them. At the same time, the dynamics of committee discussions force delegates to be deliberative, rather than strategic when they are developing regulatory solutions. Delegates must clarify and objectively justify their own regulatory preferences while at the same time attempting to understand those of other delegates. The committees are said to be co-operative in style because a consensus satisfactory to all delegates must be reached. The emphasis is on the provision of reasons to sort out disagreements and search for commonalities through persuasion, argument and reason giving, rather than threats, promises and commands. Each delegate must seek to enlarge his or her own position so that it becomes compatible with something that others hold to be true. He has to speak from the position of what Mead has termed the 'generalized other'.²⁸

The arguments put forward by Joerges and Neyer for the deliberativeness of the comitology system are reasonably convincing, but comitology is only capable of rescuing the Community from its legitimacy problems if it is also sufficiently responsive. Their investigations have largely concentrated on how the comitology system generates deliberativeness. They explain far less about why delegates are responsive to the public and seem merely to assume that national representatives bring national public concerns to the table. This is by no means obvious and some studies suggest that this might not be the case at all. Indeed Joerges concedes that the 'constitutionality' of the comitology system is questionable 'if only because it takes place largely without public involvement and leaves the mediation of economic oppositions of interests and regulatory objectives at the mercy of non-transparent bargaining processes.'²⁹ Writers like Wessels claim that the comitology system has in fact *contributed* to the technocratization of Community policy-making. He argues that comitology has widened 'the gap between normal citizens and policy matters' due to the unequal chances of participation and its concentration on expert knowledge.³⁰ In addition, the Institute for Europäische Politik observes that 'Commission officials generally do not think that their committee significantly reduced the Commission's freedom, and even less that it has been set up to assure the Member States' control'.³¹ If Wessels and the Institute are right, comitology is unable to establish the necessary link between the public and political spheres and even if it were, it would not have any impact on regulatory policy.

Egeberg and Trondal suggest that the style of deliberation within the Community's committees depends upon whether they are expert committees under the Commission,

²⁷ 13 July 1987

²⁸ G.H. Mead, *Mind, Self and Society from the Standpoint of a Social Behaviourist*

²⁹ C. Joerges & Neyer, p14

³⁰ W. Wessels, *Comitology: fusion in action. Politico-administrative trends in the EU system*, 1998 *Journal of European Public Policy*, 5(2), 209-34, at p228

³¹ Quoted from G. Majone, *Regulating Europe*, p73

working parties under the Council, or comitology committees proper.³² They also suggest that Member States' control of delegates is often weak, particularly when preferences are loosely defined and delegates have a significant amount of discretion. Delegates often have superior information, which adversely affects the ability of Member States to supervise the delegates they install on these committees.

Delegates are also at risk of being captured by the Commission. Egeberg has shown that agency personnel who serve on technical committees are more likely to adopt a functional, (rather than national) orientation, with loyalty to their own technical discipline.³³ This he contrasts with officials who are employed at the ministry level. Presumably, the more time an official spends embedded in European structures, separated in time and space from his national affiliations, the more likely it is that he will transfer loyalty and allegiance to the European level.³⁴ Joerges and Neyer themselves observe that Member State representatives move away from being representatives of the national interests to being 'representatives of a Europeanised inter-administrative discourse in which mutual learning and understanding of each others difficulties surrounding the implementation of standards becomes of central importance.'³⁵ If this is the case, they may become detached from their own national publics and it is difficult to see how they are able to convey national public concerns into the European production of regulation.

All these conclusions have implications for the claims made about the comitology system's potential to rescue the community from its legitimacy crisis. I will test the responsiveness of the comitology committees by looking at the minutes of their meetings for evidence of which views are taken into account in the decision-making process and in particular to what extent national public concerns are brought into the discussions.

³² e.g. M. Egeberg & J. Trondal, *Differentiated integration in Europe: The case of the EEA country Norway*, 1999 *Journal of Common Market Studies* 37

³³ M. Egeberg, *Transcending Intergovernmentalism? Identity and Role Perceptions of National Officials in EU Decision-Making*, http://www.arena.uio.no/publications/wp98_24.htm

³⁴ J. Trondal, *Integration Through Participation*, <http://www.wu-wien.ac.at/eiop/texte/1999-004.htm>

³⁵ Joerges & Neyer, p289

BIBLIOGRAPHY³⁶

Books

- E-U Petersmann, 'International and European Trade and Environmental Law after the Uruguay Round'
- E-U Petersmann, 'The GATT/WTO Dispute Settlement System'
- J. Habermas, 'Towards a Rational Society'
- J. Ellul (1967), 'The Technological Society'
- M. Waterstone (ed.), 'Risk and Society: The Interaction of Science, Technology and Public Policy'
- Ezrahi, 'The descent of Icarus: Science and the transformation of contemporary democracy'
- D. Price (1967), 'The Scientific Estate'
- Merton, 'The normative structure of science' in 'The sociology of science: Theoretical and empirical investigation'
- Rushefsky (1986), 'Making Cancer Policy'
- P. Craig & G. deBurca (eds.), 'The Evolution of EU Law'
- H.C. Kunreuther & E.V. Gen (eds.), 'The risk analysis controversies: An industrial perspective'
- H. Lübbe, 'Der Staat'
- Weinberg (1981), 'Reflections on Risk Assessment'
- D. Nelkin (ed.) (1985), 'The language of risk: Conflicting perspectives on occupational health'
- U. Beck (1992), 'Risk society: Towards a new modernity'
- S. Jasanoff, 'Science at the Bar',
- S. Jasanoff, Markle, Petersmann, Pinch (eds.), 'Handbook of Science and Technology Studies'
- S. Harding (1991), 'Whose Science? Whose Knowledge?'
- McIntosh (1985), 'The background of ecology: Concept and Theory'
- S. Jasanoff (1990), 'The Fifth Branch'
- K. Lasok, 'The European Court of Justice: Practice and Procedure'
- J. Scott, 'European Community Environmental Law'
- J. Jans, 'European Environmental Law'
- H. Reece (ed.), 'Law and Science: Current Legal Issues, Vol 2'
- A. Boyle & D. Freestone (eds.), 'International Law and Sustainable Development'
- R. Howse (ed.), 'The World Trading System - Critical Perspectives on the World Economy, Vol. IV'
- Birnie & Boyle, 'International Law and the Environment'
- EU Petersmann (ed.), 'International Trade Law and the GATT/WTO Dispute Settlement System'
- A. de Mestral *et al.*, 'International Law Chiefly as Interpreted in Canada', 5th ed.
- B. T. O'Riordan & J. Cameron (eds.), 'Interpreting the Precautionary Principle'
- P. Sands, 'Principles of International Environmental Law, Vol. I'
- D. Freestone & E. Hey (eds.), 'The Precautionary Principle and International Law'
- F. Chang 'An Economic Analysis of Trade Measures to Protect the Global Environment' in 'The World Trading System - Critical Perspectives on the World Economy Vol. IV'
- Lyster (1985), 'International Wildlife Law'
- Thomas (ed.), 'Beyond UNCED: An Introduction'
- T. Jewell & J. Steele (eds.), 'Law in Environmental Decision-Making: National, European, and international perspectives'
- P. Sands (ed.), 'Greening International Law'
- J. Annerstedt & A. Jamison (eds.), 'From Research Policy to Social Intelligence'
- S. Elworthy *et al.* (eds.), 'Perspectives on the Environment'
- T. O'Riordan & J. Cameron (eds.), 'Interpreting the Precautionary Principle'
- H. Hohman, 'Precautionary Legal Duties and Principles of Modern International Environmental Law'
- M. Hession, 'Competence, Proportionality, and Equality Applied to Decision-making Under Uncertainty: BSE and the European Court'
- Gerd Winter (ed.), 'European Environmental Law: A Comparative Perspective'
- D. Freestone & E. Hey, 'The Precautionary Principle and International Law'
- C. Lister, 'EU Environmental Law: A guide for Industry'
- P. Craig & G. deBurca (eds.), 'The Evolution of EU Law'
- Lindblom (1965), 'The intelligence of democracy'
- R. Hester & R. Harrison (eds.), 'Risk Assessment and Risk Management'
- Collingridge & Reeve (1986), 'Science speaks to power: The role of experts in policy-making'

³⁶ In addition to articles, cases and books listed in the footnotes above.

Articles

- EU Petersmann, 'The Dispute Settlement System of the World Trade Organisation and the Evolution of GATT Dispute Settlement System Since 1948', (1994) CML Rev 1157
- S. Fries (1984), 'The ideology of science during the Nixon years' in *Social Studies of Science* Vol. 14, 323
- Prewitt (1982), 'The public and science policy' in *Science, Technology, & Human Values* 7(39), 5
- B. Wynne (1991), 'Knowledge in Context', in *Science, Technology, & Human Values* 19
- Majone (1984), 'Science and trans-science in standard setting' in 'Science, Technology, & Human Values' Vol. 9(1)
- S. Yearley (1989), 'Bog Standards: Science and conservation at a public enquiry', in 19 *Social Studies of Science*
- Rayner (1991), 'A cultural perspective on the structure and implementation of global environmental agreements', in 15 *Educational Review* 75
- Brickman (1984) 'Science and the politics of toxic chemical regulation: United States and European Contrasts' in *Science, Technology, & Human Values*, Vol. 9(1), 110
- J. Theys, 'Decision-making on a European Scale: What has changed in the relationship between Science, Politics and Expertise?' in *Science and Public Policy*, Vol. 22, 169
- P. Roqueplo, 'Scientific Expertise Among Political Powers, Administrators and Public Opinion' in *Science and Public Policy*, Vol. 22, 175
- K. Bradley, 'Comitology and the Law: Through the Glass Darkly' in (1992) 29 CMLRev 693
- M. Goncalves, 'Scientific Expertise and European Community Regulatory Processes' in *Science and Public Policy*, Vol. 22, 183
- L. Gündling, 'The Status in International Law of the Precautionary Principle' in 5:1, 2,3 *International Journal of Estuarine and Coastal Law* 25
- R.B. Stewart, 'International Trade and Environment: Lessons from the Federal Experience' in (1992) *Wash & Lee Law Review*, 1329
- J.L. Dunoff, 'Reconciling International Trade with Preservation of the Global Commons: Can We Prosper and Protect' in (1992) *Wash & Lee Law Review*, 1407
- J. Huymans (1995), 'Post-Cold War Implosion and Globalisation: Liberalism Running Past Itself' in *Millennium: Journal of International Studies*, Vol. 24, 471
- Theocharis & Psimipoulis, 'Where Science has Gone Wrong' in *Nature*, 17. October 1987, 329
- O. McIntyre & T. Mosedale, 'The Precautionary Principle as a Norm of Customary International Law' in (1997) *Journal of Environmental Law*, Vol. 9(2), 221
- Nelkin & Pollak (1979) 'Public participation in technology decisions: Reality or grand illusion?' in *Technology Review*, Vol. 81(8), 55
- D. E. Bernstein, 'Junk Science in the United States and the Commonwealth' (1996) 21 *Yale Journal International Law* 123

Other

- Commission Communication of the Precautionary Principle, COM (2000) 1, 2 February 2000
- B. Wynne (October 1992) 'Research cultures, policy cultures and innovation in the UK: Environment and clean technology', paper presented to the Science Policy Support Group London
- Royal Commission Report on Environmental Pollution, 21st Report, 'Setting Environmental Standards'
- Select Committee on Science and Technology Third Report, 23 February 2000, 'Science and Society'
- J. Adams, 'Cars Cholera and Cows: Virtual Risk and the Management of Uncertainty', Paper given at British Symposium on BSE/CJD, 10 September 1996
- WTO Secretariat, 'Understanding the WTO Agreement on Sanitary and Phytosanitary (SPS) measures' (May 1998), <http://www.wto.org>