ADAPTIVE POLICY, INSTITUTIONS AND MANAGEMENT
Challenges for Lawyers and Others

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The emergence of the modern idea of sustainability (also known as ESD in Australia) has fundamentally reshaped the fields of resource and environmental policy and management. This article — from the perspective of a non-lawyer — characterises new imperatives on policy and law, and interprets these through the concept of 'adaptive policy, institutions and management', emphasising the goals of persistence, information-richness, learning and participation. Such a construction places new demands on the law, on lawyers in their various roles, and on others. A number of areas are identified as important for lawyers to attend, including: the institutionalisation of Ecologically Sustainable Development nationally; the workable statutory expression of sustainability principles; the institution-building role of statute law; detailed investigations of law applied in natural resource management contexts; the environmental implications of market-oriented reform of resource management institutions; the design of sustained participatory structures; and the development of an 'environmental civics'.

From Environmental Management to Sustainability

In recent times, we have moved from narrow and relatively non-threatening constructions of managing the relationship between humans and environment to a deeper, broader and profoundly disturbing one. That move has been from end-of-pipe pollution control and putting a few places in supposedly sacrosanct reserves to the modern idea of sustainability; from marginal adjustment and clean-up to a suite of problems for research, policy and law involving deep, structural inconsistencies between human systems and the natural systems upon which they depend. Sustainability says that human and economic development are irrevocably linked to ecological resilience and well-being, that environmental, social and economic concerns must be integrated in public policy, and that decisions must be made in accordance with much longer time horizons. The standard definition of 'sustainable development', variously adopted or restated in policy, comes from the UN's World Commission on Environment and Development:[1]

> Sustainable development is development that meets the needs of the present without compromising the ability of future generations to meet

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1 WCED (1987) *Our Common Future*, Oxford University Press, p 43.

> their own needs. It contains within in it two key concepts: the concept of 'needs', in particular the essential needs of the world's poor, to which overriding priority should be given; and the idea of limitations imposed by the state of technology and social organization on the environment's ability to meet present and future needs.

This and other definitions have been argued over at length; this is not the purpose of this article.[2] Sustainable development is generally accepted to be a *process* — variable, difficult and multi-faceted — rather than a knowable end point. Sustainability is a fundamental system attribute, often equated with the notion of resilience or ability to withstand disturbance.[3] As an end goal, a 'sustainable' state of affairs is both far distant and, for some while yet at least, unknowable. This invites approaches emphasising the issue of longer term responsiveness and adaptiveness in policy, law, institutions and organisational capacity. For our purpose here, what matters more than definitions is that the idea is no longer a matter solely of rhetoric or theory, but one stated in a wide range of policy and law — albeit often very loosely. Statements of principles in national and international policy already set a standard for change significantly higher than current performance, so the immediate question is how we can address these principles. In the Australian iteration, these principles include: integration of environmental, social and economic policy in the long term; balancing of inter- and intra-generational equity; recognition of the importance of biological diversity and ecological life support systems; the precautionary principle; recognition of global dimensions; community participation; and use of new policy approaches (especially market instruments).[4]

From the first real suspicions of global ecological vulnerability in the 1960s to the seminal 1987 UN report establishing sustainability as a higher-order social goal, vague disquiet has matured to a theoretically and empirically well-established certainty of the need for deep change.[5] In the past decade, the rhetoric and flourish of the 1992 United Nations Conference on Environment and Development has been supplanted by either a grim realisation or a convenient deflection of the enormous difficulty of addressing sustainability problems. This should not surprise: sustainability problems — climate change, integrated catchment management, biodiversity conservation, land degradation, population-environment linkages, and so on — are

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2 For a discussion, see J Pezzey (1992) 'Sustainability: An Interdisciplinary Guide' 1 *Environmental Values* 321.

3 S Dovers and J Handmer (1992) 'Uncertainty, Sustainability and Change 2 *Global Environmental Change* 262.

4 Commonwealth of Australia (1992) *National Strategy for Ecologically Sustainable Development*, AGPS.

5 K Boulding (1966) 'The Economics of Coming Spaceship Earth', in H Jarrett (ed), *Environmental Quality in a Growing Economy,* Johns Hopkins University Press, pp 3–14; WCED (1987).

especially difficult as research and public policy problems.[6] Broadened and deepened spatial and temporal scales, pervasive uncertainty, possible ecological limits and thresholds, poorly defined policy and property rights and responsibilities, increasing demands for public participation, connections across problems, sectors and jurisdictions — such attributes make for problems different in kind, and arguably in degree, than traditional problems against which our capabilities in policy and law were fashioned.

The emergence of sustainability as a larger and deeper problem set than the 'environment' does two things. It makes the subject harder and more important, certainly, but it also makes it a more rewarding target for any discipline, or interdisciplinary alliance, that can progress it.

This article considers these difficult problems, the challenges they present, and what lawyers might do, in concert with others, to address them. The perspective is that of a non-lawyer, and licence is begged for any ignorance of the detailed art and craft of law. The many roles of the law and of lawyers are recognised, but space does not permit dealing with these in detail. The terms 'law' and 'lawyers' are used generically, covering the involvement of lawyers in practice, in research, in policy debates generally, and in specific discussions and processes regarding the intent and content of statutes and their relationship with other policy instruments. While it might be argued that there is little lawyers can do in policy formulation until the law is expressed in statute through the political process, the article suggests that this need not be, not should it be, a desirable state of affairs. Thus the message here is particularly aimed at legal research, legal training, and environmental law as it operates within broader policy debates, more than at lawyers in commercial practice. And where a challenge is expressed to lawyers to engage in some area more, it is always implicit that the onus is on others as well (policy-makers, scientists, managers, community representatives, etc.) to seek the necessary legal perspective.

The perspective of the article is interdisciplinary (some might say undisciplined), drawing on some key observations relating to ecology, public policy and environmental history. Being selective, these are:

- ◊ Ecological understanding is basic to sustainability, but is a scientific area in flux and redolent with uncertainty.[7] Recent work in ecology stresses unpredictability and long-term dynamic change in ecosystems, risk and uncertainty, and the necessity of blending site-specific understanding with landscape and broader spatial scale perspectives.

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6 SR Dovers (1997) 'Sustainability: Demands on Policy' 16 *Journal of Public Policy* 303.

7 R Peters (1991) *A Critique for Ecology,* Cambridge University Press; SR Dovers, TW Norton and JW Handmer (1996) 'Uncertainty, Ecology, Sustainability and Policy' 5 *Biodiversity and Conservation* 1143.

- ◊ Public policy faces great challenges regarding sustainability, and the needs of managers and stakeholders in actual situations of policy and management do not necessarily accord with what the academic field offers.[8] Resource and environmental policy and management grapples with inter-jurisdictional issues, long time frames, pervasive uncertainty, increasing public participation, and the application of a new range of policy instruments.[9] Literally thousands of regional organisations, community-based groups, local governments, catchment management organisations and others are seeking to make and implement policy in this area, relying on little or contestable advice on how to proceed.
- ◊ Environmental history is a nascent field, but one with great potential to inform current policy debates.[10] If sustainability requires thinking further ahead, then the obvious corollary is a further view back, to establish baselines of ecological condition and human impacts and to seek lessons or cautions from previous responses to environmental changes, whether in the further or more recent past.

With some trepidation at the prospect of making wrongful charges or exaggerations, but not of offending, this article begins with the proposition that environmental law in Australia, despite much valuable past and present service, has in some ways fallen behind the game in recent years. Administrative procedures and case law in planning (and yearnings that the *Franklin* case really did change things in practice) are necessary but increasingly insufficient. The bigger and deeper game is elsewhere, in the creation of flexible yet persistent institutions linking science, policy law and people.[11] Just as too much writing on 'environmental policy' has amounted to vicarious spectator sport, commenting on clashes from the sidelines but losing sight of the need to learn from experience and prescribe better ways forward, the law perhaps contributed unwittingly to a continuation of the policy *ad hocery* and amnesia characterising much resource and environmental policy over the years. More than that, the image of the law has been sullied from outside the discipline and the practice of law, with shallow claims of the

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8 Dovers (1997).

9 S Dovers (1995) 'Information, Sustainability and Policy' 2 *Australian Journal of Environmental Management* 142.

10 For a sample of the field, see S Dovers (ed) (1994) *Australian Environmental History: Essays and Cases,* Oxford University Press.

11 Strictly, institutions and organisations are different: see, for example, RE Goodin (ed) (1996) *The Theory of Institutional Design*, Cambridge University Press. However, I will conflate the two for convenience, and note that for the purpose here a set of organisations (e.g. those charged with management parks, or with monitoring water quality) and some significant individual organisations (e.g. those supporting the Murray–Darling Initiative) have sufficient longevity and presence to be discussed in the same terms as institutions.

ineffectiveness of regulation and highly political use of the epithet 'command-and-control' (who could support that!). The law remains strangely undefended by its own practitioners at times.

Moreover, there is too often a scarcity of legal research and associated policy development in some important, emerging areas of resource and environmental policy and management (for example, integrated catchment management). In the case of land and water resources R&D, legal research — although potentially of great import — has been significantly less well supported than policy, economic, social and of course biophysical research.[12] Addressing this shortage is an issue for legal researchers themselves, but also for legal practitioners, who can emphasise the need for explication and analysis of the law within policy and management processes, and for those agencies who fund research in resource and environmental areas.

This article proposes the outline of an agenda of engagement for the law — inevitably through joint enterprise with others — to rejuvenate resource and environmental law and to further achievement of the goal of sustainability. The core argument is for an 'adaptive' approach, where persistence, sustained public participation, flexibility and learning replace *ad hocery* and amnesia. In pursuing this argument, the article tries to put some firmer instruction on Iles' argument that 'adaptive management' would require significant changes to legal frameworks and approaches, given the often top-down and centralised character of law and the challenge uncertainty poses to law.[13]

Emerging Policy Imperatives

Despite rumours to the contrary, spread by those favouring convenient deflection rather than grim realisation of the size of the task, sustainability is alive and well as an idea and as a policy imperative. The Rio Declaration, *Agenda 21*, conventions on climate change, biodiversity, desertification and other problems, along with new arrangements within the UN system, equal as coherent a meta-policy setting as could be reasonably hoped for an recently emerged, higher order social goal. In Australia, the National Strategy for Ecologically Sustainable Development has enunciated broad directions and

12 See the discussion by D Farrier (1999) 'Legal Research for Natural Resource Management', in C Mobbs and S Dovers (eds) *Social, Economic, Legal, Policy and Institutional R&D for Natural Resource Management*, Land and Water R&D Corporation, pp 64–76.

13 A Iles (1996) 'Adaptive Management: Making Environmental Law and Policy more Dynamic, Experimentalist and Learning' 13 *Environmental and Planning Law Journal* 288. One should recognise at this point that the common law is one of the more persistent and (if at times reluctantly) adaptive institutions in modern society — 'The development of the common law is therefore organic, like the growth of a tree, whereas statute law may be compared to the abrupt erection or reconstruction of a building': D Gifford (1995) 'Law', in J Henningham (ed) *Institutions in Australian Society*, Oxford University Press, pp 73–88, at 78. I will nonetheless be alluding mostly to statute law here, given the relatively short time available for effective responses to sustainability.

informed literally many hundreds of national, state and local policies and programs, and the flavour of non-government and private sector positions.[14] Moreover, ESD principles are stated or implied in over 70 Australian laws and have been raised in 30-odd court and tribunal hearings.[15] One ESD principle, the precautionary principle, is stated in 29 Australian statutes and is attracting close attention by decision-makers, lawyers and scientists; it is also being lauded by many as an emerging common law doctrine. Sustainability is very much alive in public policy terms. That it has proved frustratingly difficult and slow to make progress is entirely expectable — instant policy gratification is not likely with a complex and difficult problem set, hence the need for longer term views and adaptive processes. Other higher order social goals are older and similarly contested and patchily achieved — for example, democracy, justice and equity.

The modern idea of sustainability, and its expression in policy and (to a lesser extent) in law, places demands on researchers, professionals, policy-makers and communities engaged in resource and environmental management. These demands can be gleaned from the literature and from policy, and summarised as follows:

- ◊ to improve information capacities, across the aspects of information gathering, manipulation, ownership and communication;
- ◊ to better establish iterative links and communication between science and policy communities;
- ◊ to improve policy and management coordination and integration across sectors, portfolios and jurisdictions;
- ◊ to extend the time horizons of and increase the longevity and persistence in policy processes and initiatives;
- ◊ to enhance policy and management learning across space and time;
- ◊ to improve capacities and techniques for policy instrument choice and comparative policy analysis;
- ◊ to provide clear policy directions and statutory mandates to improve institutional purpose and capacities;
- ◊ to enhance and institutionalise community participation in policy and management, within structures and processes appropriate to both substantive problems and relevant communities.

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14 Commonwealth of Australia (1992); C Hamilton and D Throsby (eds) (1998) *The Ecologically Sustainable Development Process: Evaluating a Policy Experiment,* Academy of the Social Sciences in Australia.

15 G Rose (1999) 'Australian Implementation', Paper presented to the International Workshop on the National Implementation of the Rio Principles, UN Department of Economic and Social Affairs, 12–14 January.

Few would disagree with these goals, although they may argue over how to pursue them — or indeed whether they are very likely to be achieved. The next section proposes one approach to pursuing these goals: an 'adaptive' approach.

An 'Adaptive' Approach

Many approaches to these merging demands have been proposed, generally advancing features favouring participation, recognising uncertainty and complexity and the need for integration and interdisciplinary endeavour, and for ongoing accrual of experience and information. These include integrated catchment management, ecosystem management and new, flexible approaches to regulation and its alternatives.[16] Of all the advocated approaches, I will concentrate on an extended view of 'adaptive management'. This was developed originally by ecologists confronted with uncertainty and complexity who, bringing the scientific method to the messier world of policy and management, construed management interventions as testable hypotheses designed to advance ecosystem management through explicit experimentation and learning.[17] Adaptive management promises an integration of ecosystem understanding and the realities of practical policy and management. Originally an ecologist-manager collaboration in bounded situations, adaptive management has more recently been extended to incorporate societal learning and institutional dimensions in multi-stakeholder, use and jurisdictional contexts.[18] The scientific method, appropriately qualified and adjusted, may offer something to the much-discussed but unfulfilled promise of policy learning.[19] The essentials of adaptive management can be stated as follows:[20]

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16 JS Syme, JE Butterworth and BE Nancarrow (1993) *National Whole Catchment Management: a Review and Analysis of Processes*, CSIRO Division of Water Resources; NL Christensen et al. (1996) 'The Report of the Ecological Society of America on the Scientific Basis for Ecosystem Management' 6 *Ecological Applications* 665; D Farrier (1996) 'Implementing the in-situ Conservation Provisions of the United Nations Convention on Biological Diversity in Australia: Questioning the Role of National Parks' 3 *Australasian Journal of Natural Resources Law and Policy* 1; N Gunningham and D Sinclair (1998) 'New Generation Environmental Policy: Environmental Management Systems and Regulatory Reform' 22 *Melbourne University Law Review* 592.

17 CS Holling (ed) (1978) *Adaptive Environmental Management and Assessment,* Wiley.

18 KN Lee (1993) *Compass and Gyroscope: Integrating Science and Politics for the Environment,* Island Press; LH Gunderson, CS Holling and SS Light (eds) (1995) *Barriers and Bridges to the Renewal of Ecosystems and Institutions,* Columbia University Press.

19 P May (1992) 'Policy Learning and Policy Failure' 14 *Journal of Public Policy* 331.

20 K Miller, N Allegretti, N Johnson and B Jonsson (1991) 'Measures for Conservation and Sustainable Use of Biodiversity', in VH Heywood (ed), *Global Biodiversity Assessment,* Cambridge University Press, pp 915–1061.

- ◊ Management interventions are made in an experimental manner so the outcome of the intervention can be used to reduce uncertainty about the system.
- ◊ Sufficient monitoring prior to and during the intervention enables detection of the management intervention and thereby allows managers to learn from past experience.
- ◊ Management interventions are then refined, based on feedback to managers, communities and other constituents.

Adaptive management amounts to a substantial departure from previous natural resource management approaches which have led to what has been described as a recurring pathology of 'crisis, conflict and gridlock' involving continued environmental degradation and institutional inability to deal with this.[21] It can be widened in scope and intent to include organisational, legal, policy, institutional and community participation aspects, toward the prospect of *policy-as-informing system*; an iterative, knowledge-based and participatory approach rather than an expedient, near-term problem-solving one. The broader notion of 'adaptive policy, institutions and management' (APIM) is attractive, but a large departure from how things are typically done now. Truly adaptive approaches would need to fulfil a number of *requirements*:[22]

- ◊ *Informational* — comprehensive, iterative, widely owned and accessible systems of research, monitoring and communication.
- ◊ *Intellectual* — integration across disciplines, methods, theory and practice.
- ◊ *Statutory* — legal status of policy processes and institutional and organisational arrangements for persistence and accountability.
- ◊ *Participatory* — democratised, open and transparent processes, with participation structured and enabled to be clear and persistent over time, ranging from inclusion in policy debates through to on-ground management.
- ◊ *Substantive* — situations suited to open-ended, experimental approaches, with sufficient 'spare capacity' in the natural system or human use to allow adjustments.
- ◊ *Political* — the will on the part of policy-makers and stakeholders to cooperate and persist over time, rather than engage in partisan lobbying.

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21 Gunderson et al. (1995) *Barriers and Bridges*.

22 SR Dovers and CM Mobbs (1997) 'An Alluring Prospect? Ecology, and the Requirements of Adaptive Management', in N Klomp and I Lunt (eds), *Frontiers in Ecology,* Elsevier, pp 39–52.

◊ *Institutional* — adequate institutional arrangements as prerequisite for all the above.

As a way of 'doing' policy and management, APIM has much in common with recent thinking in critical and political theory — that we should govern ourselves in inclusive, mutually informing and discursive ways.[23] Further, the idea of participatory adaptiveness very closely reflects what those involved in community-based programs desire, I would suggest, whether in one of the 4000 Landcare groups, in community-based ecosystem monitoring programs, or in one of the many catchment organisations in existence. Regional organisations in particular are seeking firmer yet flexible structures and processes as they seek to integrate social, economic and ecological dimensions in soundly based and practical ways.[24] What we are seeing in resource and environmental management in Australia, with the eruption of community-based programs and demands for learning approaches, is near enough to a (potential) living laboratory for such ideas. However, how well the current rash of community-based programs will serve over extended time frames is unclear, as many are likely, on historical evidence, to be abandoned by government in future.[25]

There are two levels where the complex and difficult demands of sustainability and adaptive approaches are being most noticeably pursued. The first is in emerging policy and management situations such as those mentioned above, typically via structures (whether formal or emergent) seeking to integrate across the three levels of government. The second is in interdisciplinary alliances such as green social theory, ecological economic, environmental history and adaptive management, where much innovative intellectual activity is occurring. I would propose that lawyers are insufficiently involved in either.

To finish this (very sketchy) portrayal of adaptive policy, institutions and management, there are two important caveats. First, the theory and practice of 'APIM' is scarcely developed — it is an attractive prospect, no more — and it draws upon some fluid and contested areas of intellectual and practical activity, such as ecosystem theory, policy learning and institutional theory. Second, 'adaptiveness' could easily serve as a veil for inactivity or the

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23 For example, J Habermas (1990) *Moral Consciousness and Communicative Action*, Polity Press; A Giddens (1994) *Beyond Left and Right: Self and Society in the Late Modern Age*, Polity Press.

24 The great range, scope and needs of regional arrangements in Australia, and their relationship (or lack thereof) to other scales, are thoroughly surveyed in J Dore and J Woodhill (1999) *Sustainable Regional Development: Final Report,* Greening Australia.

25 The political economy of Australian community-based programs has received relatively little attention: see J Woodhill (1995) 'Natural Resource Decision Making: Beyond the Landcare Paradox' 3 *Australasian Journal of Natural Resources Law and Policy* 91.

continuation of dubious practices, or encourage lowest common denominator outcomes when consensus building outweighs direction.[26]

Emerging Tensions: Markets, Law and Sustainability

Against the rising imperative of sustainability weigh other, relatively recent, policy and political trends, and these need to be considered closely in terms of their implications for implementing reforms of the kind likely to enhance sustainability. One is globalisation, a topic well beyond the scope of this article.[27] Two others — closely interrelated — are the rise of managerialism, and the significant reforms to public policy under the direction of neo-liberalism, a trend I will term 'marketisation'.[28] These raise a range of issues of relevance to the law.

Too little work has been done on the detailed environmental implications of managerialism and marketisation, but a few key possibilities can be canvassed.[29] Managerialism says that particular knowledge and skills are less important in public policy and administration than generic management and administrative approaches (especially economic ones), and this poses challenges for fulfilling the significant informational demands of adaptive approaches to sustainability and properly appreciating the peculiar attributes of sustainability problems. Marketisation of public functions — privatisation, outsourcing, self-regulation, corporatisation, diminishment of the state, and so on — poses significant questions also. Issues here include maintenance of monitoring and information systems during periods of institutional change, cross-sectoral or landscape integration across agencies and portfolios, the expression of community service and environmental obligations, and community participation in, for example, catchment management. Community participation in environmental management under marketised arrangements raises potential tensions between the public's roles as citizens or as consumers. The water sector in Australia is a particularly important case, where difficult policy and management tasks were only just being attended to when massive and rapid institutional change was initiated under the COAG

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26 Dovers and Mobbs (1997); Iles (1998).

27 For a discussion, see J Wiseman (1998) *Global Nation? The Politics of Globalisation in Australia,* Cambridge University Press.

28 Generally, see P Smyth and B Cass (eds) (1998) *Contesting the Australian Way: States, Markets and Civil Society,* Cambridge University Press; L Orchard (1998) 'Managerialism, Economic Rationalism and Public Sector Reform in Australia: Connections, Divergences, Alternatives' 57 *Australian Journal of Public Administration* 19; S Bell (1997) 'Globalisation, Neoliberalism and the Transformation of the Australian State' 32 *Australian Journal of Political Science* 345.

29 See R Eckersley (ed) (1995) *Markets, the State and the Environment: Towards Integration,* Macmillan; S Dovers and W Gullett (1999) 'Policy Choice for Sustainability: Marketisation, Law and Institutions', in K Bosselman and B Richardson (eds), *Environmental Justice and Market Mechanisms,* Kluwer Law International.

water reform agenda.[30] In exploring such issues, care must be taken to recognise the inseparable, yet often separately considered, trends of applying (or at least advocating) market mechanisms for specific policy problems, and the marketisation of organisations and institutions in a more general sense.[31] Much more has been written about market instruments (far outweighing the implementation of these instruments in any substantive sense) than about the more profound impacts of market-oriented reform on institutional arrangements.

It is somewhat sad that so little attention has been paid — by lawyers, even — to the staggering legislative review being prosecuted under the National Competition Policy: nearly two thousand state and Commonwealth laws being interrogated for 'anti-competitive' elements.[32] This total includes many environmental laws. No one would be taken seriously if they suggested the much more justified review of such a broad range of laws for 'unsustainable' elements. Environmental lawyers — guardians of the import of environmental law if anyone is — should feel abashed that such an oversight is so unremarkable.

Institutional change in recent years, driven by a range of influences including 'market principles', has seen some trends potentially at odds with the sorts of institutional directions implied by the concept of adaptive policies, institutions and management. Water and power utilities and other resource management agencies have been corporatised or privatised *en masse*, and it is unclear how this will impact on environmental performance in the longer term. Changes to the former Land Conservation Council under *the Environment Conservation Council Act* 1997 (Victoria) reduced public participation.[33] The unprecedented Resource Assessment Commission, an organisation explicitly informed by sustainability principles, lasted a mere four years.[34] And there has been a tendency to 'departmentalise' previously independent statutory authorities, either in a complete sense or through drawing these bodies closer to government departments (for example, the New

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30 J Stewart (1997) 'Australian Water Management: Towards the Ecological Bureaucracy?' 14 *Environmental and Planning Law Journal* 259; A Gardner (1998) 'Water Resources Law Reform' 15 *Environmental and Planning Law Journal* 377; DI Smith (1998) *Water in Australia: Resources and Management*, Oxford University Press.

31 Dovers and Gullett (forthcoming).

32 See S Dovers (1997) 'ESD and NCP: Parity or Primacy' and other contributions in M Cater (ed), *Public Interest in the National Competition Policy,* Public Sector Research Centre, University of NSW; House of Representatives Standing Committee on Financial Institutions and Public Administration (1997) *Cultivating Competition: Inquiry Into Aspects of the National Competition Policy Reform Package*, AGPS.

33 The historical setting to this change has been splendidly told in L Robin (1998) *Defending the Little Desert: The Rise of Ecological Consciousness in Australia,* Melbourne University Press.

34 D Stewart and G McColl (1994) 'The Resource Assessment Commission: An Inside Assessment' 1 *Australian Journal of Environmental Management* 12.

South Wales Soil Conservation Service, Great Barrier Reef Marine Park Authority, Australian Nature Conservation Agency). The benefits and dangers of such moves remain little analysed.

Environmental law and policy stand at a crucial point. We have stated that deep and long-term approaches are needed — even official policy says as much, but seems not to have the will to identify and pursue them. Further, there are other political and policy imperatives that at present outweigh sustainability. In a society subject to the rule of law, where we achieve things through institutions and where the community at the very least needs to know, this situation can only be addressed through the creation of lasting, inclusive policy processes and institutional arrangements of the kind alluded to here. Lawyers have a crucial role to play in that task.

Challenges for Lawyers and Others

To bring this article to some form of useful end, I will now suggest areas of activity for legal researchers and practitioners, in keeping with the themes and arguments discussed thus far. To clarify what might flow from developing the idea and potential applications of 'adaptive policy, institutions and management', I will isolate some core challenges for lawyers (and others, as the efforts will be necessarily interdisciplinary) that might be taken up in future. The following areas for attention are propositions for consideration rather than instructions; some might argue that these are not critical or are being attended to already, although I would argue that they are not.

- *National-scale institutionalisation of ESD.* The 1990–92 ESD process in Australia was innovative, productive within its limitations, and has flowed into much policy and some law in the seven years since the formulation of a national strategy.[35] However, it remains an incomplete project, especially in terms of statutory, institutional and organisational structures to give ESD persistence and form at the national scale, across sectors, problems and jurisdictions. While various possibilities have been put forward as institutional reforms, little real discussion or action has occurred. Possible reforms include: a national council, a commissioner, offices of ESD in first ministers' departments, statutory expression of ESD principles, an ESD research and development corporation, new portfolio arrangements, and so on.[36] Innovative arrangements combining more than one of these options, and more in keeping with the concept of adaptiveness, have been little discussed — for example, an inclusive council but with a strong statutory mandate and clear roles (such as cross-

35 Hamilton and Throsby (1998).

36 S Dovers (1998) 'Institutionalising ESD', in Hamilton and Throsby (1998), pp 21–40. This debate has been usefully reinvigorated by the Productivity Commission (1999) *Implementation of ESD by Commonwealth Departments and Agencies: Draft Report*, AGPS.

portfolio review, reporting to Parliament, state of the environment reporting, R&D, etc.). Lawyers would be crucial to discussing such options, and to their design.

◊ *The stronger and clearer enunciation of ESD principles as statutory objects.* Statutory design to enable policy implementation is a difficult enough area.[37] Little consistency or design is apparent in the range of ways in which ESD principles (e.g. integration of social, economic and environmental concerns in policy, the precautionary principle) have been expressed in Australia law. If these crucial principles are to inform policy, procedure and practice as they are (in theory) intended to, the interpretation of them by courts and tribunals will be hugely important. Interpretations to date and a thorough understanding of the theoretical and empirical basis of the principles should inform future legislative design, suggesting an interdisciplinary task calling upon, at minimum, law, ecology, economics and public policy and administration.

◊ One ESD principle in particular requires more thought by lawyers and others: the *precautionary principle*. One need is for clearer expression in statute law so as to render the principle more operational.[38] But another is for far deeper consideration of the nature of risk, uncertainty and ignorance relating to sustainability — there are variations, gradations and qualitative differences going far beyond the separation of balance of probabilities and reasonable doubt.[39] Quantifiable risk (expressed through the calculation of probability distributions) and scientific uncertainty (not capable of precise probabilistic expression) are a small part of the socially constructed and politically negotiated forms of ignorance relevant in sustainability policy, where irrelevance, surprise, confusion, taboo, distortion and other forms also exist. As many kinds of response are available as there are forms of ignorance, too: risk-assessment techniques, research and monitoring, legal standards, regret matrices for decision-making, spatial and temporal inference from limited ecological data sets, extended benefit-cost analyses, performance

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37 H Ingram and A Schneider (1991) 'Improving Implementation Through Framing Smarter Statutes' 10 *Journal of Public Policy* 67.

38 W Gullett (1997) 'Environmental Protection and the Precautionary Principle: A Response to Scientific Uncertainty in Environmental Management' 14 *Environmental and Planning Law Journal* 52; C Barton (1998) 'The Status of the Precautionary Principle in Australia: Its Emergence in Legislation and as a Common Law Doctrine' 22 *Harvard Environmental Law Review* 509.

39 M Smithson (1989) *Ignorance and Uncertainty: Emerging Paradigms*, Springer-Verlag; B Wynne (1992) 'Uncertainty and Environmental Learning: Reconceiving Science in the Preventative Paradigm' 2 *Global Environmental Change* 111; S Dovers and J Handmer (1995) 'Ignorance, the Precautionary Principle and Sustainability' 24 *Ambio* 92.

bonds, and others.[40] There is a complex intellectual and practical task, for lawyers and others, in establishing the basis for choosing between such different approaches under varying conditions. Especially, lawyers can play a part in establishing procedural links, if any, between the rather vague statutory instruction of the precautionary principle and the more detailed instruction in the Australian and New Zealand Risk Management Standard.[41]

- ◊ Recent years have seen much reform of government instrumentalities, with traditional statutory authorities corporatised or privatised, or absorbed into or at least drawn much closer to government. Accepting the need for reform of perhaps ossified statutory authorities, it is nonetheless unclear to what extent such reformations serve to deliver on sustainability goals, or social equity for that matter. Departmentalisation risks politicisation, while marketisation risks obedience to narrow and shorter term financial imperatives. The at-arm's-length nature of statutory authorities, their suitability to ongoing tasks of area management and information provision, and the potential to formalise the inclusion of stakeholder representatives are attractive features for persistent adaptiveness. Other features of statutory authorities (such as potential rigidity) may not be. Too little attention has been paid to whether traditional statutory authority structures could have been reformed in others ways to enhance delivery of emerging social goals such as sustainability.
- ◊ More specifically, the marketisation, to varying degrees, of resource management organisations — such as in water, energy and fisheries — is only beginning to receive detailed attention in terms of social and environmental implications. While much of this attention will primarily involve economists, biophysical scientists and social researchers to establish these implications, lawyers might pay close attention with a view to informing future design of regulatory frameworks, especially the scope, detail and statutory articulation of community service and environmental obligations.
- ◊ More generally, the involvement of lawyers in researching and designing adaptive institutions and organisation is highly desirable, in that the statutory requirements of these (it is claimed here) are critical to their prospects of survival, operation and success. Without legal status and expression, transparency, persistence and accountability will be inadequate.

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40 Dovers, Norton and Handmer (1996).

41 AS/NZS 4360. The Standard is in the process of being translated into a handbook for environmental management, and can be expected to inform much environmental management practice in future.

- ◊ Closer analyses of the comparative performance of different policy instruments, applied singly or in combination, under varying conditions is an essential yet scarcely attended task. Most of what we do is thoroughly experimental, even if we do not admit that. Policy instrument choice is all too often a matter of professional or disciplinary bias or of political or administrative convenience, and instrument performance monitoring and evaluation too often a poorly informed round of justification, digression and advocacy. Lawyers need to join forces with others such as economists, educators and scientists to test and evaluate each other's and their own favourite instruments in a critical fashion. For lawyers, the actual performance of regulatory approaches relative to the degree to which they were enforced should be of great interest.[42] So should the degree of reliance on legal underpinnings required by 'alternative' policy approaches.

- ◊ In terms of legal research and explication, there is significant potential for investigation of the detail of decision making under statutory instruction and implementation of regulations in complex natural resource management situations, where the outcome is a disallowing, alteration or permit for an activity.[43] This would entail investigation of the precise (or imprecise) procedures in place, the sources of information used by decision-makers, and the nature of any analytical or evaluative techniques used. Law-in-context research undertaken by lawyers with the input of others with expertise in public administration and organisational and group process could do much to elucidate the role of law in policy processes, and thus feed into reform of policy processes. Further, there is the potential to clarify implementation and decision-making as they take place in processes often opaque and mysterious to stakeholders (such as farmers in the case of vegetation clearance regulations).

- ◊ In an era of increasing community participation in resource and environmental management, there are difficult questions as to the nature, scope and structures of participation. Public participation is generally available in the form of short-term, expedient involvement of protagonists in policy debates, with participation not maintained once the immediate political issue is resolved or put off, where the community is recipient of funds through various programs, the nature and intent of which they have had very little say over, or in the

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42 For a case of enforcement and accountability deficit, see J Forsyth (1998) 'Anarchy in the Forests: A Plethora of Rules, an Absence of Enforceability' 15 *Environmental and Planning Law Journal* 338; for a more sanguine although not complacent view see J Tribe (1998) 'The Law of the Jungles: Regional Forest Agreements' 15 *Environmental and Planning Law Journal* 136.

43 This draws on Farrier (1999).

traditional project-by-project rights to know or challenge.[44] The challenge is to design longer-term, more transparent and genuinely informing and adaptive forms of participation.[45] Two areas invite the attention of lawyers. First, designing meaningful participatory regimes in policy and management over extended time scales is a particular challenge, and lawyers could do much to inform stakeholder groups, policy-makers and law-makers as to ways in which the statutory frameworks of policy and management can ensure the engagement of stakeholders in a clear, accountable fashion that is maintained. The other area for attention is the explication of basic legal settings as they affect resource and environmental management. Given increasing participation, cross-problem and multiple-jurisdictional linkages, and poorly defined and rapidly evolving policy and management responsibilities, a sound understanding of the statutory and institutional framework is an important tool for stakeholders. Generally in Australia, 'civics' — understanding of the political system — is regarded as problematically weak.[46] There is a strong likelihood that this is also the case in the environmental arena — indeed, it is probably even more pronounced, and adaptive approaches require a high level of 'environmental civics'.[47] Legal perspectives would be core to an environmental civics, but would need to be developed and presented in collaboration with other disciplines and professions, including ecology, education, history and public policy.

One aspect of addressing such challenges is to consider the role and contribution of a range of disciplines, sectors and professions in and to reformed policy processes. The law, dealt with here in a simplistic manner, is of course a complex and highly differentiated field, comprising sub-disciplines and professional specialisation across many aspects of the law. Interdisciplinary approaches, and those integrating across policy sectors and professions, are absolutely required, and very few proven methods or even theoretical propositions exist for guidance. Furthermore, the requisite connections between science, policy, law and communities are difficult to

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44 The latter of these have attracted by far the bulk of lawyers' attention — see, for example, D Robinson (1993) 'Public participation in environmental decision-making' 10 *Environmental and Planning Law Journal* 320.

45 These issues are discussed in S Dovers (1998) 'Community Involvement in Environmental Management: Thoughts for Emergency Management' 13(3) *Australian Journal of Emergency Management* 6.

46 Civics Expert Group (1994) *Whereas the People: Civics and Citizenship Education*, AGPS.

47 The 'environmental civics' argument is proposed in S Dovers (1999) 'Education and Sustainability: Repositioning Environmental Education at the Core of Policy through an Environmental Civics', paper presented at the International Conference on Environmental Education, Sydney, 14–18 January.

realise, and over-specialisation within any field will damage the prospects. It is insufficient for any discipline — the law or any other — to be satisfied with attending a small number of separate parts within the challenge of sustainability and the policy processes addressing it. For example, the law's contribution of cannot be divided too discretely between engagement in theoretical discussions, policy debates, framing of statutes, implementation and enforcement, common law foundations and responses, and communicating all these to other professions, disciplines and the community. Given that few of us are capable of being expert and engaged in more than some such dimensions, cooperative approaches are clearly demanded. The role of legal academics and researchers in this will be crucial, as they are unique within the legal sphere of having the opportunity (if not the mandate and responsibility) of engaging in interdisciplinary debate and theoretical and methodological development, and in education and training.

What this implies, of course, is a rather different field of policy and management than what currently exists in resource and environmental management, fragmented and scattered as it is across problems, disciplines, jurisdictions and portfolios. To achieve a more cohesive and effective policy field (the suggestions in this paper are a small sample of possibilities) will require concerted effort and cooperation amongst policy-makers, lawyers, scientists, communities and sectors.

Closing Comment

The nine (interrelated) issues sketched in the previous section, and the broader challenge referred to above, propose a general, tentative but workable menu for the law and lawyers in contributing to one version of what the modern idea of sustainability says that we should do. Creating persistent, participatory, informed and adaptive policy processes, institutional settings and management regimes would not be viewed as unimportant by many people, whether or not the particular construction given here is endorsed. It is clear enough that lawyers have a core role to play in this endeavour. Some may think that this role is being fulfilled sufficiently already; I would suggest not. The challenge, of course, is a mutual one: non-lawyers in these debates do not recognise sufficiently the legal dimension, and that is a fault on their part. The overtures will need to come from both sides.

So the above menu can be debated by lawyers as a challenge — I do not venture to guess what the outcome of the debate would be, but hope that the prospects for research and explanation by lawyers on these issues might be viewed as rewarding. Certainly the literature on and nascent practice of creating adaptive arrangements would benefit from more legal input. This is not to discount the value of the past and present work done in traditional areas such as case or administrative law — that should be maintained — it is rather intended to open new arenas of interdisciplinary engagement.

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