

Sustainability and Disaster Management

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Summary

Sustainability is a recent, integrative policy agenda often treated as unrelated to disaster management. This paper argues that not only are the two domains related, but are closely connected in terms of substantive issues and of underlying research and policy challenges. The paper examines shared attributes of problems in sustainability and disaster management, and identifies common challenges including: uncertainty; community engagement; integration of social, environmental and economic policy; inter-governmental and—inter-agency coordination; coping with public sector change; broader and deeper spatial and temporal scales; separation of public-private costs and benefits; and enhancing interdisciplinary R&D. The paper recommends closer substantive, R&D and policy linkages between the two fields, informed by an appreciation of where each has engaged in policy experiments that may yield lessons for the other.

- The elevation of protecting biodiversity and key ecological processes from marginal to high priority policy goals;
- Recognition of global dimensions and interdependences in environment and development issues;
- The integration of environmental, social and economic issues and policy, recognizing that issues of environment and development are indivisible (the ‘integration principle’);
- Adopting precautionary approaches in the absence of scientific certainty when serious or irreversible environmental degradation may occur (the ‘precautionary principle’);
- Addressing underlying (indirect) rather than only immediate (direct) causes of environmental and human degradation;
- The need to involve the broader community in policy debate and formulation and environmental management; and
- The need for new, innovative policy and management approaches, including incentive mechanisms, institutional change, and community-based approaches.

Sustainability: a primer

The idea of long-run sustainability of human societies has diverse and deep intellectual and practical roots going back centuries.¹ However, the idea was only placed formally on political agendas in 1987, accepted as a widespread international policy agenda in 1992, and reinforced again, in terms of its importance and our failure to make much progress, at the World Summit on Sustainable Development in 2002 (WCED 1987; UN 1992; and see www.johannesburgsummit.org). In summary, core elements of the policy agenda are:

- The balancing of inter- and intra-generational equity, providing for human needs now while conserving resources and opportunities for future generations;

These goals and principles are now stated in key international agreements and thousands of national policies and statutes. The UN has established a range of structures and processes, over seventy countries have established National Councils for Sustainable Development, and many sub-national governments have adopted sustainable development as an integrative policy goal and are putting in place structures and framework policies. At the national scale, Australia was an early leader in translating sustainability (albeit vaguely) into policy and law, but more recently the Commonwealth has backed away from the larger sustainability agenda, while state/territory, regional and local bodies are pursuing it more actively (Dovers 2002).

1. Sustainability can be thought of either as a fundamental system property, or as a long term, probably unattainable social goal, and sustainable development as the immediate policy agenda attending that goal. In Australia, the term ecologically sustainable development (ESD) is used in policy and law.

As a recently expressed, higher order social goal, sustainable development is contestable and evolving, but is beginning to be expressed more firmly and pervasively in policy and institutional systems (Connor and Dovers is now published—2003). It is likely that, over time, sustainability concerns will impose further limits or conditions on other policy sectors. Largely, this would involve more emphasis on issues already familiar, such as biodiversity protection, sustainable use of land and water resources, greenhouse gas emissions (including land use aspects), pollution, and so on. Disaster and emergency management will be expected to take greater account of these concerns in their policies and activities, just as other policy sectors will be.

On a more positive note, whether we consider the whole sustainable development agenda or subsidiary issues within it, there are commonalities with disaster and emergency management. Consider Salter's (1998) summary of the shifting emphasis in emergency management:

From:	To:
Focus on hazards	Focus on vulnerability
Reactive	Proactive
Single agencies	Partnerships
Science-driven	Multi-disciplinary
Response management	Risk management
Planning for communities	Planning with communities
Communicating to communities	Communicating with communities.

Change a few words and this would pass as a summary of recent shifts in resource and environmental management and is consistent with the emerging agenda of sustainable development (see Dovers and Wild River 2003). Moreover, it is clearly the case that disasters are threats to the sustainability of communities, and often to the environmental resources that those communities depend on. Also, as emphasis has shifted from 'natural' disasters (as Divinely ordained) to risks enhanced by human production, consumption, settlement and policy choices, the interaction with sustainability and human development issues has become more obvious. The following, brief discussion identifies interconnections between sustainability and disasters as research and policy and management problems—firstly the more obvious, substantive connections, and then some deeper similarities exposed by a consideration of shared problem attributes. The case of bushfire will be used to illustrate some of the points (see Cary et al now published—2003).

Substantive interconnections

Most resource and emergency managers can identify areas of substantive interaction, where they meet 'in the field' or in management and policy conflicts, and we can simply note some major ones here. Many key hazard or disaster types have clear resource and environmental dimensions, and vice versa. Planning for and responding to floods brings emergency managers into close proximity with water resource managers and those concerned with conservation of aquatic and riparian ecosystems. Chemical and oil spills and other sharp pollution events involve both emergency managers and environmental protection agencies. Changes in cyclone and storm surge frequency interest both emergency managers and environmental scientists, and responses to these threats are common ground with coastal zone managers. Bushfire sees emergency and conservation area managers fight fires together, and sometimes with each other before and after events. With fire, there is demonstrably insufficient integration of policy and management arrangements for community safety, event preparedness, land use planning, primary production, biodiversity conservation and water catchment management. In such interactions, the questions arises of whether on-ground management coordination is adequate, and whether there is sufficient pre-event integration and reconciliation of the (sometimes different, sometimes not) interests and objectives of the two policy and research communities. That is a more familiar question, not pursued further here.

Deeper interconnections

Beneath day-to-day encounters and how well we deal with them lie deeper connections around the nature of the challenges faced in disaster management and sustainability. At this level are exposed strategic collaborations in research and policy development. The following deals with three, related aspects: understanding phenomena in natural and human systems; attributes of policy problems; and responses to public sector change.

On the first aspect, that there are similarities should not be surprising—both sustainability and disaster management are about managing interactions between complex human and natural systems, and thus often will be concerned with understanding the same phenomena. This indicates some obvious common research interests such as climate change and fire behaviour and fuel dynamics, and some less obvious ones, such as individual and group perception of risk and uncertainty, community vulnerability and resilience in the face of environmental change, or the role of informal social institutions in shaping community capacity.

On the second, we can delve beneath a list of shared issues (fire, water management, biodiversity conservation, flood, etc), and explore the attributes of these policy and management problems that determine their character and tractability. The following are the *attributes of policy problems* that are encountered more commonly – and more often in combination – with significant sustainability issues than in many other policy sectors (Dovers 1997):

- broadened, deepened and highly variable spatial and temporal scales;
- possible absolute ecological limits to human activity;
- irreversible impacts, and related policy urgency;
- complexity within and connectivity between problems;
- poor information, and pervasive risk and uncertainty;
- cumulative rather than discrete impacts;
- important assets not traded in formal markets and thus rarely given economic value;
- new moral dimensions (other species, future generations);
- ‘systemic’ problem causes, embedded deeply in patterns of production, consumption, settlement and governance;
- difficulty in separating public and private costs and benefits;
- contested research methods, policy instruments and management approaches;
- lack of defined policy, management and property rights, roles and responsibilities;
- strong demands and justification for increased community participation in both policy formulation and actual management; and
- unfamiliarity and novelty as a suite of problems.

While these attributes often serve to make policy problems in sustainability different in kind – if not degree – to many other problems, that is not so with disaster and emergency management. Many of these

attributes would be familiar to emergency managers, and serve to define some similar research and policy challenges. The temporal scale and pervasive uncertainty associated with both sustainability and disasters begs long term policy processes constructed on the basis of often grossly insufficient data. The unclear mix of private and public costs and benefits is familiar in both fields, as is the need for inter-agency and inter-governmental structures and processes in the face of broad spatial scales and connectivity between problems. The imperatives and difficulties of community engagement, if not empowerment, are similar also. The deep-rooted (‘systemic’) causes of environmental degradation mirror the firmly embedded causes of unsafe behaviours and settlement patterns, and beg innovative policy programs. Research and policy approaches for integrating environmental, social and economic concerns are needed but lacking in both fields. And so on, with most of the problem attributes listed. Indeed, the main difference between sustainability and disasters is that between quick-onset and slow-onset environmental change. That difference explains what I perceive as a greater capacity for purposeful policy learning in emergency rather than natural resource management: with the former, the costs of policy failure, if lessons are not learned, are encountered more quickly and with sharper political and community backlash. There is clearly scope for collaboration in research and policy learning between fields with such similarities.

The third aspect of deeper connections is an added dimension to these commonly-faced problem attributes: how these two fields are coping with the political environment of the late-modern age. Over the past two decades, public policy, public institutions and the public sector have undergone (and continue to undergo) profound changes. ‘Economic rationalism’ is the common and often derogatory term, but is vague and often inaccurately applied. Better the awkward but more precise term ‘marketisation’, including specific and familiar manifestations such as privatization,



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Disaster management and sustainability issues are sometimes inextricably linked

corporatisation, out-sourcing, contracting out, different modes of accountability, and public sector downsizing. Related is 'new managerialism', where generic (often neo-classical economic) principles gain dominance over sector-specific knowledge and skills. These trends have produced a number of as yet poorly addressed tensions in environmental and resource management, including long term public good versus short term financial considerations, the fate of residual environmental protection functions, cross-catchment and landscape integration in the face of new agency mandates, and the public as citizens or consumers (Dovers and Gullett 1999). Similar policy changes have occurred in emergency management (Kouzmin and Korac-Kakabadse 1999), and there would be scope for exploration of the impacts of these changes, and responses to them, across the two fields.

A second political trend has impacted on both—advocacy of and moves to more participatory (or discursive, inclusive, deliberative) modes of political debate, policy formulation and implementation of policy programs. Australia is famous for both its volunteer-based emergency management arrangements (and is experimenting with new community-based approaches to risk management), and for its community-based environmental programs (particularly, but not only, Landcare). Cross-sectoral learning should be possible, exploring these kinds of programs across the two fields. Moreover, the challenges to such approaches mounted by, on one hand, recent apparent declines in political trust associated with a rise in populist politics and, on the other, emerging suspicions that reductions in public sector capacity in both fields equal derogation of government duty rather than devolution of power, might be fruitfully explored.

(A note: these similarities are evident across disasters and sustainability, but also in other policy sectors, providing scope for a wider exploration of collaborative

research and policy learning potential across the 'cognate policy sectors' of resource and environmental management, emergency management, public health and community and regional development. That represents a larger task not addressed here.)

Policy and research implications

Considering policy and research implications of the above, not all will unfold collaboratively—constraints will be imposed on disaster management by concern over impacts of the sustainability of ecosystems and resource systems, as they have in the past. Constraints will also quite rightly be placed on resource and environmental management by concerns of human safety and property protection. The recent, acrimonious and poorly informed debates over fuel reduction burning and fire trail maintenance in conservation reserves after the 2002–03 fire season is a case in point. It is difficult to predict which imperative – human safety or ecological integrity – will have political dominance, and the balance will surely vary case-by-case and over time. There is plentiful scope for R&D and policy development processes that would inform both domains, and at least would ensure that debates in future are better informed than in the past.

More positively, we can consider some bases for developing shared interests. To spark further discussion, I will propose three areas and some illustrative examples: R&D topics and policy initiatives; areas of active policy and management learning; and structures and processes to enable such learning.

First, what kinds of R&D topics, and policy measures, can achieve synergistic benefits for both fields, or at least avoid inconsistencies or duplication between them, or at the very least allow more informed debates and trade offs? Some obvious candidates emerge, such as the currently missing coherent, national register and mapping of fire events. Other areas include climate change impacts in the coastal zone, exotic pests and pathogens, management applications of spatial data; and human perceptions of environmental risk and variability.

Second, it would be useful to identify, through some kind of broad discussion and subsequent analysis, more specific policy and management 'experiments' in the two domains where useful experiences could be shared. This may be where one domain is further advanced than the other in some regard, or where the application is sufficiently different to allow comparative analysis. One example is the different patterns of translation of the Risk Management Standard (AS/NZS 4360 1999) into operational form, an area where emergency management has proceeded further. Others include: the many experiments in whole-of-government and cross-portfolio measures in environmental management; that field's more extensive (but still experimental) use of deliberative methods such as consensus conferences and

citizen's juries; the variable experiences with major community-based approaches such as Landcare and volunteer fire brigades; intergovernmental structures and processes in the two fields in a federal system; and emergency management's experiences in communication and coordination through Emergency Management Australia (EMA) and its Institute.

Third is the issue of the structures and processes to enhance linkages, that are currently missing or fragmentary. Consideration of sustainability issues at this disaster conference is one measure. The Bushfire CRC is another point of interaction, as is the Centre for Risk and Community Safety (EMA, RMIT University, Australian National University). In general terms, there needs to be effort to maintain whole-of-field links between the two fields, as well as collaboration and comparison on specific issues—the similarities between flood, fire and storms in the emergency sector match the similarities across water, coastal zone, forest and fisheries management in the sustainability domain. While EMA represents a recognizable whole-field contact point in emergency management, the environmental and resource management field is less coordinated. The best single entry point in an R&D sense is Land & Water Australia, the sustainability-oriented R&D corporation amongst those established under the *Primary Industries and Energy Research and Development Act* 1989, but, some ministerial councils notwithstanding, a peak policy and management contact point is missing. However, it is certainly the case that the R&D infrastructure and quantity of human resources is significantly larger in natural resource than emergency management. On the issue of human resources for policy-oriented R&D, the increasingly common mature-age PhD researcher with relevant work experience often represents the only available means of undertaking rigorous, time and labour intensive analysis to meet strategic knowledge needs.

Having made, or perhaps belaboured, the point about similarities and potential lessons, a qualification is necessary. Unthinking transfer of policy or management interventions from one context to another will always be unwise, and possibly downright dangerous. Learning across policy and management sectors demands careful analysis of cases, and equally careful transfer of any lessons gained, whether those are positive or negative (we can learn from both policy success and failure, and in fact a mixture of success and failure is normally evident).

Concluding comment

The argument of this paper can be reiterated: disaster and emergency management have much in common with sustainability, and with the environmental and resource management sectors that combine beneath that general idea. At present, those common interests are not very often pursued, and certainly not in a coordinated and sustained manner. Given the latent character of those connections, it would be unlikely that structures and processes to enhance linkages will be resourced without better evidence of the potential for joint R&D programs or policy processes, a small range of strategic, targeted collaborations between existing groups over the next few years would be a sound way forward. Defining those few strategic collaborations is the next step, taking into account more possibilities than the illustrative examples given here. Once that is done, we can take advantage of one of the core realities of modern politics (and research funding)—coalitions of interest and advocacy will always achieve more than uncoordinated, separate efforts, even where the latter are already pursuing common goals.

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