

Planning Systems Theory: Building Better Systems of Integrated Regional NRM Planning for Sustainable Natural Resource Use.

Dr Allan Dale¹ and Stuart Cowell²

¹ Queensland Department of Natural Resources, Mines and Energy, Brisbane.

² Bush Heritage Fund, Hobart.

Both authors acknowledge that development of the development of significant aspects of the intellectual property within this paper evolved while employees of CSIRO Sustainable Ecosystems.

Abstract

To date, planning theory and reviews of planning practice have largely focused on the role of the planner in society rather than the role of planning within society. The development of planning theory from the comprehensive, rational approaches of the 1940s to more communicative and adaptive forms of planning of the 1990s has largely evolved from academic critiques of specific purpose planning activities within National, State or local planning authorities. Only recently, have some planning theorists extracted themselves from analysis of such discrete planning activities and explored the role of such activities within a wider societal context. There has, however, been little attention in the theoretical literature concerning what constitutes a good system of planning for society to operate sustainably and equitably.

When undertaking discrete planning activities, individual agencies should examine their role with respect to the overall planning system; how do they relate politically to other agencies, spheres of governance and community/ industry sectors?; what do they know about the planning problems of other groups and sectors?; what really is their capacity to achieve their stated planning objectives?; and, what interests are being served by their planning activities? Without considering these and other contextual issues, the resultant planning activities may produce inequitable, poorly coordinated, unstructured and ineffective results at the societal level. An increasing international literature points to such systemic planning failures.

For this reason, we postulate the need to break with planning theory's pre-eminent derivation from the perspective of the task of planning at any level. In its place, we consider that all planning activity needs to be placed more clearly in the context of the overall planning system within which it operates, and that system, in turn, placed in the societal context in which it operates. This paper first argues that planning theory should increasingly explore the operation of overall systems of planning at the global, national, state, regional, local or project levels. It then outlines the key principles and elements of healthy planning systems and how they apply to building sustainable natural resource systems at the regional level.



INTRODUCTION: WHAT THIS PAPER HOPES TO ACHIEVE

This paper aims to promote introspection and reformulation of the overall theoretical base of planning for sustainable natural resource management. While we hope this will concurrently impact on praxis, this is not its focus. Critiques of planning first proposed by practitioners and theorists such as Davidoff (1965) and Freidmann (1973), and currently being rediscovered were, we believe, the beginning of this process. Recent developments in planning theory such as the communicative/ post-modern schools, have presented more recent challenges to the way we view planning; having revitalized the examination of the role of planning in society. Combined with developments in ecological theory based on systemic and adaptive perspectives, and the emergence of sustainability and equity as key policy concepts in resource use, these planning perspectives can refocus planning (particularly regional planning) for sustainability.

PLANNING THEORY IN CONTEXT

From rational to communicative planning

Dale and Bellamy (1998) illustrate that, when Government agencies undertake natural resource planning in Australia, they often presume control of the planning arena (i.e. the spatial or issues-based boundaries that are the focus of planning). Secure in this assumption, there may be varied attempts to undertake consultation or limited negotiation with affected stakeholders. Ultimately, however, decision-making stays firmly within the agency's control, even though attempts may be made to manage the socio-economic consequences.

The end result of such approaches to natural resource planning is usually a set of outcomes that meet the needs of a particular set of stakeholders; predominantly the responsible Government agency and its key clients. It does little, however, to mediate the complex perspectives usually involved in resource management issues, and the perspectives that originate at the international, Federal, State and local government levels. At any particular spatial scale, this may include perspectives from a vast range of industry (e.g., mining, cotton, grazing) and community sectors (particularly the conservation, indigenous and human service sectors). Even within key sectors, there are conflicting and multiple resource use perspectives at any particular spatial scale.

Planning theory has, by any measure, shifted from such rational/ technocratic perspectives of planning practice, institutionalised by government agencies, toward more sophisticated communicative/ post modernist views of planning (see McDonald 1989). Such views acknowledge that the planning environment (or arena) can be more accurately described as a complex web of bargaining and negotiation among plural interests (including community, industry and Governments).

In planning practice, however, there remains an ongoing debate between those who apply planning as a technical scientific process and others who propose a political process of negotiation and trade off among competing interests in resource use. This perhaps reflects the divide between those with functionalist (i.e., society sharing common goals) versus pluralist views of society.

Rationalist planners (functionalists) continue to see agency-driven, goal-oriented planning as having unassailable legitimacy. So, while the planning literature of the 1990s rarely advocates rationalist planning in isolation from the political and social context, deterministic rational planning approaches are still frequently employed by Australian resource use planning agencies (see Cowell 1996).

Understanding the planning context

Bryson and Delbeque (1979) and Dale and Lane (1994:253) contend, that subscribers to either one of these two schools are not fundamentally in error. Instead, they suggest that these debates have arisen from misunderstandings about the context in which particular planning activities have been applied. The debate also arises from the term “planning” being poorly defined among various sectors and professions. For the purposes of this paper, we refer to planning as being the processes used by individuals, groups or collectives of groups to determine an agreed vision, set objectives, determine strategies and monitor and evaluate outcomes. The planning problem, in this case, being the establishment and maintenance of a sustainable and fair society; with spatial contexts ranging from the global to the project scale.

The context in which planning operates (see Figure 1) can be extremely variable and depends on the distribution of power within, and the scale of, the planning arena. Table 1 outlines the modes of planning best applied in these different contexts. When the planning community comprises many stakeholders, their competing objectives need to be satisfied to a reasonable degree if the planning outcomes are to be equitable. It remains important, however, that planning by negotiation remains informed by a core of technically sound methods for issue assessment and strategy development (e.g., Bryson and Delbeque 1979). Most, if not all natural resource use planning, however, occurs in both highly political and data poor contexts. As such, the mode of planning adopted should balance the need for Government intervention with the empowerment of communities to negotiate successful futures.

TOWARDS A SYSTEMS-BASED VIEW OF PLANNING

Why plan? In any critical analysis of planning, this question has not been asked often enough to allow effective development of planning theory and practice. In recent years, however, there has been a convergence of perspectives within a number of fields (including economics, ecology and planning) toward a ‘systemic’ view of interactions and relationships between system components. A key learning from this is that nothing happens in isolation, and therefore activities are ‘nested’ within contexts; be they

biophysical or social. Even the biophysical/ social distinction is itself problematic. Planning theory therefore needs to embrace this organic understanding, and from a renewed foundation, examine its role.

What then is a planning system? Planning is largely regarded as a discrete specific purpose activity undertaken by an agency or organisation. However, in any given region (eg catchment) or context (eg rangelands) there are many planning activities occurring. Collectively, they comprise the planning system. Like all systems, any planning system consists of apparently discrete units or activities that are linked to varying degrees. The performance of one activity impacts the other. The whole behaves, to a greater or lesser extent, as an entity. The biosphere, for example, is a system into which is nested ecosystems, habitats etc. So too is planning (even though it is a totally dependent variable unlike ecosystems).

The natural resource planning system therefore is the sum of planning activities at different temporal and spatial scales as it impacts on natural resource management at any given temporal or spatial point. Understanding the system requires thinking about planning purpose, not just planning practice. Any planning system comprises multiple stakeholders (e.g., Government agencies, industries, indigenous communities, etc.). All undertake planning of one form or another to achieve their own value-based objectives. The health (ability to achieve sustainability and equity) of the planning system depends on the collective understanding each has of natural resource management problems, the institutional support for stakeholders to negotiate through issues and the capacity of these groups to participate in an inherently political process.

The three cornerstones of healthy planning systems

Following a review of planning literature and practice, Dale and Bellamy (1998) proposed core elements that theoretically lead to improvements in the *vitality* (or the health) of the system of planning for natural resource use at various scales (see Figure 2). In general, resource use planning at any scale must facilitate equitable negotiations among key stakeholders. This requires attention to three primary system elements:

- (i) **Knowledge:** the application of technically sound social, economic and environmental knowledge, assessment and monitoring procedures;
- (ii) **Connectivity:** the establishment of appropriate institutional arrangements which support connectivity, integration and equitable negotiations among stakeholder interests; and
- (iii) **Capacity:** the operation of clear mechanisms to build the capacity of individuals and stakeholder groups involved in the use and management of resources.

In short, progressive societal attention to continuous improvements in all three of these key elements is needed to achieve sustainability and equity at any scale. Traditionally however, to address identified planning problems (e.g., rapid population growth) most planning agencies respond by seeking to impose new, poorly integrated planning activities within an already complex set of existing activities and arrangements.

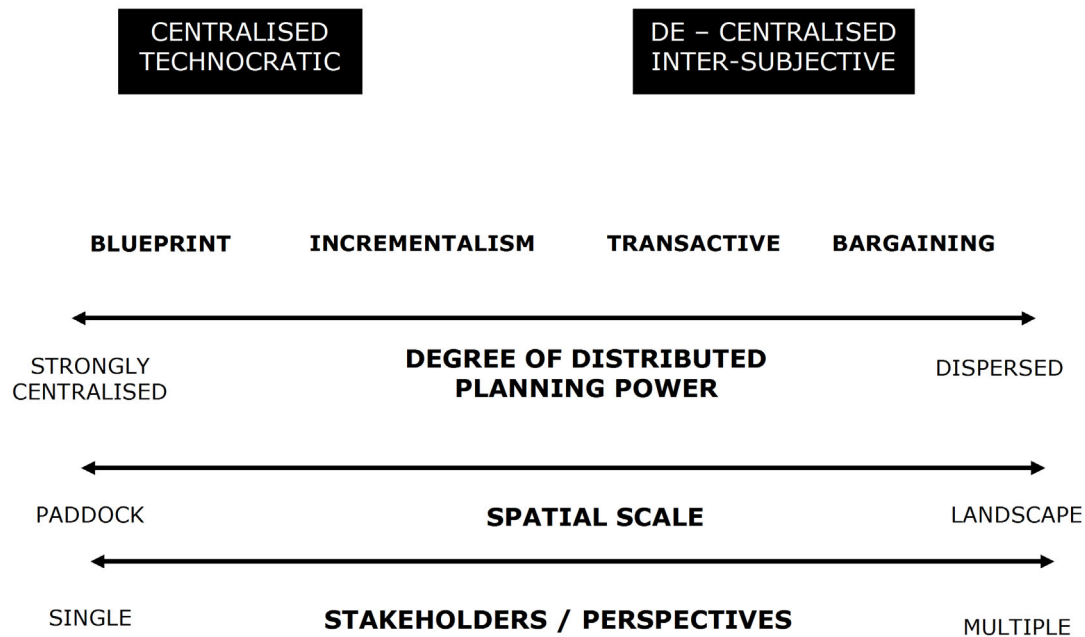


Figure 1. Planning's Dependence on Contextual Issues (Particularly Scale and the Distribution of Power).

Table 1. Modes of Planning Appropriate in Different Contexts

	DISTRIBUTION OF POWER WITHIN THE PLANNING COMMUNITY		
	STRONGLY CENTRALISED	WEAKLY CENTRALISED/ FRAGMENTED	DISPERSED
VIEW OF PLANNING	Rational, centralized decision making	Weakly centralized decision making encouraging participation	Bargaining and negotiation among stakeholders within the constraints of law
STYLE OF PLANNING	Rational / technical	Participatory	Political / bargaining and negotiation
ROLE OF PLANNERS	Bureaucratic / technical	Advisor / facilitator	Advocate of particular stakeholders or mediator between them
ROLE OF PLANS	Central technical plan based on presumed societal values	Central plan balances the view of different stakeholder groups	Each stakeholder group develops its own plan as a basis for bargaining and negotiation

Modified from Friedmann (1973:71).

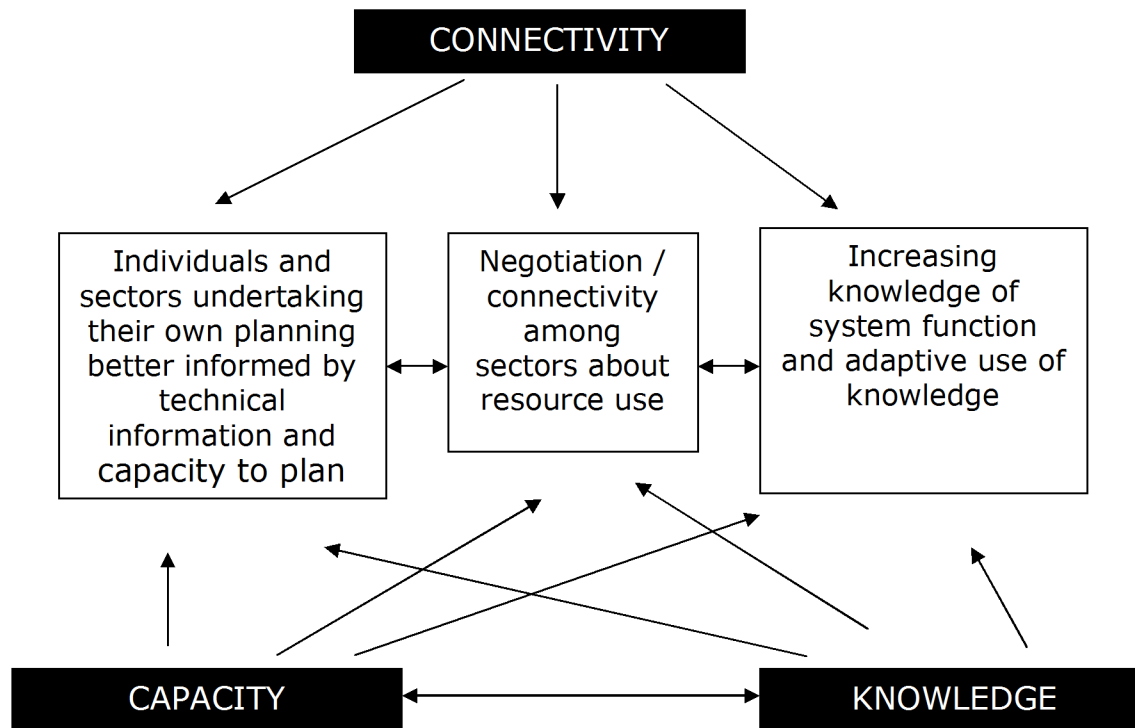


Figure 2. The Three Cornerstone Elements of a Healthy Planning System for Sustainable Natural Resource Management.

Knowledge: understanding the planning arena

Improving the system of planning in any planning arena requires coordinated and integrated research that leads progressively to an improved technical understanding of how the arena functions in a biophysical, social, institutional and economic sense. As knowledge improves, this new knowledge needs to be linked to adaptive advances in the strategies stakeholders are using to achieve regional sustainability and equity.

Traditional approaches to resource use planning have tended to operate through “one off” specific purpose strategic planning activities carried out by individual agencies. At most, these strategic planning activities are formally reviewed over discrete periods of time (e.g., the formal review of planning schemes every five years under Queensland’s *Integrated Planning Act*). Many involve inflexible statutory processes. Few have the flexibility needed to be adaptive to changes in our technical understanding of how the world functions at various scales. Even fewer apply the most up to date methods of social, economic and ecological assessment. This problem often arises from resource and capacity limitations in planning agencies.

Connectivity: linkages within the planning system

With most resource use planning focussing on the development of isolated actions or on-ground projects within the planning system, there is rarely consideration of the institutional ‘environment’ supporting the planning activity or the reforms needed to improve the overall ability of the system to function sustainably. This is still the case

despite the fact that the success of isolated planning activities ultimately depends on reform in institutional arrangements for planning within the agencies that implement them. Particular focus needs to be applied to:

- improving the internal connectivity within all key agencies (e.g., State government agencies, local government, Integrated Catchment Management groups, etc.) and sectors (e.g., the pastoral sector, the conservation sector) with responsibility for resource management;
- increasing the degree of connectivity and integration between the planning and management activities of those agencies and sectors;
- providing improved institutional arrangements to encourage equitable negotiations both within and between agencies and sectors.

Agencies pursuing their own planning agenda usually work on the presumption that the existing institutional arrangements (particularly within the agency doing the planning) are fine. In particular, little effort is placed in building institutional arrangements that explicitly encourage negotiation between the stakeholders involved. Planning has focused on the development of scale-dependant structure plans (outputs) used by single purpose agencies to regulate resource use, rather than as frameworks to negotiate solutions to conflicting interests. Such planning is rarely effective in either reaching binding agreements between stakeholders or in managing conflict when development proposals are received by regulatory agencies.

Capacity: the ability to get things done

Finally, anything that can develop the planning capacity of individual, agencies and sectors with responsibility for natural resource management within the planning system will assist in improving the system's vitality. In capacity development, particular attention needs to be paid to:

- raising the level of understanding of individuals and the constituents of stakeholder groups regarding the significant resource use and sustainability issues at hand;
- increasing the access that individuals and stakeholder groups have to information of importance to natural resource management;
- ensuring that appropriate technical, skills and financial resources are made available to plan, or ensuring that existing resources are used efficiently;
- ensuring that stakeholder groups develop a clear mandate from their constituents and establish and maintain effective representation mechanisms;
- improving the ability of institutions to support planning and negotiation;
- improving the negotiation capacity of key stakeholder groups in the system.

Again, capacity development needs to occur in an equitable way. Focusing on one or two key stakeholder interests within a planning system at the expense of others is likely to lead to inequitable outcomes. In reality, traditional approaches have tended to only develop capacity within one significant stakeholder; the agency undertaking the planning activity. Equally, capacity development effort needs to be spread fairly among the constituencies that stakeholder groups represent.

Principles that underpin the key systems elements

In exploring the three key elements for healthy planning systems, Dale and Bellamy (1998) identified a number of consistent principles that need to be applied in judging whether or not all elements of the planning system are working. They include ensuring that attention given to the three core elements is adequate and adaptive and is implemented in a sustainable, accountable, equitable, integrated, effective and efficient way.

Sustainability

In current thinking about natural resource management there is now a high acceptance of the need for planning to achieve sustainable resource use outcomes. The concept is critical as a check across all planning elements. A significant problem with applying the sustainability principle is reflected in academic and public debate concerning how it can be measured or defined (e.g., see Goodland and Daly 1995). Another problem has been that there has been limited integration of the concepts of social, ecological and economic sustainability. Importantly, sustainability needs to be seen as a process, not a state, and measurement of the health of the planning system in sustainability terms should focus as much on temporal and process issues, as it does outcomes.

Equity

Directly linked to the concept of sustainability is the concept of equity or fairness. McCredlin *et al.* (1997) consider that equity, however it is defined, is a key principle in natural resource management as it is closely associated with an individual's overall judgement of the inherent fairness of the planning process. Those people who for whatever reason do not see the process as being a fair are less likely to participate.

Equity considerations should be the over-riding check in improving access to information, in establishing structures and processes for negotiation, as well as in designing participation within stakeholder groups. The equity of the planning process will not only determine the willingness of groups to participate, but it will determine their commitment to implementation. It will also underlie the consequent social and economic impacts arising from implementation that are experienced by marginalised groups. Poor attention to equity issues will eventually undermine the long-term viability of the planning outcomes because of uneven development and the possibility that conflicts will emerge or re-emerge at some time in the future.

Accountability

Any planning activity needs to be accountable to the stakeholders who have a legitimate role to play (and to broader community goals). The general need for governments to be accountable to their constituents clearly should be reflected in any planning system. In turn, the representatives of all stakeholder groups need to be accountable to the constituents of their groups.

Integration

Central to many of the problems faced by many discrete planning activities to date is the poor level of integration between planning disciplines, planning activities and institutional arrangements (e.g., see Slocombe 1993:289). Poor integration results in inefficiencies and inequities and ensures that the planning system favours, for example, economic rather than social or environmental objectives.

Adequacy

The concept of adequacy also needs to be applied in checking that technical, negotiatory and participative elements of a planning system are working. It asks whether particular interventions are being applied at sufficient levels to get the job done. One example may be that a planning process may redistribute human services in a region to make access more equitable and to improve the efficiency and effectiveness of the services delivered. This does not necessarily mean, however, that the total level of services provided is *adequate* to meet demand. The concept, for example, can also be applied to the distribution of biogeographic reserves. While lands allocated may be appropriately located to protect biodiversity, they may not be an adequate size. Conversely, it is easy to consider how there could be adequate allocations of land provided in inappropriate or ineffective locations.

Effectiveness

Within planning systems there is also need to keep a constant view on planning activities resulting in effective and meaningful outcomes (and not just outputs such as planning documents). Most decisions about planning activities need to be made with the view that they will result in substantive improvements in the way that the planning system operates and the way that natural resources are managed. This is often a critical failing of planners who view their activities as being technical and data driven. This view will not foster the development of an effective framework for negotiating change among those players with the most significant roles in resource management.

Efficiency

Effective outcomes from planning systems should not be considered in isolation from their costs. The efficiency of outcomes can be measured both numerically and in a qualitative sense. Efficiency represents the outcomes achieved for the inputs used during planning activities. The optimal mix of inputs and outputs is also an important consideration. Efficiency considerations provide an understanding of the relationship between inputs and outputs in planning. There are frequent examples of planners reducing measures for public participation on the presumption that it “costs too much” without giving adequate consideration of how much it may reduce the value of the outcomes achieved (see Howlett 1996). Susskind (1987) considers that swift outcomes often result in false hope as, if disputes are not fully resolved, they merely shift to another planning activity. On the other hand, public participation programs may be applied in a non-strategic way, costing more for limited outcomes.

Adaptive capability

Finally, planning systems need to demonstrate a capacity to make strategic and operational change as changing circumstance or knowledge presents. Adaptive capability is critical in complex systems where knowledge and technology is continually improving, and where plan implementation can lead to unexpected consequences. An adaptive culture needs to be built into the institutional arrangements that support resource-planning activities.

CONCLUSIONS: THE BENEFIT FOR PLANNERS OF WORKING IN A PLANNING SYSTEMS FRAMEWORK.

All planners already work (usually on discrete activities) within a complex planning system. Moving to more sustainable and equitable natural resource management at any scale, however, will rely on planners recognising this to be so and using that knowledge to improve their individual planning activities. Planners can significantly improve their planning outcomes by:

- (i) understanding the notion that a planning ‘system’ exists rather than focusing purely on their own discrete activities;
- (ii) designing and evaluating their work plans in the context of the three planning system cornerstones; and
- (iii) monitoring the success of their activities against the eight planning system principles.

Doing this does not mean that all planners have to become dedicated to managing the health of the overall planning system. This is an impossible task for even the most skilled planners. They simply have to ensure that the contribution they make through their own discrete planning activities are leading to tactical and strategic improvements in the overall system. For example, does setting up a new planning advisory committee for a particular planning activity simply duplicate some existing regional advisory structures.

More importantly, thinking in this planning systems context allows planner to select the most appropriate operational mode for their particular planning activity, and to understand how best to integrate their work to the overall benefit of the planning system at any particular scale. As a side benefit this planning systems framework (including the three cornerstones and the eight principles) provides an excellent framework for evaluating both individual planning activities *and* the health of the overall planning system.

In recent years, planning theory has, in many ways, stagnated through limited examination of the role of planning within planning systems and too much emphasis on the analysis of activity-based praxis. In this paper, we embrace material from related

fields to give planning theory a boost toward a more relevant understanding of its role and function in society and sustainable natural resource management. This work, however, is in its infancy and requires significant research (particularly in the development of improved definitions and the structured measurement of indicators).

REFERENCES

- Bryson, J.M. and Delbeque, A.L. (1979). A contingent approach to strategy and tactics in project planning. *Journal of the American Planning Association* 45:167–179.
- Cowell, S. (1996). *Aboriginal interests and the Century Zinc proposal: Resource planning, development and impact assessment in the Gulf of Carpentaria*. Honours thesis, Griffith University, Brisbane.
- Dale, A.P. and Lane, M. B. (1994). Strategic Perspective Analysis: A procedure for participatory and political social impact assessment. *Society and Natural Resources* 7(3):253–267.
- Davidoff, P. (1965). Advocacy and pluralism in planning. *Journal of American Institute of Planners* 31:311–8.
- Friedman, J. (1973). *Retracking America*. Anchor Press, New York.
- Goodland, R. and Daly, H. (1995). Environmental sustainability. In Vanclay, F. and Bronstein, D.A. *Environmental and social impact assessment*. Wiley, Chichester.
- Howlett, C. (1996). *The importance of organisational contexts in land use planning: A case study of the Cape York Peninsula Land Use Strategy*. Honours Dissertation, Faculty of Environmental Sciences, Griffith University.
- McCreddin, J., Syme, G., Nancarrow, B., George, R. (1997). Developing fair and equitable land and water allocation in near urban locations: Principles, processes and decision-making. Australian Research Centre for Water in Society, Division of Water Resources, Consultancy Report No. 96–60.
- McDonald, G.T. (1989). Rural resource land use planning decisions by bargaining. *Journal of Rural Studies* 5(4): 325–335.
- Slocumbe, R.S. (1993). Environmental planning, ecosystem science, and ecosystem approaches for integrating environment and development. *Environmental Management* 17(3):289–303.
- Susskind, L.E. (1987). *Breaking the impasse: Consensual approaches to resolving public disputes*. Basic Books, New York.